FACULTY OF SCIENCES

SYLLABUS

of

B.Sc. Medical

(Semester I –1V)

(Under Continuous Evaluation System)

Session: 2019-20

The Heritage Institution

KANYA MAHA VIDYALAYA

JALANDHAR

(Autonomous)

KanyaMahaVidyalaya, Jalandhar (Autonomous)

CURRICULUM AND SCHEME OF EXAMINATIONS OF THREE YEAR DEGREE PROGRAM

B. Sc. (Medical)

Session-2019-20

B.Sc (Medical)SemesterI								
Course Code		**Course Name**	**Course Type**	**Marks**				**Examination time (in Hours)**
				Total	**Ext.**		**CA**	
					L	**P**		
BSML-1421 BSML-1031 BSML-1431		Punjabi(Compulsory) [1]Basic Punjabi [2]Punjab History &Culture	C	50	40	-	10	3
BSML-1212		English (Compulsory)	C	50	40	-	10	3
BSMM-1483	(I)	**Zoology** (Cell Biology)	E	100	60 (30+30)	20	20	3+3+3
	(II)	**Zoology** (Biodiversity-I)						
	(P)	**Zoology** (PRACTICAL–I-Related To Cell Biology & Biodiversity-I)						
BSMM-1343	(T)	**Microbiology** (Fundamentals of Microbiology)	E	100	60	20	20	3+3
	(P)	**Microbiology** (PRACTICAL- Related to Fundamentals of Microbiology)						
BSMM-1084	(I)	**Chemistry** (Inorganic Chemistry–I)	C	100	60 (30+30)	20	20	3+3+3½
	(II)	**Chemistry** (Organic Chemistry–I)						
	(P)	**Chemistry** (Practical)						
BSMM-1075	(I)	**Botany** (Diversity of Microbes)	E	100	60 (30+30)	20	20	3+3+3
	(II)	**Botany** (Diversity of Cryptogams)						
	(P)	**Botany** (PRACTICAL–I -Related To Paper-I and Paper II)						
BSMM-1255		**Food Science** (Food Chemistry and Nutrition)	E	100	60	20	20	3+3
	(P)	**Food Science** (PRACTICAL- Related to Food Chemistry and Nutrition)						
BSMM-1046	(T)	**Bioinformatics** (Fundamentals of computers , molecular biology & rdna)	E	100	60	20	20	3+3
	(P)	**Bioinformatics** (Lab in fundamentals of computers, molecular biology & rdna)						
AECD-1161		*Drug Abuse: Problem, Management and Prevention (Compulsory)	AC	50	40	-	10	3
SECF-1492		*Foundation Programme	AC	25	25	-	-	2
Total								

C-Compulsory
E-Elective
AC- Audit Course
[1]Special paper in lieu of Punjabi (Compulsory).
[2] Special paper in lieu of Punjabi (Compulsory) for those students who are not domicile of Punjab.
***Marks of these papers will not be added in total marks and only grades will be provided.**

KanyaMahaVidyalaya, Jalandhar (Autonomous)

CURRICULUM AND SCHEME OF EXAMINATIONS OF THREE YEAR DEGREE PROGRAM

B. Sc. (Medical)

Session-2019-20

B.Sc (Medical) SemesterII								
Course Code		**Course Name**	**Course Type**	**Marks**				**Examination time (in Hours)**
				Total	**Ext.**		**CA**	
					L	**P**		
BSML-2421 BSML-2031 BSML-2431		Punjabi(Compulsory) [1]Basic Punjabi [2]Punjab History & Culture	C	50	40	-	10	3
BSML-2212		English (Compulsory)	C	50	40	-	10	3
BSMM-2483	(I)	**Zoology** (Ecology)	E	100	60 (30+30)	20	20	3+3+3
	(II)	**Zoology** (Biodiversity –II)						
	(P)	**Zoology** (Practical-II-related to ecology and Biodiversity-II)						
BSMM-2343	(T)	**Microbiology**(Basic Food Microbiology)	E	100	60	20	20	3+3
	(P)	**Microbiology** (PRACTICAL- Related to Basic Food Microbiology)						
BSMM-2084	(I)	**Chemistry** (Inorganic Chemistry–I)	C	100	60	20	20	3+3+3½
	(II)	**Chemistry** (Organic Chemistry–I)						
	(P)	**Chemistry**(Practical)						
BSMM-2075	(I)	**Botany** (Cell Biology)	E	100	60 (30+30)	20	20	3+3+3
	(II)	**Botany** (Genetics)						
	(P)	**Botany** (Practical-II-Related to Paper I and Paper II)						
BSMM-2255	(T)	**Food Science** (Food Plant Hygiene and Sanitation)	E	100	60	20	20	3+3
	(P)	**Food Science** (PRACTICAL- Related to Food Plant Hygiene and Sanitation)						
BSMM-2046	(T)	**Bioinformatics** (Basic Mathematics, Biostatistics & Databases Management Systems)	E	100	60	20	20	3+3
	(P)	**Bioinformatics** (Lab in Basic Mathematics, Biostatistics & Databases Management Systems)						
AECD-2161		*Drug Abuse: Problem Management and Prevention (Compulsory)	AC	50	40	-	10	3
SECM-2502		*Moral Education Programme	AC	25	20	-	5	2
Total								

C-Compulsory
E-Elective
AC- Audit Course
[1]Special paper in lieu of Punjabi (Compulsory).
[2] Special paper in lieu of Punjabi (Compulsory) for those students who are not domicile of Punjab.
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KanyaMahaVidyalaya, Jalandhar (Autonomous)

CURRICULUM AND SCHEME OF EXAMINATIONS OF THREE YEAR DEGREE PROGRAM

B. Sc. (Medical)

Session-2019-20

B.Sc (Medical) SemesterIII								
Course Code		**Course Name**	**Course Type**	**Marks**				**Examination time (in Hours)**
				Total	**Ext.**		**CA**	
					L	**P**		
BSMM-3421 BSMM-3031 BSMM-3431		Punjabi(Compulsory) [1]Basic Punjabi [2]Punjab History & Culture	C	50	40	-	10	3
BSMM-3212		English (Compulsory)	C	50	40	-	10	3
BSMM-3483	(I)	**Zoology** (Evolution)	E	100	60 (30+30)	20	20	3+3+3
	(II)	**Zoology** (Biodiversity –III)						
	(P)	**Zoology** (Practical-III-related to Evolution and Biodiversity-III)						
BSMM-3343		**Microbiology** (Microbial nutrition and Metabolism)	E	100	60S	20	20	3+3
	(P)	**Microbiology** (Practical-related to Microbial nutrition and Metabolism)						
BSMM-3084	(I)	**Chemistry** (OrganicChemistry–I)	C	100	60	20	20	3+3+3½
	(II)	**Chemistry** (Physical Chemistry–II)						
	(P)	**Chemistry** (Practical)						
BSMM-3075	(I)	**Botany** (Structure Development and Reproduction in Flowering Plants-I)	E	100	60 (30+30)	20	20	3+3+3
	(II)	**Botany** (Structure Development and Reproduction in Flowering Plants-I)						
	(P)	**Botany** (Practical-III -Related to Paper I and Paper II)						
BSMM-3255	(T)	**Food Science** (Food Processing and Packaging)	E	100	60	20	20	3+3
	(P)	**Food Science** (Practical-related to Food Processing and Packaging)						
BSMM-3046	(T)	**Bioinformatics** (Introduction to Bioinformatics and Biological Databases)	E	100	60	20	20	3+3
	(P)	**Bioinformatics** (Lab in Introduction to Bioinformatics and Biological Databases)						
SECP-3512		*Personality Development Programme (Skill Based)	AC	25	25	-	-	2
AECE-3221		*Environmental studies	AC	100	60	20	20	3
Total								

C-Compulsory
E-Elective
AC- Audit Course
[1]Special paper in lieu of Punjabi (Compulsory).
[2] Special paper in lieu of Punjabi (Compulsory) for those students who are not domicile of Punjab.
***Marks of these papers will not be added in total marks and only grades will be provided.**

KanyaMahaVidyalaya, Jalandhar (Autonomous)

CURRICULUM AND SCHEME OF EXAMINATIONS OF THREE YEAR DEGREE PROGRAM

B. Sc. (Medical)

Session-2019-20

B.Sc (Medical) SemesterIV

Course Code		Course Name	Course Type	Marks				Examination time (in Hours)
				Total	Ext.		CA	
					L	P		
BSMM-4421 BSMM-4031 BSMM-4431		Punjabi(Compulsory) [1]Basic Punjabi [2]Punjab History & Culture	C	50	40	-	10	3
BSMM-4212		English (Compulsory)	C	50	40	-	10	3
BSMM-4483	(I)	**Zoology** (Biochemistry)	E	100	60 (30+30)	20	20	3+3+3
	(II)	**Zoology** (Animal Physiology)						
	(P)	**Zoology** (Practical –IV-related to Biochemistry and animal physiology)						
BSMM-4343		**Microbiology** (Microbial Ecology)	E	100	60	20	20	3+3
	(P)	**Microbiology** (Practical –related to Microbial Ecology)						
BSMM-4084	(I)	**Chemistry** (Inorganic Chemistry–I)	C	100	60	20	20	3+3+3½
	(II)	**Chemistry** (Organic Chemistry–II)						
	(P)	**Chemistry** (Practical)						
BSMM-4075	(I)	**Botany** (Diversity of Seed Plants and their Systematics-I)	E	100	60 (30+30)	20	20	3+3+3
	(II)	**Botany** (Diversity of Seed Plants and their Systematics-II)						
	(P)	**Botany** (Practical-IV-Related to Paper I and Paper II)						
BSMM-4255		**Food Science** (Quality Assurance)	E	100	60	20	20	3+3
	(P)	**Food Science** (Practical –related to Quality Assurance)						
BSMM-4046	(T)	**Bioinformatics** (Computer Programming in C++ and PERL)	E	100	60	20	20	3+3
	(P)	**Bioinformatics** (Lab in Com`puter Programming in C++ and PERL)						
SECS-4522		*Social Outreach	AC	-	-	-	-	-
Total								

C-Compulsory
E-Elective
AC- Audit Course
[1]Special paper in lieu of Punjabi (Compulsory).
[2] Special paper in lieu of Punjabi (Compulsory) for those students who are not domicile of Punjab.
***Marks of these papers will not be added in total marks and only grades will be provided.**

Session 2019-20

B.A/B.Sc/B.Com/BBA

Semester I

PUNJABI COMPULSORY

COURSE CODE-BARL/BSML/BSNL/BCSL/BECL/BCRL/ BBRL-1421

COURSE OUTCOMES

CO1: ਦੋ ਰੰਗ (ਕਵਿਤਾ ਭਾਗ) ਨੂੰ ਪੜ੍ਹਾਉਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਕਵਿਤਾ ਪ੍ਰਤੀ ਦਿਲਚਸਪੀ, ਸੂਝ ਨੂੰ ਪੈਦਾ ਕਰਨਾ ਹੈ ਤਾਂ ਕਿ ਉਹ ਆਧੁਨਿਕ ਦੌਰਵਿਚ ਚੱਲ ਰਹੀਆਂ ਕਾਵਿ ਧਾਰਾਵਾਂ ਅਤੇ ਕਵੀਆਂ ਬਾਰੇ ਗਿਆਨ ਹਾਸਿਲ ਕਰ ਸਕਣ।

CO2: ਇਸ ਦਾ ਹੋਰ ਮਨੋਰਥ ਕਵਿਤਾ ਦੀ ਵਿਆਖਿਆ, ਵਿਸ਼ਲੇਸ਼ਣ ਤੇ ਮੁਲੰਕਣ ਦੀ ਪ੍ਰਕਿਰਿਆ ਤੋਂ ਜਾਣੂ ਕਰਾਉਣਾ ਵੀ ਹੈ ਤਾਂ ਕਿ ਉਹ ਸਮਕਾਲੀ ਸਮਾਜ ਦੀਆਂ ਸਮੱਸਿਆਵਾਂ ਨੂੰ ਸਮਝ ਸਕਣ ਅਤੇ ਆਲੋਚਨਾਤਮਕ ਦ੍ਰਿਸ਼ਟੀ ਬਣਾ ਸਕਣ।

CO3: ਸੰਸਾਰ ਦੀਆਂ ਪ੍ਰਸਿਧ ਹਸਤੀਆਂ ਜੀਵਨੀ ਦੀ ਵਿਧਾ ਨੂੰ ਸਿਲੇਬਸ ਵਿਚ ਸ਼ਾਮਿਲਕਰ ਕੇ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਜੀਵਨੀ ਨੂੰ ਪੜ੍ਹਣ ਦੀ ਰੁਚੀ ਨੂੰ ਪੈਦਾ ਕਰਨਾ ਹੈਅਤੇ ਜੀਵਨੀ ਜਗਤ ਨਾਲ ਜੋੜਣਾ ਹੈ।

CO4: ਪੈਰ੍ਹਾ ਰਚਨਾ ਅਤੇ ਪੈਰ੍ਹਾ ਪੜ੍ਹ ਕੇ ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਉਤਰ ਦੇਣ ਦਾ ਮਨਰੋਥ ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਬੁੱਧੀ ਨੂੰ ਤੀਖਣ ਕਰਦਿਆਂ ਉਨਾਂ ਦੀ ਲਿਖਣ ਪ੍ਰਤਿਭਾ ਨੂੰ ਉਜਾਗਰ ਕਰਨਾ ਹੈ।

CO5: ਭਾਸ਼ਾ ਵੰਨਗੀਆਂ ਨੂੰ ਪੜ੍ਹਾਉਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀ ਅਮੀਰੀ ਦਾ ਅਤੇ ਬਾਰੀਕੀਆਂ ਨੂੰ ਸਮਝਣ ਲਈ ਵੱਖਰੇ੍ ਵੱਖਰੇ ਸਿਧਾਂਤਾਂਦਾ ਵਿਕਾਸ ਕਰਨਾ ਹੈ।

Session 2019-20

B.A/B.Sc/B.Com/BBA

Semester I

PUNJABI COMPULSORY

COURSE CODE-BARL/BSML/BSNL/BCSL/BECL/BCRL/ BBRL-1421

ਸਮਾਂ : 3 ਘੰਟੇ **Maximum Marks: 50**

Theory: 40

CA: 10

ਪਾਠ ਕ੍ਰਮ ਅਤੇ ਪਾਠ ਪੁਸਤਕਾਂ

ਯੂਨਿਟ I

ਦੋ ਰੰਗ (ਕਵਿਤਾ ਭਾਗ) (ਸੰਪਾ. ਹਰਜਿੰਦਰ ਸਿੰਘ ਢਿਲੋਂ ਅਤੇ ਪ੍ਰੀਤਮ ਸਿੰਘ ਸਰਗੋਧੀਆ), ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ, ਅੰਮ੍ਰਿਤਸਰ।

(ਲੇਖਕ ਦਾ ਜੀਵਨ ਤੇ ਰਚਨਾ ਰੇਖਾ ਚਿੱਤਰ ਹਸਤ ਵਿਆਹਖਿਕਹਵਤਾ ਦਾ ਵਿਸ਼ਾ-ਵਸਤੂ)

8 ਅੰਕ

ਯੂਨਿਟ II

ਸੰਸਾਰ ਦੀਆਂ ਪ੍ਰਸਿਧ ਹਸਤੀਆਂ (ਜੀਵਨੀ ਨੰ: 1 ਤੋਂ 9 ਤਕ)

(ਸੰਪਾ. ਪ੍ਰਿੰ. ਤੇਜਾ ਸਿੰਘ, ਹਰਨਾਮ ਸਿੰਘ ਸ਼ਾਮ),ਪੰਜਾਬੀ ਸਾਹਿਤਪ੍ਰਕਾਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।

(ਵਿਸ਼ਾ-ਵਸਤੂ ਤੇ ਕਾਰੇਨਾਇਕ ਵਿੰਬ) 8 ਅੰਕ

ਯੂਨਿਟ III

(ੳ) ਪੈਰ੍ਹਾ ਰਚਨਾ (ਤਿੰਨ ਵਿਚੋਂ ਇਕ)

(ਅ) ਪੈਰ੍ਹਾ ਪੜ੍ਹ ਕੇ ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਉਤਰ। 8 ਅੰਕ

ਯੂਨਿਟ- IV

(ੳ) ਭਾਸ਼ਾ ਵੰਨਗੀਆਂ : ਭਾਸ਼ਾ ਦਾ ਟਕਸਾਲੀ ਰੂਪ, ਭਾਸ਼ਾ ਅਤੇ ਉਪ੍ਭਾਸ਼ਾ ਵਿਚਅੰਤਰ, ਪੰਜਾਬੀ ਉਪਭਾਬਾਵਾਂ ਦੇ ਪਛਾਣ ਚਿੰਨ੍ਹ।

(n) ਪੰਜਾਬੀ ਭਾਸ਼ਾ : ਨਿਕਾਸ ਤੇ ਵਿਕਾਸ 8 ਅੰਕ

ਅੰਕ ਵੰਡ ਅਤੇ ਪਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਚਾਰ ਯੂਨਿਟ ਹੋਣਗੇ।ਸੈਕਸ਼ਨ ਂਣ ਤੱਕ ਦੇ ਪ੍ਰਸ਼ਨ ਯੂਨਿਟ ਜ਼ਜ਼ੜ ਵਿਚੋਂ ਪੁੱਛੇ ਜਾਣਗ ਹਰ ਯੂਨਿਟ ਵਿਚ ਦੋ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ।

2. ਵਿਦਿਆਰਥੀ ਨੇ ਕੁਲ ਪੰਜ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹਨ। ਹਰ ਯੂਨਿਟ ਵਿਚੋਂ ਇਕਪ੍ਰਸ਼ਨ ਲਾਜ਼ਮੀ ਹੈ। ਪੰਜਵਾਂ ਪ੍ਰਸ਼ਨ ਕਿਸੇ ਵੀ ਯੂਨਿਟ ਵਿਚੋਂ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ।

3. ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 08 ਅੰਕ ਹਨ।

4. ਪੇਪਰ ਸੈੱਟ ਕਰਨ ਵਾਲਾ ਜੇਕਰ ਚਾਹੇ ਤਾਂ ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਵੰਡ ਅਗੋਂ ਵਧ ਤੋਂਵਧ ਚਾਰ ਉਪ ਪ੍ਰਸ਼ਨਾਂ ਵਿਚ ਕਰ ਸਕਦਾ ਹੈ।

SESSION 2019-20

B.A. / B.Sc. (Medical) / B.Sc. (Non Medical) / B.Sc. (Computer Science) / B.Sc. (Economics) / B.Com. / BBA/ B.A. (JMC) / B.Sc. (FD) / B.Sc. (Home Science) / BCA/B.Sc(IT)/ B.Sc. (BT)/B.Sc(Hons.)Agriculture/B.A(Hons.)In English SEMESTER–I

ਮੁੱਢਲੀ ਪੰਜਾਬੀ

(In lieu of Compulsory Punjabi)

COURSE CODE-

BARL/BSML/BSNL/BCSL/BECL/BCRL/BBRL/BJML/BFDL/BHSL

/BCAL/BITL/BBTL/BOEL/BACL-1031

Course outcomes

CO1: ਮੁੱਢਲੀ ਪੰਜਾਬੀ ਪੜ੍ਹਾਉਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਭਾਸ਼ਾਨੂੰ ਸਿਖਾਉਣ ਦੀ ਪ੍ਰਕਿਰਿਆ ਵਿਚ ਪਾ ਕੇ ਇਕ ਹੋਰ ਭਾਸ਼ਾ ਸਿੱਖਣ ਦੇ ਮੌਕੇ ਪ੍ਰਦਾਨ ਕਰਨਾ ਹੈ।

CO2: ਇਸ ਵਿਚ ਵਿਦਿਆਰਥੀ ਨੂੰ ਬਾਰੀਕਬੀਨੀ ਨਾਲ ਭਾਸ਼ਾ ਦਾ ਅਧਿਐਨਕਰਵਾਇਆ ਜਾਵੇਗਾ।

CO3:ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਸ਼ਬਦ ਰਚਨਾ ਤੋਂ ਜਾਣੂ ਕਰਵਾਇਆ ਜਾਵੇਗਾ।

CO4:ਮੁੱਢਲੀ ਪੰਜਾਬੀ ਪੜ੍ਹਾਉਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਨਿੱਤ ਵਰਤੋਂ ਦੀ ਪੰਜਾਬੀ ਸ਼ਬਦਾਵਲੀ ਬਾਰੇ ਦੱਸਣਾ ਹੈ।

CO5:ਮੁੱਢਲੀ ਪੰਜਾਬੀ ਪੜ੍ਹਾਉਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਦਾ ਸ਼ਬਦ ਘੇਰਾ ਵਿਸ਼ਾਲ ਕਰਨਾ ਹੈ।

CO6:ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਵਿਚ ਹਫ਼ਤੇ ਦੇ ਸਤ ਦਿਨਾਂ ਦੇ ਨਾਂ, ਬਾਰ੍ਹਾਂ ਮਹੀਨਿਆਂ ਦੇ ਨਾਂ, ਰੁੱਤਾਂ ਦੇ ਨਾਂ, ਇਕ ਤੋਂ ਸੌ ਤਕ ਗਿਣਤੀ ਸ਼ਬਦਾਂ ਵਿਚ ਸਿਖਾਉਣਾ ਹੈ।

SESSION 2019-20

B.A. / B.Sc. (Medical) / B.Sc. (Non Medical) / B.Sc. (Computer Science) / B.Sc. (Economics) / B.Com. / BBA/ B.A. (JMC) / B.Sc. (FD) / B.Sc. (Home Science) / BCA/B.Sc(IT)/ B.Sc. (BT)/B.Sc(Hons.)Agriculture/B.A(Hons.)In English

SEMESTER–I

ਮੁੱਢਲੀ ਪੰਜਾਬੀ

(In lieu of Compulsory Punjabi)

COURSE CODE-

BARL/BSML/BSNL/BCSL/BECL/BCRL/BBRL/BJML/BFDL/BHSL

/BCAL/BITL/BBTL/BOEL/BACL-1031

ਸਮਾਂ : 3 ਘੰਟੇ **Maximum Marks: 50**

Theory: 40

CA: 10

ਪਾਠ ਕ੍ਰਮ

ਯੂਨਿਟ -I

ਪੈਂਤੀ ਅਖਰੀ, ਅਖਰ ਕ੍ਰਮ, ਪੈਰ ਬਿੰਦੀ ਵਾਲੇ ਵਰਣ ਅਤੇ ਪੈਰ ਵਿਚ ਪੈਣ ਵਾਲੇ ਵਰਣ ਅਤੇ ਮਾੜ੍ਹਵਾਂ (ਮੁਢਲੀ ਜਾਣ ਪਛਾਣ) ਲਗਾਖਰ (ਬਿੰਦੀ, ਟਿਪੀ, ਅਧਕ) : ਪਛਾਣ ਅਤੇ ਵਰਤੋਂ ।

08ਅੰਕ

ਯੂਨਿਟ੍ II

ਪੰਜਾਬੀ ਸ਼ਬਦ ਬਣਤਰ : ਮੁਢਲੀ ਜਾਣ ਪਛਾਣ (ਸਾਧਾਰਨ ਸ਼ਬਦ, ਸੰਯੁਕਤ ਸ਼ਬਦ,ਮਿਸ਼ਰਤ ਸ਼ਬਦ, ਮੂਲ ਸ਼ਬਦ, ਅਗੇਤਰ ਅਤੇ ਪਿਛੇਤਰ)

08ਅੰਕ

ਯੂਨਿਟ੍ III

ਨਿਤ ਵਰਤੋਂ ਦੀ ਪੰਜਾਬੀ ਸ਼ਬਦਾਵਲੀ : ਬਾਜ਼ਾਰ, ਵਪਾਰ, ਰਿਸ਼ਤੇਨਾਤੇ,ਖੇਤੀ ਅਤੇ ਹੋਰ ਧੰਦਿਆਂ ਆਦਿ ਨਾਲ ਸੰਬੰਧਤ।

08 ਅੰਕ

ਯੂਨਿਟ੍ IV

ਹਫ਼ਤੇ ਦੇ ਸਤ ਦਿਨਾਂ ਦੇ ਨਾਂ, ਬਾਰ੍ਹਾਂ ਮਹੀਨਿਆਂ ਦੇ ਨਾਂ, ਰੁਤਾਂ ਦੇ ਨਾਂ,ਇਕ ਤੋਂ ਸੌ ਤਕ ਗਿਣਤੀ ਸ਼ਬਦਾਂ ਵਿਚ ।

08ਅੰਕ

ਅੰਕ ਵੰਡ ਅਤੇ ਪਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਚਾਰ ਯੂਨਿਟ ਹੋਣਗੇ।।ਸੈਕਸ਼ਨ ਂਣ ਤੱਕ ਦੇ ਪ੍ਰਸ਼ਨ ਯੂਨਿਟ I-IV ਵਿਚੋਂ ਪੁੱਛੇ ਜਾਣਗੇ। ਹਰ ਯੂਨਿਟ ਵਿਚ ਦੋ ਪ੍ਰਸ਼ਨ ਪੁਛੇ ਜਾਣਗੇ।

2. ਵਿਦਿਆਰਥੀ ਨੇ ਕੁਲ ਪੰਜ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹਨ। ਹਰ ਭਾਗ ਵਿਚੋਂ ਇਕ ਪ੍ਰਸ਼ਨਲਾਜਮੀ ਹੈ। ਪੰਜਵਾਂ ਪ੍ਰਸ਼ਨ ਕਿਸੇ ਵੀ ਭਾਗ ਵਿਚੋ੍ਂ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ।

3. ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ ਅੱਠ ਅੰਕ ਹਨ।

4. ਪੇਪਰ ਸੈਟ ਕਰਨ ਵਾਲਾ ਜੇਕਰ ਚਾਹੇ ਤਾਂ ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਵੰਡ ਅਗੋਂ ਵਧ ਤੋਂਵਧ ਚਾਰ ਉਪ ਪ੍ਰਸ਼ਨਾਂ ਵਿਚ ਕਰ ਸਕਦਾ ਹੈ।

Punjab History & Culture (From Earliest Times to C. 320)-BSML-1431
(Special Paper in lieu of Punjabi compulsory)
Session 2019-20
SEMESTER-I
COURSE OUTCOMES

After completing Semester I and course on Punjab History and Culture students of History will be able to identify and have a complete grasp on the sources & writings of Ancient Indian History of Punjab.

CO1: Identify and describe the emergence of earliest civilizations in: Indus Valley Civilization and Aryan Societies.

CO2: Identify and analyses the Buddhist, Jain and Hindu faith in the Punjab

CO3: Analyses the emergence of Early Aryans and Later Vedic Period, their Society, Culture, Polity and Economy

CO4: To make students understand the concepts of two faiths Jainism and Buddhism, its principles and their application and relevance in present times

FACULTY OF ARTS AND SOCIAL SCIENCES
KANYA MAHA VIDYALAYA, JALANDHAR
(Autonomous)
Session 2019-20
Punjab History & Culture (From Earliest Times to C 320)-BSML-1431
(Special Paper in lieu of Punjabi compulsory)
SEMESTER-I

Time: 3 Hours **Max. Marks: 50**
Theory: 40
Continuous Assessment: 10

Instructions for the Paper Setters

The question paper will have 4 units, namely unit I, II, III and IV.

Question paper shall consist of four Units. Candidates shall attempt 5 questions in all, by at least selecting one question from each section and the 5th question may be attempted from any of the four units. Each question will carry 8 marks.

Unit -I

1. Physical features of the Punjab and impact on history.
2. Sources of the ancient history of Punjab

Unit- II

3. Harappan Civilization: Town planning; social, economic and religious life of the India Valley People.
4. The Indo-Aryans: Original home and settlement in Punjab.

Unit -III

5. Social, Religious and Economic life during early *Rig* Vedic Age.
6. Social, Religious and Economic life during later Vedic Age.

Unit -IV

7. Teachings and impact of Buddhism
8. Jainism in the Punjab

Suggested Readings

1. B.N. Sharma: *Life in Northern India*, Delhi. 1966.
2. Budha Parkash : *Glimpses of Ancient Punjab*, Patiala, 1983.
3. L. Joshi (ed): *History and Culture of the Punjab*, Art-I, Patiala, 1989 (3rd edition)
4. L.M. Joshi and Fauja Singh (ed); *History of Punjab* , Vol.I, Patiala 1977.

B.A./ B.Sc. (Medical)/ B.Sc. (Non Medical)/ B.Sc. (Computer Science)/ B.Sc. (Economics)/ B.Com./ BBA (Session 2019-20)
SEMESTER–I

ENGLISH (COMPULSORY)

Course Code: BARL/BSML/BSNL/BCSL/BECL/BCRL/ BBRL-1212

COURSE OUTCOMES

After passing this course, the students will be able to:

CO1: Appreciate the writings of various Indian and foreign poets and prose writers and relate them to their socio-cultural milieu.

CO2: Comprehend the meaning of texts and answer questions related to situations, episodes, themes and characters depicted in them.

CO3: Understand fundamental grammatical rules governing tenses, subject-verb agreement, the use of modal verbs and make correct usage in their language.

CO4: Enrich their vocabulary and use new words in their spoken and written language.

CO5: Independently write paragraphs on any given topic.

B.A./ B.Sc. (Medical)/ B.Sc. (Non Medical)/ B.Sc. (Computer Science)/ B.Sc. (Economics)/ B.Com./ BBA (Session 2019-20)

SEMESTER–I

ENGLISH (COMPULSORY)

Course Code: BARL/BSML/BSNL/BCSL/BECL/BCRL/ BBRL-1212
Time: 3 Hours

Max. Marks: 50
Theory: 40
Continuous Assessment: 10

Instructions for the Paper-Setter and Distribution of Marks:

The question paper will consist of 4 sections & distribution of marks will be as under:

Section-A: The question will be set from Unit I of the syllabus. Fourteen sentences would be set and the students would be required to attempt any ten. Each sentence would carry one mark. **(1x10=10)**

Section-B: Two questions will be set from Unit II of the syllabus. The students would be required to attempt one paragraph out of the given two topics. It would carry five marks. The second question will be based on grammar. The students will be required to attempt any five sentences out of eight and each sentence will carry one mark. **(2x5=10)**

Section-C: Two questions will be set from Unit III of the syllabus. One essay type question with internal choice would be set, which carries six marks. The students would be required to attempt any one. The second question would carry three questions. The students would be required to attempt any two. Each question would carry two marks. **(6+2x2=10)**

Section-D: Two questions will be set from Unit IV of the syllabus. One essay type question with internal choice would be set, which carries six marks. The students would be required to attempt any one. The second question would carry three questions. The students would be required to attempt any two. Each question would carry two marks. **(6+2x2=10)**

Texts Prescribed:

1. *Tales of Life* (Guru Nanak Dev University, Amritsar) Stories at Sr.No.1, 2, 3, 5 and 6
2. *Prose for Young Learners* (Guru Nanak Dev University, Amritsar) Essays at Sr. No. 1, 2, 3, 5, and 6
3. *English Grammar in Use* (Fourth Edition) by Raymond Murphy, CUP

The syllabus is divided in four units as mentioned below.

Unit I: English Grammar in Use, 4th Edition by Raymond Murphy, CUP (Units: 1-37)
Unit II: Paragraph Writing and English Grammar in Use (Units: 38-48)
Unit III: Tales of Life (Guru Nanak Dev University, Amritsar): Stories at Sr. No. 1, 2, 3, 5 and 6
Unit IV: Prose for Young Learners: Essays at Sr. No. 1, 2, 3, 5 and 6

B.Sc. Medical (Semester–I)(Session 2019-20)

ZOOLOGY

CELL BIOLOGY

Course Code: BSMM-1483 (I)

(THEORY)

Course Outcomes:

After passing this course the student will be able to:

- CO1. Develop deeper understanding of what life is and how it functions at cellular level.
- CO2. Describe cellular membrane structure and function, fine structure and function of cell organelles.
- CO3.Perform a variety of molecular and cellular biology techniques.

B.Sc. Medical (Semester–I)(Session 2019-20)

ZOOLOGY

CELL BIOLOGY

Course Code: BSMM-1483 (I)

(THEORY)

Max. Time: 3 Hrs. **Max Marks: 30**

Instructions for the Paper Setter

Eight questions of equal marks (6 marks each) are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

UNIT-I

Methods in Cell Biology.

(a) Principles of light and phase contrast microscopy
(b) Electron microscopy (TEM and SEM)
(c) Fixation and fixatives
(d) Staining techniques.

UNIT-II

Organization of Cell: Extra nuclear and nuclear, ultrastructure and functions of cell organelles

(a) Plasma Membrane: Structure, osmosis, active and passive transport, endocytosis and exocytosis.
(b) Endoplasmic reticulum: Structure, types and associated enzymes.
(c) Mitochondria: Structure, mitochondrial enzymes and role of mitochondria in respiration and mitochondrial DNA.

UNIT-III

Organization of Cell:

(a) Golgi complex: Structure and functions.
(b) Ribosomes: Types of ribosomes, their structure and functions.
(c) Lysosomes: Polymorphism and their function.
(d) Centrosome: Structure and functions.

UNIT-IV

Nucleus: Structure and functions of nuclear membrane, nucleolus and chromosomes.

An elementary idea of cell transformation in cancer.

An elementary idea of cellular basis of immunity.

Suggested Readings:

1. Alberts, B., Bray, D., Lewis, J., Raff, M. Roberts, K., Watson J.D.(1998), Molecular Biology of the Cell, Garland Publ. Inc., New York.
2. Chandra Roy, S and DE Kumar, K. (2001), Cell Biology, New Central Book Agency (P) Ltd. Kolkata.
3. Cooper, G. M. (2004), The cell, A Molecular Approach, ASM press, Washington, D. C.
4. De Robertis, E.D.P. De Robertis, E.M.F.(1995) Cell Biology and Molecular Biology (Eighth Edition), W.B. Saunders Co., Philadelphia.
5. Karp, G. (1984). Cell Biology (4^{th} ed), McGraw Hill, New York.
6. Pawar, C.B (1999), Cell Biology, Himalaya Publishing House, Bombay.

B.Sc. Medical (Semester–I)(Session 2018-19)

ZOOLOGY

BIODIVERSITY-I

(PROTOZOA TO ANNELIDA)

Course Code: BSMM-1483 (II)

(THEORY)

Course Outcomes:

After passing this course the student will be able to:

- CO1. Familiarise with the non-chordate world that surrounds us.
- CO2. Appreciate the process of evolution (unicellular cells to complex, multicellular organisms).
- CO3. Identify the invertebrates and classify them up to the class level with the basis of systematic.
- CO4. Understand the basis of life processes in the non-chordates and recognize the economically important invertebrate fauna.

B.Sc. Medical (Semester–I)(Session 2019-20)

ZOOLOGY

BIODIVERSITY-I

(PROTOZOA TO ANNELIDA)

Course Code: BSMM-1483 (II)

(THEORY)

Max. Time: 3 Hrs. **Max Marks: 30**

Instructions for the Paper Setter

Eight questions of equal marks (6 marks each) are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

Detailed Type study of the following animals

UNIT-I

Protozoa: *Amoeba proteus,*

Paramecium caudatum (with special reference to Kappa particles in *P. aurelia*)

Plasmodium vivax. Introduction to Parasitic Protozoans.

UNIT-II

Parazoa (Porifera): *Sycon*,

Cnidaria (Coelentrata): *Obelia*

UNIT-III

Platyhelminthes: *Fasciola hepatica,*

Taenia solium

Larvae of *Fasciola hepatica* and *Taenia solium*

UNIT-IV

Aschelminthes: *Ascaris,* Parasitic adaptations in Helminthes

Annelida: *Pheretima posthuma* (Earthworm)

Suggested Readings:

1. Barnes, R.D. (1999), Invertebrate Zoology. W.B. Saunder, Philadelphia.
2. Dhami, P.S. & Dhami, J. K(2001), Invertebrates, R. Chand & Co., New Delhi.
3. Barth, R. H. and Broshears, R. E (1982), The Invertebrate world. Holt Saunder, Japan.
4. Brusca, R. C. and Brusca, G. J. (2003), Invertebrates (2^{nd} ed). Sinauer Associates, Inc. Publishers, Sunderland, Massachusetts.
5. Engemann, J. G. and Hegner, R. W. (1981), Invertebrate Zoology (3rd ed.) Macmillan, New York.
6. Gardiner, M. S. (1972), The Biology of Invertebrates, McGraw Hill, New York.
7. Meglitsch, P. A. and Schran, F. R. (1991), Invertebrate Zoology (3^{rd} ed). Oxford University Press, New York.
8. Pechenik, A. Jan. (2000), Biology of the invertebrates, (4^{th} ed), McGraw Hill Book Co. Singapore.

B.Sc. Medical (Semester–I)(Session 2018-19)

ZOOLOGY

PRACTICAL-I RELATED TO CELL BIOLOGY & BIODIVERSITY-I

Course Code: BSMM-1483 (P)

Course Outcomes:

After passing this course the student will be able to:

- CO1. Familiarise with the Techniques like Paper Chromatography, Thin Layer Chromatography & Gel Electrophoresis.
- CO2.Familiarise with the TEM & SEM.
- CO3. Know about the Classification & Ecological note of Invertebrates.

B.Sc. Medical (Semester–I)(Session 2018-19)

ZOOLOGY

PRACTICAL-I RELATED TO CELL BIOLOGY & BIODIVERSITY-I

Course Code: BSMM-1483 (P)

Time: 3 Hrs. **Marks: 20**

Instructions for the Practical Examiners: Question paper is to set on the spot jointly by the Internal and External Examiners. Two copies of the same should be submitted for the record to COE Office, Kanya Maha Vidyalaya, Jalandhar

Guideslines for conduct of practical Examination:-

1. Identifiy and classify the specimens upto order. Write a note on their habit, habitat, special features and economic importance. 4
2. Identify the slides/micrographs and give two reasons for identification. 4
3. Make a temporary mount of protozoa. 2
4. Draw a well labelled sketch of the given system of the organism and explain to the examiner. 3
5. Write down the theory and procedure of gel electrophoresis/ paper chromotogaphy/thin layer chromatography/ SEM & TEM. 2
6. Report 2
7. Viva-voce & Practical file. 3

I. Classification up to orders with ecological notes and economic importance (if any) of the following animals (Through Specimens or slides):

A. **Protozoa.***Amoeba, Euglena, Trypanosoma, Noctiluca, Eimeria, Monocystis, Paramecium Opalina, Vorticella, Balantidium, Nyctotherus* and *Polystomella.*

B. **Parazoa.***Sycon, Grantia, Euplectella, Hyalonema, Spongilla, Euspongia.*

C. **Cnidaria.***Porpita, Velella, Physalia, Aurelia, Rhizostoma, Metridium, Millipora, Alcyonium, Tubipora, Zoanthus, Madrepora, Favia, Fungia and Astrangia.*

Hydra (W.M.), *Hydra* with buds, *Obelia* (colony and medusa), *Sertularia, Plumularia, Tubularia, Bougainvillea* and *Aurelia*

D. Platyhelminthes.

Dugesia, Fasciola, Taenia, Echinococcus.

Miracidium, Sporocyst, Redia, Cercaria of *Fasciola,* scolex and proglottids of *Taenia* (mature and gravid).

E. **Aschelminthes.***Ascaris* (male and female), *Trichinella, Ancylostoma.*

F. **Annelida**. *Pheretima*, *Nereis*, *Heteronereis*, *Polynoe*, *Eunice*, *Aphrodite*, *Chaetopterus*, *Arenicola*, *Tubifex* and *Pontobdela*

2. **Study of the following permanent stained preparations**:

A. L.S. and T.S. *Sycon,* gemmules, spicules and spongin fibers of a sponge.

B. T.S. *Hydra* (Testis and ovary region)

C. T.S. *Fasciola* (Different regions)

D. T.S. *Ascaris* (Male and Female)

E. T.S. *Pheretima* (pharyngeal and typhlosolar regions), Setae, septal nephridia, spermathecae and ovary of *Pheretima* (Earthworm).

3. **Preparation of the following slides**:

Temporary permanent preparation of freshwater Protozoanculture.

4. **Demonstration of** digestive, reproductive and nervous systems of earthworm with the help of charts/videos/models.

5. Cell Biology:

A. Paper chromatography.

B. Thin layers chromatography

C. Gel electrophoresis through photographs or through research laboratories

D. Familiarity with TEM & SEM.

E. Study of different ultra structures of cell organelles through photographs.

6. Visit to a vermi–composting unit and submission of report.

Note:- Some changes can be made in the practicals depending on the availability of material.

B.Sc Medical (Session 2019-20)

SEMESTER–I

Course Code: BSMM-1343

FUNDAMENTALS OF MICROBIOLOGY

(THEORY)

Course Outcomes:

After passing this course the student will be able to:

CO1: Understand the history of microbiology and their characterization and identification.

CO2: Learn the different principles and applications of microscopy and methods of sterilization, preparation of a culture media, pure culture concept and different staining techniques of bacteria.

CO3: Understand the fine structure of bacterial cell and nutrition and nutritional requirements of microorganisms. Preparation of different types of media and control of microorganisms by physical and chemical agents.

CO4: Understand the Reproduction and Growth in Microorganisms andEpidemiology of common bacterial and viral diseases in humans.

B.Sc Medical (Session 2019-20)

SEMESTER–I

Course Code: BSMM-1343

FUNDAMENTALS OF MICROBIOLOGY

(THEORY)

Time: 3 Hrs. **Max Marks: 100**

Theory Marks: 60

Practical Marks: 20

CA: 20

Instructions for the Paper Setters: Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

UNIT–I

1. **Introduction and Scope of Microbiology:** Discovery of microorganisms, history of microbiology, controversy over spontaneous origin or microorganisms, discovery of anaerobic life, germ theory of fermentation as life without oxygen, germ theory of disease.

2. **Characterization and Identification of Microorganisms:** Place of microorganisms in living world, Hackel's and Whittaker's system of classification, prokaryotic and eukaryotic cells, characteristics of main groups of microorganisms.

UNIT–II

3. **Microscopy:**Principles and applications of Bright field microscopy, Dark field phase contrast, Fluorescence and Immunofluoresence, Electron microscopy.

4. **Methods in Microbiology:** Methods of sterilization, preparation of a culture media, pure culture concept, staining technhiques of bacteria such as simple, negative and differential methods. Antibiotics, properties and mode of action: drug resistance and its significance, antibiotic sensitivity test.

UNIT–III

5. **Structure of Bacteria:** Fine structure of bacterial cell, cell wall, cell membrane, capsule, pili, flagella, ribosomes, Cytoplasmic inclusions, Bacterial movement, Endospore and physiology of endospore formation.

6. **Nutrition :** Nutritional requirements of microorganisms, nutritional types of bacteria, autotrophs, heterotrophs, parasites, types of culture media, differential media, and selective media enrichment media. Control of microorganisms by physical and chemical agents.

UNIT–IV

7. **Reproduction and Growth in Microorganisms:** Modes of cell division, growth curve of bacteria, continuous culture, synchronous growth, quantitative measurement of bacterial growth, Effect of various factors on growth of bacteria.

8. **Clinical Microbiology:** Epidemiology reservoirs and modes of transmission of infectious diseases. Pathogenesis, diagnosis and treatment of common bacterial and viral diseases in humans.

Books Recommended:

1. Pelczar, M.I., Chan, E.C.S. and Krieg, N.R. 2011, 5th edition, Microbiology. Tata McGraw Hill Publishing Co., Ltd.,New Delhi.
2. Stanier, R.Y., Ingraham, J.L., Wheelis, M.L. and Painter, P.R. 2005, 5th edition, General Microbiology, MacMillan Education Ltd. Publisher.
3. Powar, C.B. and Dagniwala, H.F. 2012, General Microbiology, Volume I and II, Himalaya Publishing House, Delhi.
4. Sharma, P.D. 2010, Microbiology, Rastogi Publications, Meerut. 142

B.Sc Medical (Session 2019-20)

SEMESTER–I

Course Code: BSMM-1343

FUNDAMENTALS OF MICROBIOLOGY

(PRACTICAL)

Time: 3 hrs **Marks: 20**

Instructions for the practical examiner: Question paper is to be set on the spot jointly by the Internal and External Examiners. Two copies of the same may be submitted for the record to COE Office, Kanya Maha Vidyalaya, Jalandhar.

LIST OF PRACTICALS

1. To study the essentials of a Microbiology laboratory.

2. To study various parts of a laboratory microscope.

3. To study various sterilization techniques.

4. To prepare the cultures media for the cultivation of various microorganisms.

5. To study various laboratory techniques for the cultivation and isolation of pure cultures of microorganisms.

6. To perform the simple staining of bacterial cell.

7. To perform the differential staining of bacterial cell.

8. To study the typical growth curve of bacteria.

B. Sc (Med and Non. Medical) SEMESTER–I

Session-2019-20

COURSE CODE:BSMM/BSNM-1084

CHEMISTRY (INORGANIC CHEMISTRY–I)

(THEORY)

Course outcomes:

Students will be able to

CO1:Predict electronic properties of atoms using current models and theories in chemistry

CO2:explains de-Broglie's dual behaviour of matter and Heisenberg's uncertainty principle and solve numerical problems

CO3:explain the significance of quantum numbers

CO4:sketch the probability density curves , boundary surface diagrams and shapes of s, p ,d and f orbitals and write the electronic configuration of atoms

CO5:identify the periodic trends in physical and chemical properties of elements.

CO6:describe VSEPR theory and predicts the geometry of simple molecules

CO7:explain the valence bond approach for the formation of covalent bonds and the different types of hybridization involving s, p and d orbitals of simple covalent molecules

CO8:describethe molecular orbital theory of homonuclear diatomic molecules

CO9:explain the structures simple compounds.

CO10:differentiate the types of van der waals' forces such as London forces, dipole - dipole interactions and dipole - induced dipole interactions and explain the concept of hydrogen bonding.

(Session-2019-20)

B.Sc (Med and Non-Medical) SEMESTER–I

COURSE CODE: BSMM/BSNM-1084(I)

INORGANIC CHEMISTRY

(THEORY)

Time: 3 Hrs. **Max.Marks: 30**

Instructions for the Paper Setter

Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from UNITs I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

UNIT–I

I. Atomic Structure

Idea of de Broglie matter waves, Heisenberg uncertainty principle, atomic orbitals, Schrodinger wave equation, significance of ψ^1 and ψ 2, quantum numbers, radial and angular wave functions and probability distribution curves, shapes of s,p,d orbitals. Aufbau and Pauli exclusion principles, Hund's multiplicity rule. Electronic configurations of the elements and ions.

UNIT–II

II. Periodic Properties

Position of elements in the periodic table; effective nuclear charge and its calculations.Atomic and ionic radii, ionization energy, electron affinity and electronegativity –definition, methods of determination or evaluation, trends in periodic table and applications in predicting and explaining the chemical behaviour.

UNIT–III

III. Chemical Bonding Covalent Bond – Valence bond theory and its limitations, directional characteristics of covalent bond, various types of hybridizationand shapes of simple inorganic molecules and ions. BeF_2 , BF_3,CH_4, PF_5, SF_6, IF_7, $SnCl_2$, XeF_4, BF_4, $SnC1_6$. Valence shellelectron pair repulsion (VSEPR) theory to NH_3, H_3O+, SF_4,CIF_3, ICl_2 and H_2O. MO theory, homonuclear (elements and ions of 1st and 2nd row), and heteronuclear (BO, CN^- , CO, NO^+, CO^+, CN), diatomic molecules, multicenter bonding in electron deficient molecule (Boranes).Percentage ionic character from dipole moment and electronegativity difference.

UNIT–IV

IV. Ionic Solids

Concept of close packing, Ionic structures, (NaCl type, Zinc blende, Wurtzite, CaF_2 and antifluorite, radius ratio rule and coordination number, limitation of radius ratio rule, lattice defects, semiconductors, lattice energy and Born–Haber cycle, solvation energy and solubility of ionic solids, polarizing power and polarisability of ions, Fajan's rule. Metallic bond– free electron, valence bond and band theories.

Weak Interactions –Hydrogen bonding, Vander Waals forces.

Books Suggested:

1. Cotton, F.A., Wilkinson, G., Gaus, P.L., Basic Inorganic Chemistry; 3rd edition, Pubs: John Wiley Sons. 1995.

2. Lee, J.D., Concise Inorganic Chemistry; 4th edition, Pubs: Chapman Hall Ltd., 1991.

3. Shriver, D.E., Alkins, P.W., Langford, C.H., Inorganic Chemistry; 4th edition, Oxford Publisher: Oxford University Press, 2006.

4. Douglas, B. McDamiel, D., Alexander, J., Concepts and Models of Inorganic Chemistry; 3rd edition, Pubs: John Wiley and Sons Inc., 1994.

5. Miessler, G.L., Larr, D.A., Inorganic Chemistry; 3rd edition, Pubs: Pearson Education Inc., 2004.

6. Jolly, W.L., Modern Inorganic Chemistry; 2nd edition, Pubs: McGraw-Hill Publishing Company Limited, 1991.

7. Purcell, K.F., Kotz, J.C., Inorganic Chemistry; Pubs: W.B. Saunders Company, 1977.

8. Puri, B.R., Sharma, L.R., Kalia, K.C., Principles of Inorganic Chemistry; 30th edition, Pubs: Milestones Publisher, 2006-07.

9. University General Chemistry, C.N.R. Rao, Macmillan.

10. Inorganic Chemistry, W.W. Porterfield Addison-Wesley.

11. Inorganic Chemistry, A.G. Sharpe, ELBS.

(Session-2019-20)

B.Sc (Med and Non.Medical) SEMESTER–I

COURSE CODE: BSMM/BSNM-1084(II)

ORGANIC CHEMISTRY

(THEORY)

Course outcomes:

Students will be able to

CO1:explain the bonding between different organic compounds

CO2:explain the various reaction mechanisms and different electron displacement effects

CO3: explain the various methods of formation and chemical reactions of alkanes,alkenes and alkynes

CO4: compare the reactivities of various alkyl and aryl halide

CO5: differentiate between aromatic,anti aromatic and non aromatic compounds

CO6: compare the stability of various cycloalkanes

CO7: explain the effect of various substituents on the reactivity of aromatic compounds

(Session-2019-20)

B.Sc (Med and Non.Medical) SEMESTER–I

COURSE CODE: BSMM/BSNM-1084(II)

ORGANIC CHEMISTRY

(THEORY)

Time: 3 Hrs. **Max.Marks: 30**

Instructions for the Paper Setter

Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from UNITs I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

UNIT–I

I. Structure and Bonding

Hybridization, bond lengths and bond angles, bond energy, localized and delocalized chemical bond, Vander Waals interactions, resonance, hyperconjugation, aromticity hydrogen bonding and Inductive and electrometric effects.

II. Mechanism of Organic Reactions

Curved arrow notation, drawing electron movements with arrows, half–headed and double–headed arrows, homolytic and heterolytic bond breaking. Types of reagents – electrophiles and nucleophiles. Types of organic reactions.Energy considerations.

Reactive intermediates –Carbocations, carbanions, free radicals, carbenes, arenes and nitrenes (with examples). Assigning formal charges on intermediates and other ionic species.

UNIT-II

III. Alkanes

Isomerism in alkanes, sources, methods of formation (with special reference to Wurtz reaction, Kolbe reaction, Corey–House reaction and decarboxylation of carboxylic acids), physical properties and chemical reactions of alkanes. Mechanism of free radical halogenation of alkanes: orientation, reactivity and selectivity.

IV. Alkenes and Alkynes

Nomenclature of alkenes, methods of formation, mechanisms of dehydration of alcohols and dehydrohalogenation of alkyl halides, regioselectivity in alcohol dehydration.The Saytzeff rule, Hofmann elimination, physical properties and relative stabilities of alkenes. Chemical reactions of alkenes-mechanisms involved in hydrogenation, electrophilic and free radical additions,

Markownikoff's rule, hydroboration-oxidation, oxymercuration reduction. Epoxidation, ozonolysis, hydration, hydroxylation and oxidation with $KMnO_4$.Substitution at the allylic and vinylic positions of alkenes.

Nomenclature, structure and bonding in alkynes. Methods of formation.Chemical reactions of alkynes, acidity of alkynes.Mechanism of electrophilic and nucleophilic addition reactions, hydroboration-oxidation, metal-ammonia reductions, oxidation and polymerization.

UNIT–III

V. Alkyl and Aryl Halides

Nomenclature and classes of alkyl halides, chemical reactions. Mechanisms of nucleophilic substitution reaction of alkyl halides, SN2 and SN1 reactions with energy profile diagrams. Nuclear and side chain reactions.The addition-elimination and the elimination-addition mechanisms of nucleophilic aromatic substitution reactions.Relative reactivities of alkyl halides vsallyl, vinyl and aryl halides.

VI. Cycloalkanes:

Baeyer's strain theory and its limitations. Ring strain in small rings (cyclopropane and cyclobutane), theory of strainless rings. The case of cyclopropanering : banana bonds.

UNIT-IV

VII. Arenes and Aromaticity

Nomenclature of benzene derivatives.The aryl group.Aromatic nucleus and side chain. Structure of benzene: Molecular formula and Kekule structure. Stability and carbon carbon bond lengths of benzene, resonance structure, MO picture.

Aromaticity: the Huckel's rule, aromatic ions. Aromatic electrophilic substitution–general pattern of the mechanism, role of σ and π complexes.Mechanism of nitration, halogenation, sulphonation, mercuration and Friedel Crafts reaction. Energy profile diagrams. Activating and deactivating substituents, orientation and ortho/para ratio.Side chain reactions of benzene derivatives.Methods of formation and chemical reactions of alkylbenzenes.

Books suggested:

1. Morrison, R.T., Boyd, R.N., Organic Chemistry; 6th edition, Pubs: Prentice-Hall, 1992.

2. Solomons, T.W., Fryhle, C.B., Organic Chemistry; 9th edition, Pubs: Wiley India, 2007.

3. Wade Jr., L.G., Singh, M.S., Organic Chemistry; 6th edition, Pubs: Pearson education, 2008.

4. Mukherji, S.M., Singh, S.P., Kapoor, R.P., Organic Chemistry; Pubs: New Age International, 1985.

5. Carey, F.A., Sundberg, R.J., Advanced Organic Chemistry Part B: Reactions and Synthesis.

6. Fundamentals of Organic Chemistry, Solomons, John Wiley.

7. Introduction to Organic Chemistry, Sireitwieser, Heathcock and Kosover, Macmilan.

(Session-2019-20)

B.Sc. (Med and Non-Medical) SEMESTER–I

COURSE CODE: BSMM/BSNM-1084(P)

CHEMISTRY PRACTICAL

Course outcomes

Students will be able to

CO1:Separate and identify the various ions present in the mixture

CO2: accurately note down the melting and boiling point of organic compounds

(Session-2019-20)

B.Sc. (Med and Non-Medical) SEMESTER–I

COURSE CODE: BSMM/BSNM-1084(P)

CHEMISTRY PRACTICAL

Time: 3½ Hrs. **Max.Marks: 20**

Instruction for practical examiner: Question paper is to be set on the spot jointly by the Internal and External Examiners.Two copies of the same should be submitted for the record to COE Office, KanyaMahaVidyalaya,Jalandhar.

Inorganic Chemistry: Semi Micro analysis. Cation analysis, Separation and identification of ions from groups I, II, III, IV, V, and VI. Anionic analysis.Four ions with no interference.

Organic Chemistry Laboratory Techniques

Determination of Melting Point

Naphthalene 80–82°C Cinnamic acid 132.5–133°C

Benzoic acid 121.5–122°C Salicylic acid 157.5–158°C

Urea 132.5–133°C Acetanilide 113.5–114°C

Succinic Acid 184.5–185°C m–dinitro benzene 90°C

P–dichlorobenzene 52°C Aspirin 135°C

Determination of Boiling Point

Ethanol 78°C Cyclo Hexane 81.4°C,

Benzene–80°C Toluene 110°C

Practical Examination

1) Inorganic Mixture	12
2) Melting Point/Boiling point of organic substance	03
3) Viva–Voce	03
4) Note Book	02

Books suggested:

1. **Vogel's Qualitative Inorganic Analysis revised, Svehla, Orient Longman.**

2. **Experimental Inorganic Chemistry, W.G. Palmer, Cambridge. Standard Methods of Chemical. Analysis, W.W. Scott: The Technical Press.**
3. **Laboratory Manual in Organic Chemistry, R.K. Bansal, Wiley Eastern.**
4. **Vogel's Textbook of Practical Organic Chemistry, B.S. Furniss, A.J. Hannaford, V. Rogers, P.W.G. Smith and A.R. Tatchell, ELBS.**
5. **Experiments in General Chemistry, C.N.R. Rao and U.C. Aggarwal, East-West Press.**

B.Sc. Medical (Semester-I) (Session 2019-20)

BOTANY

Course Code: BSMM-1075(I)

DIVERSITY OF MICROBES

(Theory)

Course outcome: -

After passing this course the student will be able:

CO1: understand diversity in microscopic living organisms and their associations with other organisms.

CO2: understand evolutionary history and time scale of non-vascular plants.

CO3: develop basic knowledge about the variations in life cycle pattern of different organisms.

CO4: to interpret the structure and functional anatomy of plants belonging to the principal groups of living and fossil land plants.

B.Sc. Medical (Semester-I) (Session 2019-20)

BOTANY

Course Code: BSMM-1075(I)

DIVERSITY OF MICROBES

(Theory)

Time: 3Hrs **Max. Marks: 30**

Instructions for the Paper Setters:

Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

UNIT-I

Algae: General characters, classification and economic importance, range of thallus organization, important features and life history of Chlorophyceae–*Volvox, Oedogonium, Coleochaete,*Xanthophyceae–*Vaucheria;*Phaeophyceae– *Ectocarpus, Sargassum;* Rhodophyceae–*Polysiphonia.*

UNIT-II

Viruses, Bacteria and Fungi: General account of viruses and mycoplasma. Bacteria–structure, nutrition, reproduction and economic importance; general account of cyanobacteria.

UNIT-III

Classification and economic importance of fungi. Important features and life history of Mastigomycotina– *Pythium, Phytophthora;* Zygomycotina– *Mucor*, Ascomycotina– *Saccharomyces, Eurotium, Chaetomium, Peziza*.

UNIT-IV

Basidiomycotina–*Puccinia, Agaricus;* Deuteromycotina–*Cercospora,Colletotrichum*.

General account of Lichens.

Suggested Readings:

- Dube, H.C., 2007, A Textbook of Fungi, Bacteria and Viruses (3rd edition), Scientific Publishers, India
- Dube, H.C., 2012, An Introduction to Fungi (4th edition), Scientific Publishers., India.
- James W. Brown. (2014). Principles of Microbial Diversity.ASM press, USA.
- Ogunseitan, O. (2004). Microbial Diversity: Form and function in Prokaryotes. Wiley Publishers, USA.
- Sharma, O.P., 2004, Text Book of Thallophytes. McGraw Hill Publishing Co., India.
- Sharma, P.D., 2004, The Fungi, (2nd Edition) Rastogi Publication, India

B.Sc. Medical (Semester-I) (Session 2019-20)

BOTANY

Course Code: BSMM-1075(II)

DIVERSITY OF CRYPTOGAMS

(Theory)

Course Outcomes:

After passing this course student will be able to:

CO1: Demonstrate knowledge of similarities and differences between vascular and nonvascular plants.

CO2: Build up a sound foundation in the subject of Cryptogamic Botany in general and Bryophytes in particular so that the students may be able to apply the acquired knowledge while interacting into the other fields of Botany.

CO3: Acquaint the students about the classification, morphology, biology and economic importance of various pteridophytic plants.

CO4: recognize different plants and flora that come under cryptogams

B.Sc. Medical (Semester-I) (Session 2019-20)

BOTANY

Course Code: BSMM-1075(II)

DIVERSITY OF CRYPTOGAMS

(Theory)

Time: 3Hrs **Max. Marks: 30**

Instructions for the Paper Setters:

Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

UNIT-I

Bryophyta: Amphibians of plants kingdom displaying alternation of generations; structure, reproduction.

UNIT-II

Classification of Hepaticopsida (e.g. *Marchantia*); Anthocerotopsida (e.g. *Anthoceros*), Bryopsida (e.g. *Funaria*).

UNIT-III

Pteridophyta: The first vascular plant; important characteristics of Psilopsida, Lycopsida, Sphenopsida and Pteropsida; Structure, reproduction in*Rhynia*

UNIT-IV

Lycopodium, Selaginella, Equisetum, Pteris and *Marsilea.*

Suggested Readings:

1. Goffinet B. (2008). Bryophyte Biology. CambridgeUniversityPress, UK.

2. Sambamurty, S.S. (2005). A Textbook of Bryophytes, Pteridophytes, Gymnosperms and Paleobotany. I K International Publishing House Pvt Ltd., India

3. Sharma, O.P. (2014). Bryophyta.McGraw Hill Education Pvt Ltd., India.

B.Sc. Medical (Semester-I) (Session 2019-20)

BOTANY

Course Code: BSMM-1075(P)

PRACTICAL – RELATED TO DIVERSITY OF MICROBES&

DIVERSITY OF CRYPTOGAMS

Course Outcomes:

After passing this course student will be able to:

CO 1: Ability to evaluate different sources of phylogenetic information (e.g. molecular sequence data, ultrastructure, morphology) for understanding algal, fungal.

CO 2: Knowledge of the evolutionary history and time-scale of non-vascular plants, including the development of the first terrestrial plants from green algae.

CO 3: Knowledge of the history and time-scale of land plant evolution, and evaluation of the principal types of evidence underlying.

CO 4: Basic understanding of algal and fungal diversity (incl. morphology, cell structure and level of organization) to phylum level, and their association as lichens.

B.Sc. Medical (Semester-I) (Session 2019-20)

BOTANY

Course Code: BSMM-1075(P)

PRACTICAL – RELATED TO DIVERSITY OF MICROBES&

DIVERSITY OF CRYPTOGAMS

Time: 3 Hrs. **Marks: 20**

Instructions for the paper setter: question paper is to be set on the spot jointly by the Internal and External Examiners. Two copies of the same may be submitted for the record to COE Office, Kanya Maha Vidyalaya, Jalandhar

Suggested Laboratory Exercises

Teachers may select plants/material available in their locality/institution.

1. Gram staining of bacteria.

2. Observation of disease symptoms in hosts infected by fungi, viruses and mycoplasma Section cutting of diseased material and identification of the pathogens as per the theory syllabus.

3. Study of the genera included under algae and fungi.

4. Study of morphology, reproductive structures and anatomy of the examples cited in theory under Bryophyta and Pteridophyta.

5. Types of Bacteria to be observed from temporary /permanent slides /electron micrographs.

Suggested Readings:

1. Lee, R.E. **(2008).** Phycology, Fourth Edition, Cambridge University Press, USA.

2. Agrios, G.N. **(1997).** Plant Pathology, 4th edition, Academic Press, U.K.

B.Sc Medical (Session 2019-20)

SEMESTER–I

Course Code: BSMM-1255

FOOD CHEMISTRY AND NUTRITION (THEORY)

Course Outcomes: After passing this course the student will be able to:

CO1: Understand food,its functions,food groups,malnutrition and nutrient requirement for adult men and women as per ICMR.

CO2: Understand the chemistry underlying the properties of various food components.

CO3: Understand digestion, absorption, transport and utilization of nutrients in the body.

CO4: Learn about the nomenclature, definition, specificity, catalysis of enzyme, factors influencing enzyme activity and role of enzymes in food processing.

CO5: Understand the quality processing of cereals, milk and milk products, egg, meat, fish, poultry, fruits, vegetables and their storage.

B.Sc Medical (Session 2019-20)

SEMESTER–I

Course Code: BSMM-1255

FOOD CHEMISTRY AND NUTRITION (THEORY)

Time: 3 Hours

Max. Marks: 100

Theory Marks: 60

Practical Marks: 20

CA: 20

Instructions for the Paper Setter: Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

UNIT– I

1. **Introduction to nutrition**–food as a source of nutrients, function of foods, definition of nutrition, nutrients, adequate, optimum and good nutrition, malnutrition.

2. **Inter–relationship between nutrition and health**–parameters of good health.

3. **Food guide**–basic five food groups – Importance, uses.

4. **Food Metabolism** – digestion, absorption, transport, utilization of nutrients in the body.

5. **Water**–function, sources, requirement, water balance, effect of deficiency on health.

6. **Carbohydrate**—composition, classification, food sources, storage in body, reaction, structure,
functions of mono, oligo and poly-saccharides in foods.

7. **Fat and oils**— composition, saturated, unsaturated fatty acids, food sources, functions of fats.
Nomenclature and classification, emulsions and emulsifiers, role of fat and oil in food processing.

8. **Proteins** — composition, essential and non–essential amino acids, sources of protein, functions, protein deficiency diseases, physico–chemical properties, modification of food protein during processing and storage.

UNIT - II

9. **Energy** — unit of energy, food as a source of energy, calorific value of food, need for energy, basic metabolic role, utilization of fat, energy requirement.

10. **Minerals**- function, sources, bio–availability and deficiency of macro and micro minerals.

11. **Vitamins**- classification, sources, functions and deficiency diseases of fat and water soluble vitamins.

12. **Recommended dietary Requirements**- Nutrient requirement for adult men and women as per ICMR.

13. **Enzymes**- Nomenclature, definition, specificity, catalysis, enzyme kinetics, factors influencing enzyme activity, controlling enzyme action, role of enzymes in food processing, modification of food by endogenous enzyme and enzyme inhibitors in foods.

14. **Flavors** –Types of flavors.

UNIT– III

15. **Cereals**: Processing and nutritional aspects, breakfast cereals and cereal products.

16. **Milk and Milk Products**: Composition, classification, quality processing, storage, uses, nutritional aspects of milk, curd, butter, paneer, khoa, cheese, ice–cream and various kinds of processed milk.

UNIT– IV

17. **Egg**: grade, quality, selection, storage and uses.

18. **Fish, Poultry and Meat**: Slaughtering and dressing of meat (buffalo), poultry (chicken) and fish, meat quality parameters: meat color, water holding capacity, firmness and factors affecting water holding capacity.

19. **Vegetables and Fruits**: selection, grading, sorting of fruits and vegetables, nutritive value, preservation of fruits and vegetables, processed fruit and vegetable products- jam,jelly, marmalade and canned products.

Books Recommended:

1. Food Chemistry (1996), Owen R. Fennema
2. Food Chemistry, Connie M. Weaver, James R. Daniel
3. Food Chemistry, Mian Hoagland Meyer
4. Principles of Food Chemistry, deMan
5. Basic Food Chemistry, Frank A. Lee
6. Fundamentals of Foods and Nutritions (2001), Mudambi S.R., M.V. Rajgopal
7. Advanced text book of Foods Nutrition (1985), Swaminathan S.
8. Dairy technology: principles of milk properties and processes, P. Walstra, T.J Guerts, A. Noomen, A. Jellema and M.A.J.S Van Boekel
9. Cereal processing technology, Gavin Owens

B.Sc Medical (Session 2019-20)

SEMESTER–I

Course Code: BSMM-1255

FOOD CHEMISTRY AND NUTRITION (PRACTICAL)

Max. Marks: 20

Instructions for the practical examiner: Question paper is to be set on the spot jointly by the Internal and External Examiners. Two copies of the same may be submitted for the record to COE Office, Kanya Maha Vidyalaya, Jalandhar.

List of Practicals

1. Determination of moisture content of wheat flour.
2. Determination of ash content of food sample.
3. Qualitative tests of proteins and lipids in different foods.
4. Estimation of Vitamin C.
5. Determination of salt content in food products.
6. Estimation of volatile and nonvolatile acids in vinegar.
7. Estimation of fat in food sample by Soxhlet apparatus.
8. Cream separation, neutralization and ripening of milk.
9. Preparation of butter.
10. Preparation of Ghee.

SEMESTER–I
BIOINFORMATICS (VOCATIONAL)
FUNDAMENTALS OF COMPUTERS, MOLECULAR BIOLOGY & rDNA TECHNOLOGY
(THEORY)
Course Code: BSNM/ BSMM-1046

Course outcomes: Fundamentals of computer, molecular Biology & Rdna technology.

After passing this course the student will be able to:

CO1: Understand History of Computers, Classification of Computers, Computer Organization and Architecture.

CO2: Understand MS- Word, MS- PowerPoint and MS- excel.

CO3: Understand computer networking, Internet, Internet services and applications of HTML.

CO4: Understand the introduction to Molecular Biology, Proteins Primary, Secondary, Tertiary and Quaternary structures.

CO5: Understand prokaryotic and eukaryotic DNA replication, Prokaryotes and Eukaryotes Translation, Prokaryotes and Eukaryotes Transcription.

CO6: Learn Gene Regulation in Bacteria and Eukaryotes**.**

CO7: Understand Rdna Technology, Techniques used for Sequencing, Genetic Engineering and DNA sequencing methods and concepts of mapping, basic commands of LINUX. Basic DOS and HTML commands.

SEMESTER–I
BIOINFORMATICS (VOCATIONAL)
FUNDAMENTALS OF COMPUTERS, MOLECULAR BIOLOGY & rDNA TECHNOLOGY
(THEORY)
Course Code: BSNM/ BSMM-1046

Time: 3 Hrs **Max Marks: 100**
Theory Marks: 60
Practical Marks: 20
CA: 20

Instructions for the Paper Setter -:

Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

UNIT–I

History of Computers: Evolution, Generation of Computers (I, II, III, IV, V)
Classification of Computers: Notebook, Personal, Mainframe, Minicomputers, Workstation and Supercomputers)-comparison with memory, power, cost, size-then and now.
Computer Organization and Architecture: Computer Architecture, I/O Devices, ALU, Memory chips (RAM, ROM, DRAM), Storage devices, Memory hierarchy.

MS-Word: Introduction to parts of Window, Creating, Opening, Saving and Printing a Document, Text formatting, Page Setup, Margins, Line spacing, Page break, Header and Footers, Spell Checking, Table , Mail Merge.
MS-Power Point: Introduction Power Point Elements, Creating, opening, saving of Power Point slide, Adding text and title, moving and resizing text, text formatting (using Bullets, font style, font size, color and effects) custom animation, slide transition, insert pictures and sound file to slide.
MS-Excel: Introduction, format of electronic worksheet, adding data in worksheet, cell Addressing Ranges, applying and copying formula, various mathematical and statistical functions, and Inserting charts.

UNIT–II

Computer Networking's reference model, Network Topologies, Router, Switch, LAN, WAN, MAN, Wireless LAN and Mobile Computing, TCP/IP protocol.
Internet: Introduction to Internet, World Wide Web, Concepts of Domain, Concept of Web Browser, Concept of Intranet and Extranet, Computer network and security
Internet Services and Applications: Internet Tools. Telnet, FTP, E-Mail, Chat, newsgroups,
HTML: Introduction, common tags, creating hyper links, incorporation of images, Tables; Frames, Formatting of text with fonts

UNIT–III

Introduction to Molecular Biology: Structure and properties of Nucleic acids: (DNA, RNA), Organization of DNA in chromosome in (Prokaryotes and Eukaryotes), Heterochromatin/Euchromatin, Repetitive sequences.
Proteins: Amino acids and their properties; Primary, secondary, tertiary and quaternary structures.

DNA Replication: Mechanisms of prokaryotic and Eukaryotic DNA replication, **DNA Replication:** Mechanisms of prokaryotic and Eukaryotic DNA replication,

UNIT–IV

Introduction to Bioinformatics : Histroy of bioinformatics**,** milestones, objectives and Applications of Bioinformatics.
Nucleic Acid Sequence Databases: GenBank, EMBL, DDBJ; **Protein Sequence Databases:**
Uniprot-KB: SWISS-PROT, TrEMBL, UniParc
Sequence Formats: FASTA, Genbank, PIR, EMBL
Concept of central dogma ,ORF and using ORF FINDER

Recommended Books:

1. Norton's P. (2001). Introduction to Computing Fundamental.*McGraw Hill Education, New Delhi.*
2. Sinha P.K. (2001). Fundamental of Computers.*BPB Publication, New Delhi.*
3. Deborah S. Ray, Eric J. Ray (2002) Mastering HTML and XHTML, Sybex Inc.
4. HTML Complete, 3rd Edition (2003), Sybex Inc.
5. Kapila H. (2003). PC Computing Window Based Computer System. *Dinesh Publishers, Jalandhar.*
6. Grauer B. (2005). Exploring Microsoft Office 2003 (Volume 1).*Prentice Hall, New Jersey.*
7. Brooker, R.J. Genetic Analysis and Principles. Addison Wisely Longman, N.Y. (2001).

8. Pevzner, J. Bioinformatics and Functional Genomics, 3rd Edition

. John Wiley and Sons, N.Y. (2003).
9. Baxevanis A.D. Bioinformatics: A practical guide to the analysis of Gene and Proteins (2nd Edition) 2001.
10. Lodish H, Berk A, Zipursky, S.L., Baltimore, D. Darnel, J. Molecular Cell Biology. W.H. Freemen and Company, USA (2000).
11. Lesk A. M. (2002). Introduction to Bioinformatics.*Oxford University Press.*
12. Krane D. E. and Raymer M. L. (2002).Fundamental Concepts of Bioinformatics.*Benjamin*
Cummings.
13. Lehninger, A.L. Nelson, DL and Cox, MM (2008). Principles of Biochemistry, 5th Ed.,*Worth*
Publishers, New York.
14. Krane D. E. and Raymer M. L. (2002).Fundamental Concepts of Bioinformatics.
15 Higgins D.And Taylor W. (2000). Bioinformatics: Sequence Structure & Data Banks:

SEMESTER–I
BIOINFORMATICS (VOCATIONAL)
(LAB IN COMPUTER FUNDAMENTALS)
(PRACTICAL)
Course Code: BSNM/ BSMM-1046

Time:3 Hrs. **Marks:20**

Instructions for the Paper Setters and Candidates:
The Question paperfor practical examination will be set on the spot jointly by the internal and external examiner.

MS-WORD
1. To create, open, close a document and toolbar operations.
2. Practical to demonstrate formatting options
3. Practical based on page setup, print a document.
4. To add headers, footer, pagebreak.
5. Table handling, Mail Merge.

MS-POWERPOINT
1. Concept of slide, presentation, custom animation.
2. To insert pictures and sound file to slide.
Slide transition.

MS-EXCEL
1. To create, open, close worksheet.
2. To add numeric as well as character data in a cell.
3. To develop formulas, create and modify charts

Basic commands of LINUX.
Basic DOS commands.
Basic Exercises on HTML.

Estimation of amino acids using TLC.

Study of NCBI, EBI AND ExPasy repositories.

Find ORF using ORF finder.

B.A/B.Sc(Medical)/ B.Sc(NoN-Medical)/ B.Sc(Computer Science)/ B.Sc(Economics)/B.Com/BBA/B.A(JMC) B.Sc(FD)/ B.Sc(Home Science)/BCA/ B.Sc(IT) B.Sc(BT)/B.A(Hons.)English/B.Com(hons.)

Semester-I

(Under Continuous Evaluation System)

(SESSION 2019-20)

DRUG ABUSE:Problem,Management and Prevention (COMPULSARY PAPER)

PROBLEM OF DRUG ABUSE

Course code:AECD-1161

(Theory)

Course Outcomes:

- **CO1**. This information can include factual data about what substance abuse is: warning signs of addiction;information about how alcohol and specific drugs affect the mind and body.

- **CO2.** How to be supportive during the detoxification and rehabilitation process.

- **CO3.** Main focus of substance abuse education is teaching individuals about drug and alcohal abuse and how to avoid,stop and get help for substance use disorder.

CO4. Substance abuse education is important for students alike;there are many misconceptions about commonly used legal and illegal substance,such as alcohal,marijuana etc.

B.A. / B.Sc. (Medical) / B.Sc. (Non Medical) / B.Sc. (Computer Science) / B.Sc. (Economics) / B.Com. / BBA/ B.A. (JMC) / B.Sc. (FD) / B.Sc. (Home Science) / BCA/B.Sc(IT)/ B.Sc. (BT)/ B.A (Hons.) in English / B.Com (Hons.)
Semester-I
(Session 2019-20)
Drug Abuse: Problem, Management and Prevention (COMPULSORY PAPER)
PROBLEM OF DRUG ABUSE
Course Code: AECD-1161
(Theory)

Time: 3 Hrs **Max. Marks: 50**
Theory: 40
CA: 10

Instructions for the Paper Setter

Eight questions of equal marks(8 marks each) are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

UNIT-I

1) Meaning of Drug Abuse: Meaning, Nature and Extent of Drug Abuse in India and Punjab.

UNIT-II

2) Consequences of Drug Abuse for:
Individual : Education, Employment, Income.
Family : Violence.
Society : Crime
Nation : Law and Order problem.

UNIT-III

3) Management of Drug Abuse
Medical management : medication for treatment and to withdrawal effects.

UNIT-IV

4) Psychiatric Management: Counselling, Behavioural and Cognitive therapy.
Social Management: Family, Group therapy and Environmental Intervention.

References:

1. Ahuja, Ram (2003), *Social Problems in India*, Rawat Publication, Jaipur.
2. Extent, Pattern and Trend of Drug Use in India, Ministry of Social Justice and Empowerment, Government of India, 2004.
3. Inciardi, J.A. 1981. *The Drug Crime Connection.* Beverly Hills: Sage Publications.
4. Kapoor. T. (1985) *Drug epidemic among Indian Youth*, New Delhi: Mittal Pub.
5. Modi, Ishwar and Modi, Shalini (1997) *Drugs: Addiction and Prevention*, Jaipur:

Rawat Publication.
6. National Household Survey of Alcohol and Drug abuse. (2003) New Delhi, Clinical Epidemiological Unit, All India Institute of Medical Sciences, 2004.
7. Sain, Bhim 1991, *Drug Addiction Alcoholism*, Smoking obscenity New Delhi: Mittal Publications.
8. Sandhu, Ranvinder Singh, 2009, *Drug Addiction in Punjab*: A Sociological Study. Amritsar: Guru Nanak Dev University.
9. Singh, Chandra Paul 2000. *Alcohol and Dependence among Industrial Workers*: Delhi: Shipra.
10. Sussman, S and Ames, S.L. (2008). *Drug Abuse: Concepts, Prevention and Cessation*, Cambridge University Press.

Session 2019-20

B.A/B.Sc/B.Com/BBA

Semester II

PUNJABI COMPULSORY

COURSE CODE-BARL/BSML/BSNL/BCSL/BECL/BCRL/ BBRL-2421

COURSE OUTCOMES

CO1:ਦੋ ਰੰਗ (ਕਹਾਣੀ ਭਾਗ) ਨੂੰ ਪੜ੍ਹਾਉਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਕਵਿਤਾ ਪ੍ਰਤੀ ਦਿਲਚਸਪੀ, ਸੂਝ ਨੂੰ ਪੈਦਾ ਕਰਨਾ ਹੈ ਤਾਂ ਕਿ ਉਹ ਆਧੁਨਿਕ ਦੌਰਵਿਚ ਚੱਲ ਰਹੀਆਂ ਕਾਵਿ ਧਾਰਾਵਾਂ ਅਤੇ ਕਵੀਆਂ ਬਾਰੇ ਗਿਆਨ ਹਾਸਿਲ ਕਰ ਸਕਣ।

CO2:ਇਸ ਦਾ ਹੋਰ ਮਨੋਰਥ ਕਵਿਤਾ ਦੀ ਵਿਆਖਿਆ, ਵਿਸ਼ਲੇਸ਼ਣ ਤੇ ਮੁਲੰਕਣ ਦੀਪ੍ਰਕਿਰਿਆ ਤੋਂ ਜਾਣੂ ਕਰਾਉਣਾ ਵੀ ਹੈ ਤਾਂ ਕਿ ਉਹ ਸਮਕਾਲੀ ਸਮਾਜ ਦੀਆਂ
ਸਮੱਸਿਆਵਾਂ ਨੂੰ ਸਮਝ ਸਕਣ ਅਤੇ ਆਲੋਚਨਾਤਮਕ ਦ੍ਰਿਸ਼ਟੀ ਬਣਾ ਸਕਣ।

CO3:ਸੰਸਾਰ ਦੀਆਂ ਪ੍ਰਸਿਧ ਹਸਤੀਆਂ ਜੀਵਨੀ ਦੀ ਵਿਧਾ ਨੂੰ ਸਿਲੇਬਸ ਵਿਚ ਸ਼ਾਮਿਲਕਰ ਕੇ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਜੀਵਨੀ ਨੂੰ ਪੜ੍ਹਣ ਦੀ ਰੁਚੀ ਨੂੰ ਪੈਦਾ ਕਰਨਾ ਹੈਅਤੇ ਜੀਵਨੀ ਜਗਤ ਨਾਲ ਜੋੜਣਾ ਹੈ।

CO4:ਸ਼ਬਦ ਬਣਤਰ ਅਤੇ ਸ਼ਬਦ ਰਚਨਾ ਪੜ੍ਹਣ ਨਾਲ ਵਿਦਿਆਰਥੀ ਇਸਦੇ ਮੁੱਢਲੇ
ਸੰਕਲਪਾਂ ਨੂੰ ਆਧਾਰ ਬਣਾ ਕੇ ਇਹਨਾਂ ਸੰਕਲਪਾਂ ਤੋਂ ਜਾਣੂ ਹੋਣਗੇ ।

CO5:ਸ਼ਬਦ ਸ਼੍ਰੇਣੀਆਂ ਨੂੰ ਪੜ੍ਹਾਉਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀ ਅਮੀਰੀ ਦਾ ਅਤੇ ਬਾਰੀਕੀਆਂ ਨੂੰ ਸਮਝਣ ਲਈ ਵੱਖਰੇ੍ ਵੱਖਰੇ ਸਿਧਾਂਤਾਂਦਾ ਵਿਕਾਸ ਕਰਨਾ ਹੈ।

CO6:ਅਖਾਣ ਅਤੇ ਮੁਹਾਵਰਿਆਂ ਦੀ ਵਰਤੋਂ ਨਾਲ ਗੱਲਬਾਤ ਵਿਚ ਪਰਪੱਕਤਾ ਆਉਂਦੀ ਹੈ।ਇਹ ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਗੱਲਬਾਤ ਵਿਚ ਨਿਖਾਰ ਲਿਆਉਣ ਦਾ ਕੰਮ ਕਰਨਗੇ।

Session 2019-20

B.A/B.Sc/B.Com/BBA

Semester II

PUNJABI COMPULSORY

COURSE CODE-BARL/BSML/BSNL/BCSL/BECL/BCRL/ BBRL-2421

ਸਮਾਂ: 3 ਘੰਟੇ **Maximum Marks: 50**

Theory: 40

ਛੰਯ 10

ਪਾਠ ਕ੍ਰਮ ਅਤੇ ਪਾਠ ਪੁਸਤਕਾਂ

ਯੂਨਿਟ -I

ਦੋ ਰੰਗ (ਕਹਾਣੀ ਭਾਗ) (ਸੰਪਾ. ਹਰਜਿੰਦਰ ਸਿੰਘ ਢਿਲੋਂ ਅਤੇ ਪ੍ਰੀਤਮਸਿੰਘ ਸਰਗੋਧੀਆ),ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ, ਅੰਮ੍ਰਿਤਸਰ।

(ਰਵਸ਼ਾਵਿਤੂਿਾਰੇਲਖਕ ਦਾ ਜੀਵਨ ਤੇ ਰਚਨਾ)8 ਅੰਕ

ਯੂਨਿਟ -II

ਸੰਸਾਰ ਦੀਆਂ ਪ੍ਰਸਿੱਧ ਹਸਤੀਆਂ (ਜੀਵਨੀ ਨੰ: 10 ਤੋਂ18 ਤਕ)(ਸੰਪਾ.ਪ੍ਰਿੰ. ਤੇਜਾ ਸਿੰਘ, ਹਰਨਾਮ ਸਿੰਘ ਸ਼ਾਮ),

ਪੰਜਾਬੀ ਸਾਹਿਤ ਪ੍ਰਕਾਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।

(ਰਵਸ਼ਾਿਰੇਨਾਇਕ ਰਬੰਬ) 8 ਅੰਕ

ਯੂਨਿਟ੍ III

(ੳ) ਸ਼ਬਦ ਬਣਤਰ ਅਤੇ ਸ਼ਬਦ ਰਚਨਾ : ਪਰਿਭਾਸ਼ਾ, ਮੁੱਢਲੇ ਸੰਕਲਪ।

(ਅ) ਸ਼ਬਦ ਸ਼੍ਰੇਣੀਆਂ
8 ਅੰਕ

ਯੂਨਿਟ੍ IV

(ੳ) ਦਫ਼ਤਰੀ ਚਿੱਠੀ ਪੱਤਰ

(ਨ) ਮੁਹਾਵਰੇ ਅਤੇ ਅਖਾਣ **8 ਅੰਕ**

ਅੰਕ ਵੰਡ ਅਤੇ ਪਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਚਾਰ ਯੂਨਿਟ ਹੋਣਗੇ।ਸੈਕਸ਼ਨ ਂ੍ਹ ਤੱਕ ਦੇ ਪ੍ਰਸ਼ਨ ਯੂਨਿਟਜ਼ਜ਼ਜ਼ ਵਿਚੋਂ ਪੁੱਛੇ ਜਾਣਗੇ। ਹਰ ਯੂਨਿਟ ਵਿਚੋਂ ਦੋ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ।

2. ਵਿਦਿਆਰਥੀ ਨੇ ਕੁਲ ਪੰਜ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹਨ। ਹਰ ਯੂਨਿਟ ਵਿਚੋਂ ਇਕਪ੍ਰਸ਼ਨ ਲਾਜ਼ਮੀ ਹੈ। ਪੰਜਵਾਂ ਪ੍ਰਸ਼ਨ ਕਿਸੇ ਵੀ ਯੂਨਿਟ ਵਿਚੋਂ ਕੀਤਾ ਜਾ
ਸਕਦਾ ਹੈ।

3. ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 08 ਅੰਕ ਹਨ।

4. ਪੇਪਰ ਸੈੱਟ ਕਰਨ ਵਾਲਾ ਜੇਕਰ ਚਾਹੇ ਤਾਂ ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਵੰਡ ਅਗੋਂ ਵੱਧ ਤੋਂਵੱਧ ਚਾਰ ਉਪ ਪ੍ਰਸ਼ਨਾਂ

ਵਿਚ ਕਰ ਸਕਦਾ ਹੈ।

SESSION 2019-20

B.A. / B.Sc. (Medical) / B.Sc. (Non Medical) / B.Sc. (Computer Science) / B.Sc. (Economics) / B.Com. / BBA/ B.A. (JMC) / B.Sc. (FD) / B.Sc. (Home Science) / BCA/B.Sc(IT)/ B.Sc. (BT)/B.Sc(Hons.)Agriculture/B.A(Hons.)In English

SEMESTER–II

ਮੁੱਢਲੀ ਪੰਜਾਬੀ

(In lieu of Compulsory Punjabi)

COURSE CODE -BARL/BSML/BSNL/BCSL/BECL/BCRL/BBRL/BJML/BFDL/

BHSL/BCAL/BITL/BBTL/BOEL/BACL-2031

Course outcomes

CO1:ਮੁੱਢਲੀ ਪੰਜਾਬੀ ਪੜ੍ਹਾਉਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਭਾਸ਼ਾਨੂੰ ਸਿਖਾਉਣ ਦੀ ਪ੍ਰਕਿਰਿਆ ਵਿਚ ਪਾ ਕੇ ਇਕ ਹੋਰ ਭਾਸ਼ਾ ਸਿੱਖਣ ਦੇ ਮੌਕੇ ਪ੍ਰਦਾਨ ਕਰਨਾ ਹੈ।

CO2:ਇਸ ਵਿਚ ਵਿਦਿਆਰਥੀ ਨੂੰ ਬਾਰੀਕਬੀਨੀ ਨਾਲ ਭਾਸ਼ਾ ਦਾ ਅਧਿਐਨਕਰਵਾਇਆ ਜਾਵੇਗਾ।

CO3:ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਸ਼ਬਦ ਰਚਨਾ ਤੋਂ ਜਾਣੂ ਕਰਵਾਇਆ ਜਾਵੇਗਾ।

CO4:ਸ਼ਬਦ ਸ਼੍ਰੇਣੀਆਂ ਨੂੰ ਪੜ੍ਹਾਉਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀ ਅਮੀਰੀ ਦਾ ਅਤੇ ਬਾਰੀਕੀਆਂ ਨੂੰ ਸਮਝਣ ਲਈ ਵੱਖਰੇ ਵੱਖਰੇ ਸਿਧਾਂਤਾਂ ਦਾ ਵਿਕਾਸ ਕਰਨਾ ਹੈ।

CO5:ਮੁੱਢਲੀ ਪੰਜਾਬੀ ਪੜ੍ਹਾਉਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਦਾ ਸ਼ਬਦ ਘੇਰਾ ਵਿਸ਼ਾਲ ਕਰਨਾ ਹੈ।

CO6:ਵਿਦਿਆਰਥੀ ਵਾਕ ਦੀ ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਇਸਦੀ ਬਣਤਰ ਤੋਂ ਜਾਣੂ ਹੋਣਗੇ ਅਤੇਭਾਸ਼ਾ ਤੇ ਪਕੜ ਮਜਬੂਤ ਹੋਵੇਗੀ।

CO7:ਪੈਰ੍ਹਾ ਰਚਨਾ ਦਾ ਮਨਰੋਥ ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਬੁੱਧੀ ਨੂੰ ਤੀਖਣ ਕਰਦਿਆਂ ਉਨਾਂ ਦੀ ਲਿਖਣ ਪ੍ਰਤਿਭਾ ਨੂੰ ਉਜਾਗਰ ਕਰਨਾ ਹੈ।

CO8: ਸੰਖੇਪ ਰਚਨਾ ਕਰਨ ਨਾਲ ਵਿਦਿਆਰਥੀ ਆਪਣੀ ਗੱਲ ਨੂੰ ਸੰਖੇਪ ਵਿਚ ਕਹਿਣਦੀ ਜਾਚ ਸਿੱਖਣਗੇ ਅਤੇ ਇਹ ਦਿਮਾਗੀ ਕਸਰਤ ਵਿਚ ਸਹਾਈ ਹੋਵੇਗੀ।

CO9:ਘਰੇਲੂ ਅਤੇ ਦਫ਼ਤਰੀ ਚਿੱਠੀ ਪੱਤਰ ਲਿਖਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਇਸ ਕਲਾ ਵਿਚ ਨਿਪੁੰਨ ਕਰਨਾ ਹੈ।

CO10:ਅਖਾਣ ਅਤੇ ਮੁਹਾਵਰਿਆਂ ਦੀ ਵਰਤੋਂ ਨਾਲ ਗੱਲਬਾਤ ਵਿਚ ਪਰਪੱਕਤਾਆਉਂਦੀ ਹੈ।ਇਹ ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਗੱਲਬਾਤ ਵਿਚ ਨਿਖਾਰ ਲਿਆਉਣ ਦਾ ਕੰਮ ਕਰਨਗੇ।

SESSION 2019-20

B.A. / B.Sc. (Medical) / B.Sc. (Non Medical) / B.Sc. (Computer Science) / B.Sc. (Economics) / B.Com. / BBA/ B.A. (JMC) / B.Sc. (FD) / B.Sc. (Home Science) / BCA/B.Sc(IT)/ B.Sc. (BT)/B.Sc(Hons.)Agriculture/B.A(Hons.)In English
SEMESTER–II

ਮੁੱਢਲੀ ਪੰਜਾਬੀ

(In lieu of Compulsory Punjabi)

COURSE CODE-BARL/BSML/BSNL/BCSL/BECL/BCRL/BBRL/BJML/BFDL/

BHSL/BCAL/BITL/BBTL/BOEL/BACL-2031

ਸਮਾਂ: 3 ਘੰਟੇ **Maximum Marks: 50**

Theory: 40

CA: 10

ਪਾਠ ਕ੍ਰਮ

ਯੂਨਿਟ I

ਸ਼ਬਦ ਸ਼੍ਰੇਣੀਆਂ : ਪਛਾਣ ਅਤੇ ਵਰਤੋਂ (ਨਾਂਵ, ਪੜਨਾਂਵ, ਕਿਰਿਆ, ਵਿਸ਼ੇਸ਼ਣ,ਕਿਰਿਆ ਵਿਸ਼ੇਸ਼ਣ, ਸਬੰਧਕ, ਯੋਜਕ ਅਤੇ ਵਿਸਮਿਕ)

08 ਅੰਕ

ਯੂਨਿਟ -II

ਪੰਜਾਬੀ ਵਾਕ ਬਣਤਰ : ਮੁੱਢਲੀ ਜਾਣ ਪਛਾਣ

(ੳ) ਸਾਧਾਰਨ ਵਾਕ, ਸੰਯੁਕਤ ਵਾਕ ਅਤੇ ਮਿਸ਼ਰਤ ਵਾਕ (ਪਛਾਣ ਅਤੇ ਵਰਤੋਂ)

(ਅ) ਬਿਆਨੀਆ ਵਾਕ, ਪ੍ਰਸ਼ਨਵਾਚਕ ਵਾਕ ਅਤੇ ਹੁਕਮੀ ਵਾਕ (ਪਛਾਣ ਅਤੇਵਰਤੋਂ) 08 ਅੰਕ

ਯੂਨਿਟ -III

ਪੈਰ੍ਹਾ ਰਚਨਾ

ਸੰਖੇਪ ਰਚਨਾ 08 ਅੰਕ

ਯੂਨਿਟ IV

ਚਿੱਠੀ ਪੱਤਰ (ਘਰੇਲੂ ਅਤੇ ਦਫ਼ਤਰੀ)

ਅਖਾਣ ਅਤੇ ਮੁਹਾਵਰੇ 08 ਅੰਕ

ਅੰਕਵੰਡ ਅਤੇ ਪੇਪਰ ਸੈਟਰ ਲਈ ਹਦਾਇਤਾਂ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਚਾਰ ਯੂਨਿਟ ਹੋਣਗੇ।ਸੈਕਸ਼ਨ ਂ੍ਹ ਤੱਕ ਦੇ ਪ੍ਰਸ਼ਨ ਯੂਨਿਟ ਜ਼ੁਜ਼ੜ ਵਿਚੋਂ ਪੁੱਛੇ ਜਾਣਗੇ ਹਰ ਯੂਨਿਟ ਵਿਚੋਂ ਦੋ ਪ੍ਰਸ਼ਨਪੁੱਛੇ ਜਾਣਗੇ।
2. ਵਿਦਿਆਰਥੀ ਨੇ ਕੁਲ ਪੰਜ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹਨ। ਹਰ ਭਾਗ ਵਿਚੋਂ ਇਕ ਪ੍ਰਸ਼ਨਲਾਜ਼ਮੀ ਹੈ। ਪੰਜਵਾਂ ਪ੍ਰਸ਼ਨ ਕਿਸੇ ਵੀ ਭਾਗ ਵਿਚੋਂ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ।
3. ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 16 ਅੰਕ ਹਨ।
4. ਪੇਪਰ ਸੈੱਟ ਕਰਨ ਵਾਲਾ ਜੇਕਰ ਚਾਹੇ ਤਾਂ ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਵੰਡ ਅਗੋਂ ਵੱਧ ਤੋਂਵੱਧ ਚਾਰ ਉਪ ਪ੍ਰਸ਼ਨਾਂ ਵਿੱਚ ਕਰ ਸਕਦਾ ਹੈ।

Punjab History & Culture (From Earliest Times to C. 320)-BSMM-2431
(Special Paper in lieu of Punjabi compulsory)
Session 2019-20
SEMESTER-II
COURSE OUTCOMES

After completing Semester II and course on Ancient History of Punjab, students of History will be able to identify and have a complete grasp on the sources & writings of Ancient History of Punjab

CO 1: Analyse the emergence of Mauryan, Gupta empires during the classical age in India

CO 2: To understand the various factors leading to rise and fall of empires and emergence of new dynasties and their Culture, society, administration , polity and religion specifically of Kushans and Vardhanas in the Punjab

CO 3: Students will be adept in constructing original historical argument based on primary source material research

CO 4: To have an insight on the existing Literature of this period and understand the past developments in the light of present scenario.

CO 5: To enable students to have thorough insight into the various forms/styles of Architecture and synthesis of Indo - Muslim Art and Architecture in Punjab

FACULTY OF ARTS AND SOCIAL SCIENCES
KANYA MAHA VIDYALAYA, JALANDHAR
(Autonomous)
Session 2019-20
Punjab History & Culture (C 321 to 1000 A.D.)
(Special Paper in lieu of Punjabi compulsory)
SEMESTER-II

Time: 3 Hours **Max. Marks: 50**

Theory: 40

Continuous Assessment: 10

Instructions for the Paper Setters

The question paper will have 4 units, namely unit I, II, III and IV.

Question paper shall consist of four Units.Candidates shall attempt 5 questions in all, by at least selecting one question from each unit and the 5th question may be attempted from any of the four units. Each question will carry 8 marks.

Unit-I

1. Punjab under Chandragupta Maurya and Ashoka
2. The Kushans and their Contribution to the Punjab

Unit -II

3. The Panjab under the Gupta Emperor
4. The Punjab under the Vardhana Emperors

Unit-III

5. Political Developments 17th Century to 1000 A.D. (Survey of Political)
6. Socio-cultural History of Punjab from 7th to 1000 A.D.

Unit -IV

7. Development of languages and Literature
8. Development of art & Architecture

Suggested Readings

1. B.N. Sharma: *Life in Northern India*, Delhi. 1966.
2. Budha Parkash : *Glimpses of Ancient Punjab*, Patiala, 1983.
3. L. Joshi (ed): *History and Culture of the Punjab*, Art-I, Patiala, 1989 (3rd edition)
4. L.M. Joshi and Fauja Singh (ed); *History of Punjab* , Vol.I, Patiala 1977.

B.A./ B.Sc. (Medical)/ B.Sc. (Non Medical)/ B.Sc. (Computer Science)/ B.Sc. (Economics)/ B.Com./ BBA (Session 2019-20)

SEMESTER–II

ENGLISH (COMPULSORY)

Course Code: BARL/BSML/BSNL/BCSL/BECL/BCRL/ BBRL-2212

COURSE OUTCOMES

After passing this course, the students will be able to:

CO1: Appreciate the writings of various Indian and foreign poets and prose writers and relate them to their socio-cultural milieu.

CO2: Comprehend the meaning of texts and answer questions related to situations, episodes, themes and characters depicted in them.

CO3: Change the narration and voice of sentences after understanding fundamental grammatical rules governing them.

CO4: Enrich their vocabulary and use new words in their spoken and written language.

CO5: Independently write personal letters to their family and friends on various issues.

B.A./ B.Sc. (Medical)/ B.Sc. (Non Medical)/ B.Sc. (Computer Science)/ B.Sc. (Economics)/ B.Com./ BBA (Session 2019-20)

SEMESTER–II

ENGLISH (COMPULSORY)

Course Code: BARL/BSML/BSNL/BCSL/BECL/BCRL/ BBRL-2212

Time: 3 Hours

Max. Marks: 50
Theory: 40
Continuous Assessment: 10

Instructions for the Paper-Setter and Distribution of Marks:

The question paper will consist of 4 sections & distribution of marks will be as under:

Section-A: The question will be set from Unit I of the syllabus. Fourteen sentences would be set and the students would be required to attempt any ten. Each sentence would carry one mark. **(1x10=10)**

Section-B: Two questions will be set from Unit II of the syllabus. The students would be required to attempt one personal letter out of the given two. It would carry five marks. The second question will be based on grammar. The students will be required to attempt any five sentences out of eight and each sentence will carry one mark. **(2x5=10)**

Section-C: Two questions will be set from Unit III of the syllabus. One essay type question with internal choice would be set, which carries six marks. The students would be required to attempt any one. The second question would carry three questions. The students would be required to attempt any two. Each question would carry two marks. **(6+2x2=10)**

Section-D: Two questions will be set from Unit IV of the syllabus. One essay type question with internal choice would be set, which carries six marks. The students would be required to attempt any one. The second question would carry three questions. The students would be required to attempt any two. Each question would carry two marks. **(6+2x2=10)**

Texts Prescribed:

1. *Tales of Life* (Guru Nanak Dev University, Amritsar) Stories at Sr. No. 7, 9, 10, 11, 12
2. *Prose for Young Learners* (Guru Nanak Dev University, Amritsar) Essays at Sr. No. 7, 8, 9, 10, 11
3. *English Grammar in Use* (Fourth Edition) by Raymond Murphy, CUP (Units: 49-97)

The syllabus is divided in four sections as mentioned below.

Unit I: English Grammar in Use, 4th Edition by Raymond Murphy, CUP (Units: 49-81)
Unit II: Personal letter Writing and English Grammar in Use (Units: 82-97)
Unit III: Tales of Life (Guru Nanak Dev University, Amritsar) 7, 9, 10, 11, 12
Unit IV: Prose for Young Learners (Fourth Edition) by Raymond Murphy, CUP 7, 8, 9, 10 and 11

B.Sc. Medical (Semester–II)(Session 2019-20)

ZOOLOGY

ECOLOGY

Course Code: BSMM-2483 (I)

(THEORY)

Course Outcomes:

After passing this course the student will be able to:

- CO1. Construct the food web.
- CO2.Familiarise with ecological adaptations.
- CO3. Know about the characteristics of population & biotic community.
- CO4. Know about the conservation of resources.

B.Sc. Medical (Semester–II)(Session 2019-20)

ZOOLOGY

ECOLOGY

Course Code: BSMM-2483 (I)

(THEORY)

Max. Time: 3 Hrs. **Max Marks: 30**

Instructions for the Paper Setter

Eight questions of equal marks (6 marks each) are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

UNIT-I

Ecology: Definition, Subdivisions and scope of ecology.

Ecosystem: Components, ecological energetics, food web, major ecosystems of the world.

Ecological factors: Temperature, light and soil as ecological factors.

UNIT-II

Nutrients: Biogeochemical cycles and concept of limiting factors.

Ecological Adaptations: Morphological, physiological and behavioural adaptations in animals in different habitats.

UNIT-III

Population: Characteristics and regulations of population. Inter and Intra Specific relationship: Competition, Predation, Parasitism, Commensalism and Mutualism.

Biotic community: Characteristics, ecological succession, ecological niche.

UNIT-IV

Natural resources: Renewable and nonrenewable natural resources and their conservations.

Environmental Issues: Causes, impact and control of environmental pollution.

Suggested Readings:

1. Anderwartha, H.G. and Birch, L. C. (1970), The distribution and abundance of animals, University of Chicago Press, Chicago London.
2. Beeby, A. (1992), Applying Ecology, Chapman and Hall Madras.
3. Begon, M., Harper J. L. and Townsend, C. R. (1995), Ecology – Individuals, populations and communities, Blackwell Science, Cambridge UK.
4. Brewer, R. (1994), The science of Ecology, Saunders College of Publishing, New York.
5. Chapman, J. L. and Resis, M. J. (1995), Ecology- Principles and applications, Cambridge University Press, Cambridge UK.
6. Kaeighs, S. C. (1974), Ecology with special references to animal and Man, Prentice Hall Inc.
7. Kormondy, E.J. (1975), Concept of Ecology, Englewood Cliffs, N.J. Prentice Hall Inc.
8. Kreb C.J. (1982), Ecology, Harper & Row, New York.
9. Putmann, R. J. and Wratten, S. D. (1984), Principles of Ecology, Crown Helm, London.

B.Sc. Medical (Semester–II)(Session 2019-20)

ZOOLOGY

BIODIVERSITY-II

(ARTHROPODA TO HEMICHORDATA)

Course Code: BSMM-2483 (II)

(THEORY)

Course Outcomes:

After passing this course the student will be able to:

- CO1. Familiarize with the non-chordate world that surrounds us.
- CO2. Appreciate the process of evolution (unicellular cells to complex, multicellular organisms).
- CO3. Identify the invertebrates and classify them up to the class level with the basis of systematic.
- CO4. Understand the basis of life processes in the non-chordates and recognize the economically important invertebrate fauna.

B.Sc. Medical (Semester–II)(Session 2019-20)

ZOOLOGY

BIODIVERSITY-II

(ARTHROPODA TO HEMICHORDATA)

Course Code: BSMM-2483 (II)

(THEORY)

Max. Time: 3 Hrs. **Max Marks: 30**

Instructions for the Paper Setter

Eight questions of equal marks (6 marks each) are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

UNIT-I

Arthropoda: Type study-*Periplaneta americana* (Cockroach),

Social organizations in insects (Honey bee and Termite)

UNIT-II

Mollusca: Type study-*Pila globosa,* Tortion, Pearl formation

UNIT-III

Echinodermata: Type study - *Asterias* (Star fish), Study of Echinoderm larvae

UNIT-IV

Hemichordata: Type study - *Balanoglossus* (External characters only).Affinities of Hemichordates with Non-Chordates and Chordates

Suggested Readings:

1. Barnes, R.D.(1999), Invertebrate Zoology. W.B. Saunder, Philadelphia.

Dhami, P.S. & Dhami, J. K., Invertebrates, R. Chand & Co., New Delhi, 2001.

2. Barth, R. H. and Broshears, R. E (1982), The Invertebrate world. Holt Saunder, Japan.
3. Brusca, R. C. and Brusca, G. J. (2003), Invertebrates (2nd ed), Sinauer Associates, Inc. Publishers, Sunderland, Massachusetts.
4. Engemann, J. G. and Hegner, R. W. (1981), Invertebrate Zoology (3rd ed), Macmillan, New York.
5. Gardiner, M. S. (1972), The Biology of Invertebrates, McGraw Hill, New York.
6. Meglitsch, P. A. and Schran, F. R. (1991), Invertebrate Zoology (3rd ed), Oxford University Press, New York.
7. Pechenik, A. Jan. (2000), Biology of the invertebrates, (4th ed), McGraw Hill Book Co. Singapore.

B.Sc. Medical (Semester–II)(Session 2019-20)

ZOOLOGY

PRACTICAL–IIRelated To Ecology & Biodiversity-II

Course Code: BSMM-2483 (P)

Course Outcomes:

After passing this course the student will be able to:

- CO1. Know about the morphological, physiological & behavioural adaptations of different animals in different habitats.
- CO2. Familiarise with the classification & ecology of invertebrates.
- CO3.Identify different zoogeographical realms with fauna.
- CO4. Know about the different nest of birds.

B.Sc. Medical (Semester–II)(Session 2019-20)

ZOOLOGY

PRACTICAL–IIRelated To Ecology & Biodiversity-II

Course Code: BSMM-2483 (P)

Time: 3hrs. **Marks: 20**

Instructions for the Practical Examiners: Question paper is to set on the spot jointly by the Internal and External Examiners. Two copies of the same should be submitted for the record to COE Office, Kanya Maha Vidyalaya, Jalandhar

Guideslines for conduct of practical Examination:-

1.	Identifiy and classify the specimens upto order. Write a note on their habit, habitat, special features and economic importance.	4
2.	Draw a well labelled sketch of the given system of the animal & explain it to the examiner.	3
3.	Identify the slides/models and give two reasons for identification.	3
4.	Identify the adaptive feature/nest.	2
5.	Mark the distribution of animals of a realm on the map.	2
6.	Assignment	2
7.	Viva-voce & Practical file.	4

1. **Classification up to orders with ecological notes and economic importance (if any) of the following animals** :

A. Arthropoda : *Peripatus, Palaemon* (prawn), *Lobster, Cancer* (crab), *Sacculina, Eupagurus* (hermit Crab), *Lepas, Balanus,* Cyclops, *Daphnia, Lepisma, Periplaneta* (cockroach), *Schistocerca* (locust), *Poecilocerus* (ak grasshopper), *Gryllus* (cricket), *Mantis* (praying mantis), *Cicada, Forficula* (earwig), Dragonfly, Termite queen, Bug, Moth, Beetles, Polistes, (wasp), *Apis* (honey bee), *Bombyx, Pediculus* (body louse) Millipede and Centipede, *Palamnaeus* (scorpion), *Aranea* (spider) and *Limulus* (king Crab).

B. Mollusca: *Anodonta, Mytilus, Ostrea, Cardium, Pholas, Solen* (razor fish), Pecten, *Haliotis, Patella, Aplysia, Doris, Limax, Loligo, Sepia, Octopus, Nautilus* shell (Complete and T.S.), *Chiton, Dentalium.*

C. Echinodermata : *Asterias, Echinus Ophiothrix, Antedon.*

D. Hemichordata : *Balanoglossus.*

2. **Study of the following permanent stained preparations**:

A. Trachea and mouth parts of Insects

B. Radula and osphradium of *Pila*

C. T.S. Star fish (Arm).

3. **Demonstration of** digestive and nervous systems of Periplaneta (cockroach) with the help of charts/models/videos.

4. Ecology:

A. Study of animal adaptations with the help of specimens, charts and models.

B. Study of abiotic and biotic components of an ecosystem.

C. Study of different types of nests of birds.

D. Study and preparation of Zoogeographical charts.

5. Assignment

Note:- Some changes can be made in the practicals depending on the availability of material.

B.Sc Medical (Session 2019-20)

SEMESTER–II

Course Code: BSMM-2343

BASIC FOOD MICROBIOLOGY

(THEORY)

Course Outcomes:

After passing this course the student will be able to:

CO1: Understand the intrinsic and extrinsic factors affecting the growth of various microorganisms in foods and microorganisms important in food microbiology.

CO2: Learn about the origin and preparation of fermented foods (bread, dosa, idli, warri, tempeh, miso).

CO3: Understand the Principles of food preservation and various methods of preservation (high temperature, low temperature, drying, chemical preservatives) and applications of prebiotics and probiotics.

CO4: Understand the spoilage of food (milk and milk products, cereal and cereal products, vegetable and fruits, meat and meat products, canned foods) and food poisoning and infection.

B.Sc Medical (Session 2019-20)

SEMESTER–II

Course Code: BSMM-2343

BASIC FOOD MICROBIOLOGY

(THEORY)

Time: 3 Hrs. **Max Marks: 100**

Theory Marks: 60

Practical Marks: 20
CA: 20

Instructions for the Paper Setters: Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four).
Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

UNIT–I

1. Food as a substrate for microorganisms, intrinsic and extrinsic factors affecting the growth of various microorganisms in foods. Microorganisms important in food microbiology–bacteria, yeasts and molds, sources of contamination in foods.

UNIT–II

2. Fermented foods, origin of fermentation as a method of preparing indigenous foods, bread, dosa, idli, warri, tempeh, miso.

UNIT–III

3. Principles of food preservation and spoilage, asepsis, anaerobic conditions, aseptic packaging, preservation methods, high temperature, low temperature, drying, chemical preservatives. Applications of prebiotics and probiotics.

UNIT–IV

4. Spoilage of various milk and milk products, cereal and cereal products, vegetable and fruits, meat and meat products, canned foods. Food poisoning and food infection. Staphylococcal, Clostridium and Salmonella intoxications.

Books Recommended:

1. Frazier. W.C. and Westhoff, D.C. 2006, 26th edition, Food Microbiology, Tata McGraw Hill Publishing Co., Ltd., New Delhi.

2. Banwart, G.J., 2012, Basic Food Microbiology, Springer Verlag, New Delhi.

3. Powar, C.B. and Dagniwala, H.F. 2012, General Microbiology Volume II. Himalaya Publishing House, New Delhi. 128

B.Sc Medical (Session 2019-20)

SEMESTER–II

Course Code: BSMM-2343

BASIC FOOD MICROBIOLOGY

(PRACTICAL)

Time: 3 hrs **Marks: 20**

Instructions for the practical examiner: Question paper is to be set on the spot jointly by the Internal and External Examiners. Two copies of the same may be submitted for the record to COE Office, Kanya Maha Vidyalaya, Jalandhar.

LIST OF PRACTICALS

1. To enumerate the total microbial cells in a suspension by serial dilution and pour plating.
2. To enumerate the total bacteria in milk by direct microscopic count.
3. To measure the size of microbial cells by ocular micrometer.
4. To study the morphology of bacteria, yeasts and molds.
5. To check the bacteriological quality of raw milk by methylene blue reduction test.

(Session-2019-20)

B.Sc (Med and Non-Medical) SEMESTER–II

COURSE CODE: BSMM/BSNM-2084(I)

INORGANIC CHEMISTRY

(THEORY)

Course outcomes:

Students will be able to

CO1: explain the atomic, physical and chemical properties of alkali metals and alkaline earth metals

CO2:recognise the anomalous properties of Li and compares the properties Li with those other alkali metals

CO3: recognises the anomalous properties of Be and compares the properties of Be with those other alkaline earth metals

CO4: explains the trends in atomic and physical properties of group 13 ,14,15,16,17 elements

explains chemical properties of above group elements

CO5: describe allotropic forms of elements

CO6: Exhaustive understanding of d–block elements belonging to 4^{th},5^{th} and 6^{th} period.

CO7: Understand the simple concepts of pH and complete and balance simple acid-base reactions.

(Session-2019-20)

B.Sc (Med and Non-Medical) SEMESTER–II

COURSE CODE: BSMM/BSNM-2084(I)

INORGANIC CHEMISTRY

(THEORY)

Time: 3 Hrs. **Max.Marks: 30**

Instructions for the Paper Setter

Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from UNITs I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

UNIT–I

I. p–Block Elements–I

Comparative study (including diagonal relationship) of groups 13–17 elements, compounds like hydrides, oxides, oxyacids and halides of groups 13–16, hydrides of boron–diborane and higher boranes, Borazine, borohydrides, fullerenes.

UNIT-II

II. s-Block Elements

Comparative studies, diagonal relationship, salient features of hydrides, salvation and complexation tendencies.

III. Acids and Bases

Arrhenius, Bronsted-Lowry, the Lux-Flood, solvent system and Lewis concepts of acids and bases.

UNIT-III

IV. p–Block Elements-II

Carbides, fluorocarbons, silicates (structural principle), tetrasulphurtetranitride, basic properties of halogens, interhalogens and polyhalide**,**Silicones and phosphazenes as examples ofinorganicpolymers, nature of bonding in triphosphazenes.

UNIT-IV

V. Chemistry of Transition Elements

Characteristic properties of *d*–block elements.Properties of the elements of the first transition series, their simple compounds and complexes illustrating relative stability of their oxidation states, coordination number and geometry.General characteristics of elements of Second and Third

Transition Series, comparative treatment with their *3*d analogues in respect of ionic radii, oxidation states, magnetic behaviour.

Books Suggested:

1. Cotton, F.A., Wilkinson, G., Gaus, P.L., Basic Inorganic Chemistry; 2nd edition, Pubs: John Wiley and Sons, 1995.

2. Lee, J.D., Concise Inorganic Chemistry; 4th edition, Pubs: Chapman & Hall Ltd., 1991.

3. Shriver, D.E., Atkins, P.W., Inorganic Chemistry; 4th edition, Pubs: Oxford University Press, 2006.

4. Douglas, B., Medaniel, D., Atenander, J., Concepts and Models of Inorganic Chemistry; 3rd edition, Pubs: John Wiley and Sons Inc., 1994,

5. Porterfeild, W.W., Wesky, A., Inorganic Chemistry; Pubs: Addison-Wesky Publishing Company, 1984.

6. Miessler, G.L., Tarr, D.A., Inorganic Chemistry; 3rd edition, Pubs: Pearson Education Inc., 2004,

7. Jolly, W.L., Modern Inorganic Chemistry; 2nd edition, Pubs: Tata McGraw-Hill Publishing Company Limited, 1991.

8. Purcell, K.F., Kotz, J.C., Inorganic Chemistry; Pubs: W.B.Saunders Company, 1977.

9. Puri, B.R., Sharma, L.R., Kalia, K.K., Principles of Inorganic Chemistry; 30th edition, Pubs: Milestones Publisher, 2006-07.

10. Inorganic Chemistry, W.W. Porterfield Addison-Wesley.

11. Inorganic Chemistry, A.G. Sharpe, ELBS.

(Session-2019-20)

B.Sc. (Med and Non-Medical) SEMESTER–II

COURSE CODE: BSMM/BSNM-2084(II)

PHYSICAL CHEMISTRY

(THEORY)

Course outcomes:

Students will be able to

CO1: acquire the knowledge of structure and intermolecular forces present between solids, liquids and gases.

CO2: demonstrate an understanding of basic principles of colligative properties

CO3: understand the basic concepts of colloidal state of matter and applications of colloids.

CO4: explain various gaseous laws and their applications.

(Session-2019-20)

B.Sc. (Med and Non-Medical) SEMESTER–II

COURSE CODE: BSMM/BSNM-2084(II)

PHYSICAL CHEMISTRY

(THEORY)

Time: 3 Hrs. **Max.Marks: 30**

Note: Log table and Non-Programmable calculators are allowed

Instructions for the Paper Setter

Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from UNITs I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

UNIT–I

I. Gaseous States: Postulates of kinetic theory of gases, deviation from ideal behaviour, van der Waal's equation of state.

Critical Phenomena: PV isotherms of real gases, continuity of states, the isotherms of van der Waal's equation, relationship between critical constants and van der Waals constants, the law of corresponding states, reduced equation of state.

Molecular Velocities: Root mean square, average and most probable velocities. Qualitative discussion of the Maxwell's distribution of molecular velocities, collision number, mean free pathand collision diameter. Liquefaction of gases.

UNIT –II

II. Liquid State

Intermolecular forces, structure of liquids (a qualitative description). Structural differences between solids, liquids and gases. Liquid crystals: Difference between liquids crystal, solid and liquid.Classification, structure ofnematic and cholestric phases. Thermography and seven segment cell.

UNIT –III

III. Colloidal State

Definition of colloids, classification of colloids. Solids in liquids (Sol): kinetic, optical and electrical properties, stability of colloids, protective action, Hardy Schulze law, gold number. Liquids in liquids (emulsions): Types of emulsions, preparation. Emulsifiers.general applications of colloids.

UNIT –IV

IV.Solutions, Dilute Solutions and Colligative Properties

Ideal and non–ideal solutions, methods of expressing concentrations of solutions, activity and activity coefficient. Dilute solution, colligative properties, Raoult's law, relative lowering of vapour pressure, molecular weight determination. Osmosis, Law of osmotic pressure and its measurement, determination of molecular weight from osmotic pressure. Elevation of boiling point and depression of freezing point, Thermodynamic derivation of relation between molecular weight and elevation in boiling point and depression in freezing point. Experimental methods for determining various colligative properties.Abnormal molar mass, degree of dissociation and association of solutes.

Books suggested:

1. Atkins, P., Paula, J.de, Atkins Physical Chemistry; 8th edition, Pubs: Oxford University Press, 2008.

2. Puri, B.R., Sharma, L.R., Pathania, M.S., Principles of Physical Chemistry; 43rd edition, Pubs: Vishal Publishing Co., 2008.

3. Barrow, G.M., Physical Chemistry; 6th edition, Pubs: McGraw Hill Inc, 1996.

4. Rao, C.N.R., University General Chemistry; Pubs: Macmillan India, 1985.

5. Berry, R.S., Rice, S.A., Ross, J., Physical Chemistry; 2nd edition, Pubs: Oxford University Press, 2000.

6. Albert, R.A., Silbey, R.J., Physical Chemistry; 1st edition, Pubs: John Wiley & Sons Inc.,1992.

7. Dogra, S.K., Dogra, S., Physical Chemistry Through Problems; Pubs:Wiley Eastern Limited, 1991.

8. Levine, I.N., Physical Chemistry; 5th edition, Pubs: Tata McGraw Hill Publishing Co. Ltd., 2002.

9. Moore, W. J., Basic Physical Chemistry; Pubs: Prentice Hall of India Pvt. Ltd, 1983.

10.University General Chemistry, C.N.R. Rao, Macmillan.

(Session-2019-20)

B.Sc. (Med and Non-Medical) SEMESTER–II

COURSE CODE: BSMM/BSNM-2084(P)

CHEMISTRY PRACTICAL

Course outcomes:

Students will be able to

CO1: understand the technique of crystallisation

CO2: compare the viscosity and surface tension of different liquids and solutions

CO3: determine the rate of the reactions

CO4: efficiently use of calorimeter in various experiments

(Session-2019-20)

B.Sc. (Med and Non-Medical) SEMESTER–II

COURSE CODE: BSMM/BSNM-2084(P)

CHEMISTRY PRACTICAL

Time: 3½ Hrs. **Max.Marks:20**

Instruction for practical examiner: Question paper is to be set on the spot jointly by the Internal and External Examiners.Two copies of the same should be submitted for the record to COE Office, KanyaMahaVidyalaya, Jalandhar.

Crystallisation:

Concept of indication of crystallization.Phthalic acid from hot water (using fluted filter paper & stem less funnel)

Acetanilide from boiling water

Naphthalene from Ethanol

Benzoic acid from water

Physical Chemistry

1. To determine the specific reaction rate of hydrolysis of ethyl acetate catalysed by Hydrogen ions at room temperature.
2. To study the effect of acid strength on hydrolysis of an ester.

Viscosity, Surface Tension (Pure Liquids)

3. To study the viscosity and surface tension of CCl_4, glycerine solution in water.
4. To determine the solubility of benzoic acid at different temperatures and to determine ΔH of the dissolution process.
5. To determine the enthalpy of neutralisation of a weak acid/weak base versus strong base/strong acid and determine the enthalpy of ionisation of the weak acid/weak base.
6. To determine the enthalpy of dissolution of solid calcium chloride and calculate the lattice energy of calcium chloride from its enthalpy data using Born Haber cycle.

Practical Examination:		**Marks**
1)	Crystallisation	05
2)	Physical Experiment	10

3)	Viva–Voce	03
4)	Note Book	02

Books suggested :

1. **Experimental Organic Chemistry, Vol. I & II, P.R. Singh, D.S. Gupta and K.S. Bajpai, Tata McGraw Hill.**
2. **Laboratory Manual in Organic Chemistry, R.K. Bansal, Wiley Eastern.**
3. **Vogel's Textbook of Practical Organic Chemistry, B.S. Furniss, A.J. Hannaford, V. Rogers, P.W.G. Smith and A.R. Tatchell, ELBS.**
4. **Experiments in General Chemistry, C.N.R. Rao and U.C. Aggarwal, East-West Press.**
5. **Experiments in Physical Chemistry, R.C. Das and B. Behra, Tata McGraw Hill.**
6. **Advanced Practical Physical Chemistry, J.B. Yadav, Goel Publishing House.**
7. **Advanced Experimental Chemistry, Vol. I, Physical, J.N. Guru and R. Kapoor, S. Chand & Co.**
8. **Selected Experiments in Physical Chemistry, N.G. Mukherjee, J.N. Ghosh& Sons.**
9. **Experiments Physical Chemistry, J.C. Ghosh, BharatiBhavan.**

B.Sc. Medical (Semester-II) (Session 2019-20)

BOTANY

Course Code: BSMM-2075(I)

CELL BIOLOGY

(Theory)

Course Outcomes:

After passing this course student will be able to:

CO1: explain cellular processes and mechanisms that lead to physiological functions as well as examples of pathological state.

CO2: describe the intricate relationship between various cellular structures and their corresponding functions.

CO3: describe cytological, biochemical, physiological and genetic aspects of the cell, including cellular processes common to all cells, to all eukaryotic cells as well as processes in certain specialized cells.

CO4: relate normal cellular structures to their functions.

B.Sc. Medical (Semester-II) (Session 2019-20)

BOTANY

Course Code: BSMM-2075(I)

CELL BIOLOGY

(Theory)

Time: 3Hrs **Max. Marks: 30**

Instructions for the Paper Setters:

Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

UNIT-I

Structure and Function of Nucleus; Ultrastructure; nuclear membrane; nucleolus. An Overview: prokaryotic and eukaryotic cells, cell size and shape and *Escherichiacoli*.

UNIT-II

Extranuclear Genome: Presence and function of mitochondrial and plastid DNA; plasmids. Structure and Function of other Organelles: Golgi bodies, Endoplasmic reticulum, Peroxisomes, Vacuoles.

UNIT-III

Chromosome Organization: Morphology; centromere and telomere; chromosome alterations; deletions, duplications, translocations, inversions; variations in chromosome number, aneuploidy, polyploidy; sex chromosomes.

UNIT-IV

The Cell Envelopes: Plasma membrane; bilayer lipid structure; functions; the cell wall.

Suggested Readings:

1. Gupta, P.K. (2013). A Text–book of Cell and Molecular Biology (3rd edition).Rastogi

Publications, Meerut, India

2. Johnson, A., Raff, L. and Walter, R. (2008). Molecular Biology of the Cell (5th Edition). Taylor and Francis Group, USA.

3. Karp, G. (2013). Cell and Molecular Biology: Concepts and Experiments (7th Edition). Wiley Publishers, USA.

4. Kleinsmith, L.J. and Kish, V.M. (1995). Principles of Cell and Molecular Biology (2nd

edition). Harper Collins College Publishers, New York, USA.

5. Lodish, H., Berk, A., Kaiser, C. A., Krieger, M., Bretscher, A. and Ploegh, H. (2016).

Molecular Cell Biology, W.H. Freeman & Co., New York, USA.

6. Snustad, D.P. and Simmons, M.J. (2010). Principles of Genetics (5th Edition). John Wiley and Sons Inc., U.S.A.

B.Sc. Medical (Semester-II) (Session 2019-20)

BOTANY

Course Code: BSMM-2075(II)

GENETICS

(Theory)

Course outcome: -

After passing this course the student will be able:-

CO1: comprehensive, detailed understanding of the chemical basis of heredity

CO2: comprehensive and detailed understanding of genetic methodology and how quantification of heritable traits in families and populations provides insight into cellular and molecular mechanisms.

CO3: understanding of how genetic concepts affect broad societal issues including health and disease, food and natural resources, environmental sustainability, etc.

CO4: understanding the role of genetic mechanisms in evolution. The knowledge required to design, execute, and analyze the results of genetic experimentation in animal and plant model systems.

B.Sc. Medical (Semester-II) (Session 2019-20)

BOTANY

Course Code: BSMM-2075(II)

GENETICS

(Theory)

Time: 3Hrs **Max. Marks: 30**

Instructions for the Paper Setters:

Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

UNIT-I

DNA the Genetic Material: DNA structure; replication; DNA–protein interaction; the

nucleosome model; genetic code; satellite and repetitive DNA.

UNIT-II

Cell Division: Mitosis; meiosis.Genetic Inheritance: Mendelism; laws of segregation and independent assortment; linkage analysis; allelic and non–allelic interactions.

UNIT-III

Gene expression**:** Structure of gene; transfer of genetic information; transcription, translation, protein synthesis, tRNA; ribosomes; regulation of gene expression in prokaryotes and eukaryotes; proteins, ID, 2D, and 3D structure.

UNIT-IV

Genetic Variations: Mutations, spontaneous and induced; transposable genetic elements; DNA, damage and repair.

Suggested Readings:

1. Brown, T.A. (2011). Genetics: A Molecular Approach (3rd Edition). BIOS Scientific

Publishers, UK.

2. Fletcher, H., Hickey, I. and Winter, P. (2010). Instant Notes on Genetics (3rd edition) Taylor and Francis Group, USA.

3. Gardner, E.J., Simmons, M.J. and Snustad, D.P. (2012). Principles of Genetics (8th Edition). Wiley Sons, USA.

4. Gupta, P.K. (2016). Cell and Molecular Biology, Rastogi Publications, Meerut, India.

5. Kleinsmith, L.J. and Kish, V.M. (1995). Principles of Cell and Molecular Biology (2nd

Edition).Harper Collins College Publishers, New York, USA.

6. Krebs, B. E., Goldstein, E.S. and Kilpatrick, S.T. (2011). Lewins Genes X. Jones and Bartlett Publishers, LLC, UK.

7. Lodish, H., Berk, A., Kaiser, C. A., Krieger, M., Bretscher, A. and ploegh, H. (2016).

Molecular Cell Biology, W.H. Freeman & Co., New York, USA.

8. Singh, B.D. (2007). Molecular Genetics.Kalyani Publishers, India.

9. Snustad, D.P. and Simmons, M.J. (2010). Principles of Genetics (5th Edition). John Wiley and Sons Inc., U.S.A.

B.Sc. Medical (Semester-II) (Session 2019-20)

BOTANY

Course Code: BSMM-2075(P)

PRACTICAL – GENETICS AND CELL BIOLOGY

Course outcome: -

After passing this course the student will develop:

CO1: A critical awareness of how genetics techniques can be applied to biological problems.

CO2: A critical awareness of current thinking in a specialist area of cell biology and genetics.

CO3: the ability to evaluate methodologies in the design of experimental procedures.

CO4: The ability to critically evaluate experimental data.

B.Sc. Medical (Semester-II) (Session 2019-20)

BOTANY

Course Code: BSMM-2075(P)

PRACTICAL – GENETICS AND CELL BIOLOGY

TIME: 3Hours **Practical: 20**

Instructions for the paper setter: question paper is to be set on the spot jointly by the Internal and External Examiners. Two copies of the same may be submitted for the record to COE Office, Kanya Maha Vidyalaya, Jalandhar.

Suggested Laboratory Exercises

Teachers may select plants/material available in their locality/institutions.

1. To study cell structure from onion leaf peels; demonstration of staining and mounting

methods.

2. Comparative study of cell structure in onion cells, *Hydrilla* and *Spirogyra.* Study of cyclosis in *Tradescantia* Staminal Cells.

3. Study of plastids to examine pigment distribution in plants (e.g. *Cassia, Lycopersicon* and *Capsicum*).

4. Examination of electron micrographs of eukaryotic cells with special reference to organelles.

5. Study of electron micrographs of viruses, bacteria, cyanobacteria and eukaryotic cells for comparative cellular organization.

6. Microscopy- Theoretical knowledge of Light and Electron microscope.

7. Examination of various stages of mitosis and meiosis using appropriate plant material

(e.g. onion root tips, onion flower buds).

8. Preparation of karyotypes from dividing root tip cells and pollen grains.

9. Cytological examination of special types of chromosomes: bar body, lampbrush and polytene chromosomes.

10. Working out the laws of inheritance using seed mixtures.

11. Working out the mode of inheritance of linked genes from test cross and/or F2 data.

Suggested Readings:-

1. Fukui, K. and Nakayama, S. 1996. Plant Chromosomes; Laboratory Methods, CRC Press, Boca Raton, Florida.

2. Gunning, B.E.S. and Steer, M.W. 1996. Plant Cell Biology; Structure and Function, Jones And Barllett Publishers, Boston, Massachusetts.

3. Harns, N. and Oparka, K.J. 1994. Plant Cell Biology, A Practical Approach. IRL Press,

at OxfordUniversity Press, Oxford, UK.

4. Sharma, A.K. and Sharma, A. 1999. Plant Chromosomes; Analysis. Manipulation and

Engineering, Harwood Academic Publishers, Australia.

5. Plopper, G. (2016). Principles of Cell Biology. Jones and Barnett Learning, Boston,

Massachusetts.

B.Sc Medical (Session 2019-20)

SEMESTER–II

Course Code: BSMM-2255

FOOD PLANT HYGIENE & SANITATION (THEORY)

Course Outcomes: After passing this course the student will be able to:

CO1: Understand hygiene, sanitation and importance of personal hygiene of food handler in food industries.

CO2: Learn various methods, basic principles and practices of cleaning and sanitation in food processing industries.

CO3: Understand requirements of waste management, waste disposal and treatment in food industries.

CO4: Understand requirements of water utilization and hygiene of water used for processing.

B.Sc Medical (Session 2019-20)

SEMESTER–II

Course Code: BSMM-2255

FOOD PLANT HYGIENE & SANITATION (THEORY)

Time: 3 Hours

Max. Marks: 100
Theory Marks: 60
Practical Marks: 20
CA: 20

Instructions for the Paper Setter: Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

UNIT - I

Importance of personal hygiene of food handler- habits, clothes, illness, education of handler in handling and service. Cleaning agents and disinfectants. GLP, GHP, CIP and COP.

UNIT - II

Cleaning methods– sterilization, disinfection, heat & chemicals, chemical tests for sanitizer strength.

UNIT - III

food sanitation- principles & methods, control and inspection, sanitation in fruits & vegetables industry, cereals industry, dairy industry, meat, egg & poultry units.

UNIT - IV

Control of infestation, rodent control, vector control, use of pesticides, hygiene of water used for processing, planning & implementation of training programmes for health personnel, waste disposal and treatment.

Books Recommended:

1. Principles of Food Sanitation by Norman G. Marriott
2. Food Poisoning and Food Hygiene by Hobbs, B. C. and R. J. Gilbert
3. Quantity Food Sanitation by Longree K
4. Environmental Sanitation in India by Kawata K

B.Sc Medical (Session 2019-20)

SEMESTER–II

Course Code: BSMM-2255

FOOD PLANT HYGIENE & SANITATION (PRACTICAL)

Max. Marks: 20

Instructions for the practical examiner: Question paper is to be set on the spot jointly by the Internal and External Examiners. Two copies of the same may be submitted for the record to COE Office, Kanya Maha Vidyalaya, Jalandhar.

List of Practicals:

1. Sterilization of equipments used in the laboratory by using heat and chemicals.
2. Determination of B.O.D
3. Determination of C.O.D
4. Determination of sanitary status of plant equipment.
5. Chlorination of water.
6. To study the bacteriology of water.
7. Chemical analysis of water.

SEMESTER–II
BIOINFORMATICS (VOCATIONAL)
BASIC MATHEMATICS, BIOSTATISTICS & DATABASE MANAGEMENT SYSTEMS
(THEORY)
Course Code: BSNM/ BSMM-2046

Course outcomes: Basic Mathematics, Biostatistics & Database Management Systems.

After passing this course the students will be able to:

Co1: Understand matrices, Vectors, functions, Integration, Differential Equation.

CO2: Understand elementary statistics, Probability, Introduction to Correlation & Regression, probability Distribution.

CO3: Understand DBMS, how data stored in computers, applications of DBMS.

CO4: Understand Data Models, relational model concepts.

CO5: Understand the SQL, queries in SQL.

CO6: Understand to PL/SQL, Procedures, and Functions.

SEMESTER–II
BIOINFORMATICS (VOCATIONAL)
BASIC MATHEMATICS, BIOSTATISTICS & DATABASE MANAGEMENT SYSTEMS
(THEORY)
Course Code: BSNM/ BSMM-2046

Time: 3 Hrs **Max Marks: 100**
Theory Marks: 60
Practical Marks: 20
CA: 20

Instructions for the Paper Setters and Candidates:

Eight questions of equal marks are to be set, two in each of the four Sections (A-D).Questions of Sections A-D should be set from Units I-IV of the syllabus respectively.Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

UNIT–I

Matrices and Determinants - Matrix Algebra, -Addition, Subtraction, Multiplication, Transpose inverse and conjugate of a Matrix. Determinants (**up to third order)**,
Functions: Concept of functions, its domain and range, only graphs of some well known functions such as linear, exponential, sine and cos.
Differentiation: Limits of functions, Complete Differentials (Simple examples), Partial differentials of functions with one variable.
Integration: Indefinite **(Simple examples)** and Introduction to Definite Integral.

UNIT–II

Elementary Statistics: The mean, median, mode, standard deviation, variance, covariance of data.
Probability: Basic concepts, sample space and events, use of counting method in probability, addition law, sample problems involving the estimation of probabilities, Conditional Probability
and Independent Events, Bayes theorem. Scatter diagram, linear correlation

Probability Distributions: Bernoulli, Binomial, Poisson and Normal Distributions.

UNIT–III

Introduction to DBMS: Data, Information, Knowledge, Database approach, Characteristics of
Database approach, Database System Concept, Components of Database System, DBMS, Database languages, DBMS Architecture and data Independence.
Data Models: ER Model Concepts, Notation for ER Diagram, Relational Model Concepts, relational Model Constraints.
Normalization and is forms like 1NF, 2NF, 3NF, BCNF, 4NF and 5NF. Functional Dependencies.

UNIT–IV

SQL: Introduction, DDL statements, DML statements, TCL statements, Queries in SQL: Nested
Queries, Single row sub queries, multiple row sub queries, Multiple Column sub queries, views
in SQL.
Introduction to PL/SQL: Basic Elements of PL/SQL, Procedures: Local and stored procedures,
Functions: Local functions, Return statement and stored functions. Difference b/w procedures and functions.

Recommended Books:

1. Elhance D.N. (1984). Fundamentals of Statistics.*KitabMahal, Allahabad.*
2. Mendenhall W. and Sincich T. (1995). Statistics for Engineering and Sciences (IVth Edition).*Prentice Hall.*And sciences (IVth Edition).Prentice Hall.
3. Gupta S.P. (2000). Statistical Methods.*Sultan Chand and Company, New Delhi.*
4. Kapoor V.K. and Gupta S.C. (2000).Fundamentals of Mathematical Statistics.*Sultan Chand and Company, New Delhi.*
5. J. Crawshaw and J Chamber (2002). Advanced Level Statistics, 4th Edition, *Melson Thornes.*
6. Spiegel M.R. (1974). Theory and Problems of Advanced Calculus.*Tata McGraw Hill Company Ltd., New Delhi.*
7. Edward Batschelet (1992) –Introduction to Mathematics for Life Sciences‖, 3rd Edition, *Springer-Verlag.*
8. Brown R. (1994). Theory and Problems of Differential Equations.*Tata McGraw Hill Company Ltd., New Delhi.*
9. Kapoor V.K. and Gupta S.C. (2000) Fundamentals of Mathematical Statistics.*Sultan Chand and Company, New Delhi*
10. Nell and D. Qualing (2002) Pure Mathematics (Advanced Level Mathematics) Vol. 1, 2 & 3, *Cambridge University Press.*
11. Fundamentals of Database Systems by Elmasari and Navathe, Prentice Hall (India), 2001.
12. Fundamentals of DBMS: Anurag Gupta, Nishan Singh Dhillon, JagmohanMagho, Anshuman Sharma.
13. Data Mining Concepts and Techniques-Jiawei Han, MichelineKamber, *Morgan Kaufmann Publisher, 2001.*

SEMESTER–II
BIOINFORMATICS (VOCATIONAL)
PAPER-B: LAB IN DATABASE MANAGEMENT SYSTEMS
(PRACTICAL)
Course Code: BSNM/ BSMM-2046

Time: 3 Hrs. **Marks: 20**

Instructions for the Paper Setters and Candidates:
The Question paper for practical examination will be set on the spot jointly by the internal and external examiner.

Exercise to understand RDBMS: Oracle, SQL etc.
Usage of important Commands/instructions
DDL statements
DML statements
TCL statements
Queries in SQL
Operators
Functions
Views

Basic elements of PL/SQL

Procedures

Functions

Sets (Venn – diagram, Union, Intersection , Difference of sets .

Functions (Graph of standard functions , modulus, greatest , integer , sin cos)

B.A/B.Sc(Medical)/ B.Sc(NoN-Medical)/ B.Sc(Computer Science)/ B.Sc(Economics)/B.Com/BBA/B.A(JMC) B.Sc(FD)/ B.Sc(Home Science)/BCA/ B.Sc(IT) B.Sc(BT)/B.A(Hons.)English/B.Com(hons.)

Semester-II

Under Continuous Evaluation System

(SESSION 2019-20)

DRUG ABUSE:Problem,Management and Prevention (COMPULSARY PAPER)

PROBLEM OF DRUG ABUSE

Course code:AECD-2161

(Theory)

Course Outcomes:

- **CO1.** This information can include factual data about what substance abuse is: warning signs of addiction;information about how alcohol and specific drugs affect the mind and body.

- **CO2.** How to be supportive during the detoxification and rehabilitation process.

- **CO3.** Main focus of substance abuse education is teaching individuals about drug and alcohal abuse and how to avoid,stop and get help for substance use disorder.

- **CO4.** Substance abuse education is important for students alike;there are many misconceptions about commonly used legal and illegal substance,such as alcohal,marijuana etc.

B.A. / B.Sc. (Medical) / B.Sc. (Non Medical) / B.Sc. (Computer Science) / B.Sc. (Economics) / B.Com. / BBA/ B.A. (JMC) / B.Sc. (FD) / B.Sc. (Home Science) / BCA/B.Sc(IT)/ B.Sc. (BT)/ B.A (Hons.) in English/ B.Com (Hons.)

Semester-II

(Session 2019-20)

Drug Abuse: Problem, Management and Prevention (COMPULSORY PAPER)

PROBLEM OF DRUG ABUSE

Course Code: AECD-2161

(Theory)

Time: 3 Hrs **Max. Marks: 50**

Theory: 40

CA: 10

Instructions for the Paper Setter

Eight questions of equal marks(8 marks each) are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

UNIT-I

Prevention of Drug abuse: Role of family: Parent child relationship, Family support, Supervision, Shaping values, Active Scrutiny.

UNIT-II

School: Counselling, Teacher as role-model. Parent-teacher-Health Professional Coordination, Random testing on students.

UNIT-III

Controlling Drug Abuse: Media: Restraint on advertisements of drugs, advertisements on bad effects of drugs, Publicity and media, Campaigns against drug abuse, Educational and awareness program

UNIT-IV

Legislation: NDPs act, Statutory warnings, Policing of Borders, Checking Supply/Smuggling of Drugs, Strict enforcement of laws, Time bound trials.

References:

1. Ahuja, Ram (2003), *Social Problems in India*, Rawat Publication, Jaipur.
2. Extent, Pattern and Trend of Drug Use in India, Ministry of Social Justice and Empowerment, Government of India, 2004.
3. Inciardi, J.A. 1981. *The Drug Crime Connection.* Beverly Hills: Sage Publications.
4. Kapoor. T. (1985) *Drug epidemic among Indian Youth*, New Delhi: Mittal Pub.
5. Modi, Ishwar and Modi, Shalini (1997) *Drugs: Addiction and Prevention*, Jaipur:

Rawat Publication.
6. National Household Survey of Alcohol and Drug abuse. (2003) New Delhi, Clinical Epidemiological Unit, All India Institute of Medical Sciences, 2004.
7. Sain, Bhim 1991, *Drug Addiction Alcoholism*, Smoking obscenity New Delhi: Mittal Publications.
8. Sandhu, Ranvinder Singh, 2009, *Drug Addiction in Punjab*: A Sociological Study. Amritsar: Guru Nanak Dev University.
9. Singh, Chandra Paul 2000. *Alcohol and Dependence among Industrial Workers*: Delhi: Shipra.
10. Sussman, S and Ames, S.L. (2008). *Drug Abuse: Concepts, Prevention and Cessation*, Cambridge University Press.

Semester-II
(Session 2019-20)
COURSE CODE: SECM-2502

COURSE: MORAL Education Programme

Time: 2 hours **Max. Marks 25**

Thus, this course is intended to provide a much needed orientational input in moral education to the young inquiring minds

CURRICULUM

Module I :
Introduction to Moral Education

- Understanding the need, content and process for Moral Education
- Need of character building
- To learn to listen to the inner voice
- Value of Sanskaras
- Introducing the current scenario, examining the present era of globalization, technology and IT boom, invasion of virtual life, cyber-crime, lack of privacy
- Growing materialism and the value of restraint (Sanyam)
- Role of peer pressure
- Understanding changes in society vis-à-vis changes in family structure/relationships
- Individual differences and expectations/desires

CURRICULUM

Module II :

- Understanding social responsibility. Our rights and duties, civic sense
- Understanding responsibility towards the Self Awareness
- Understanding human relationships, Importance of family
- Understanding harmony in the family- the basic unit of human interaction
- Understanding and achieving harmony between the self and the body
- Visualizing a mutually enrinching role in society as socially, morally, ecologically, politically responsible doctors, engineers, teachers, technologies and managers etc.
- Opposite-sex relations, feminine gullibility
- Self defence

CURRICULUM

Module III :

- Continuous happiness and prosperity - a look at basic human aspirations.
- Understanding happiness & prosperity correctly - a critical appraisal of the current scenario.
- Understanding of human capacities and limitations- a real challenge.
- Aspiration v/s ambition.
- The need to silence the Satan within.
- Understanding the difference between the satisfaction within, what one has and the ambition to hold more than one grasp.
- Patience
- Intolerance

Session 2019-20

B.A/B.Sc/B.Com/BBA

Semester III

PUNJABI COMPULSORY

COURSE CODE- BARL/BSML/BSNL/BCSL/BECL/BCRL /BBRL-3421

COURSE OUTCOMES

CO1:ਆਧੁਨਿਕ ਪੰਜਾਬੀਵਾਰਤਕ ਨੂੰ ਪੜ੍ਹਾਉਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਵਾਰਤਕ ਪ੍ਰਤੀਦਿਲਚਸਪੀ, ਸੂਝ ਨੂੰ ਪੈਦਾ ਕਰਨਾ ਹੈ।

CO2: 'ਸਮਾਂ ਮੰਗ ਕਰਦਾ ਹੈ' ਇਕਾਂਗੀ ਸੰਗ੍ਰਹਿ ਨੂੰ ਸਿਲੇਬਸ ਵਿਚ ਸ਼ਾਮਿਲ ਕਰ ਕੇਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਇਕਾਂਗੀ ਪੜ੍ਹਣ ਦੀ ਰੁਚੀ ਨੂੰ ਪੈਦਾ ਕਰਨਾ ਹੈ ਅਤੇ ਇਸ ਸਾਹਿਤ ਰੂਪ ਨਾਲ ਨਾਲ ਜੋੜਣਾ ਹੈ।

CO3:ਸੰਖੇਪ ਰਚਨਾ ਕਰਨ ਨਾਲ ਵਿਦਿਆਰਥੀ ਆਪਣੀ ਗੱਲ ਨੂੰ ਸੰਖੇਪ ਵਿਚ ਕਹਿਣ ਦੀ ਜਾਚ ਸਿੱਖਣਗੇ ਅਤੇ ਇਹ ਦਿਮਾਗੀ ਕਸਰਤ ਵਿਚ ਸਹਾਈ ਹੋਵੇਗੀ।

CO4: ਲੇਖ ਰਚਨਾ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਬੁੱਧੀ ਨੂੰ ਤੀਖਣ ਕਰਦਿਆਂ ਉਨਾਂ ਦੀ ਲਿਖਣ ਪ੍ਰਤਿਭਾ ਨੂੰ ਉਜਾਗਰ ਕਰਨਾ ਹੈ।

CO5:ਮੂਲ ਵਿਆਕਰਣਕ ਇਕਾਈਆਂ : ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਵੰਨਗੀਆਂ (ਭਾਵੰਸ਼, ਸ਼ਬਦ, ਵਾਕੰਸ਼, ਉਪਵਾਕ ਅਤੇ ਵਾਕ)ਨੂੰ ਪੜ੍ਹਾਉਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਭਾਸ਼ਾ ਦੀ ਅਮੀਰੀ ਅਤੇ ਬਾਰੀਕੀਆਂ ਨੂੰ ਸਮਝਣ ਲਈ ਵੱਖਰੇ_ ਵੱਖਰੇ ਸਿਧਾਂਤਾਂ ਦਾਵਿਕਾਸ ਕਰਨਾ ਹੈ।

Session 2019-20

B.A/B.Sc/B.Com/BBA

Semester III

PUNJABI COMPULSORY

COURSE CODE- BARL/BSML/BSNL/BCSL/BECL/BCRL /BBRL-3421

ਸਮਾਂ : 3 ਘੰਟੇ **Maximum Marks: 50**

Theory:40

CA: 10

ਪਾਠ ਕ੍ਰਮ ਅਤੇ ਪਾਠ ਪੁਸਤਕਾਂ

ਯੂਨਿਟ I

1.ਆਧੁ ਨਿਕ ਾਬੀਵਾਰਤਕ (ਸੰਪਾ.ਡਾ । ਗਰਬੁਚਨ ਿੰਘ ਤਾ ਲਿਬ),ਪੰਜਾਬੀ ਸਾਹਿਤ ਪ੍ਰਕਾਸ਼ਨ,ਅੰਮ੍ਰਿਤਸਰ।

ਵਿਸ਼ਾ ਵਸਤੂ/ਸਾਰੇਨਾਇਕ ਬਿੰਬ (ਦੋ ਵਿਚੋਂ ਇਕ) 8 ਅੰਕ

ਯੂਨਿਟ II

2. ਸਮਾਂ ਮੰਗ ਕਰਦਾ ਹੈ (ਇਕਾਂਗੀ ਸੰਗ੍ਰਹਿ) (ਾ । ਕਵਲਧਾਲੀਵਾਲ)ਚੇਤਨਾ ਪ੍ਰਕਾਸ਼ਨ,ਲੁਧਿਆਣਾ।

ਵਿਸ਼ਾ ਵਸਤੂ /ਸਾਰ (ਦੋ ਵਿਚੋਂ ਇਕ) ਜਾਂ ਚਾਰ ਵਿਚੋਂ ਦੋ ਪਾਤਰਾਂ ਦੀ ਪਾਤਰ ਉਸਾਰੀ8ਅੰਕ

ਯੂਨਿਟ III

3. (ੳ) ਸੰਖੇਪ ਰਚਨਾ (ਪ੍ਰੈਸੀ)

(ਅ) ਲੇਖ ਰਚਨਾ 8 ਅੰਕ

ਯੂਨਿਟ -IV

4. ਮੂਲ ਵਿਆਕਰਣਕ ਇਕਾਈਆਂ : ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਵੰਨਗੀਆਂ (ਭਾਵੰਸ਼, ਸ਼ਬਦ, ਵਾਕੰਸ਼,ਉਪਵਾਕ ਅਤੇ ਵਾਕ) 8 ਅੰਕ

ਅੰਕ ਵੰਡ ਅਤੇ ਪਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਚਾਰ ਯੂਨਿਟ ਹੋਣਗੇ।ਸੈਕਸ਼ਨ ਂ੍ਹ ਤੱਕ ਦੇ ਪ੍ਰਸ਼ਨ ਯੂਨਿਟ ਜ਼ਜ਼ਡ ਵਿਚੋਂਪੁੱਛੇ ਜਾਣਗੇ।ਹਰ ਯੂਨਿਟ ਵਿਚੋਂ ਦੋ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ।

2. ਵਿਦਿਆਰਥੀ ਨੇ ਕੁੱਲ ਪੰਜ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹਨ। ਹਰ ਯੂਨਿਟ ਵਿਚੋਂ ਇਕ ਪ੍ਰਸ਼ਨ ਲਾਜ਼ਮੀਹੈ।ਪੰਜਵਾਂ ਪ੍ਰਸ਼ਨ ਕਿਸੇ ਵੀ ਯੂਨਿਟ ਵਿਚੋਂ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ।

3. ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 08 ਅੰਕ ਹਨ।

4. ਪੇਪਰ ਸੈੱਟ ਕਰਨ ਵਾਲਾ ਜੇਕਰ ਚਾਹੇ ਤਾਂ ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਵੰਡ ਅੱਗੋਂ ਵੱਧ ਤੋਂ ਵੱਧਚਾਰ ਉਪ੍ਪ੍ਰਸ਼ਨਾਂ ਵਿਚ ਕਰ ਸਕਦਾ ਹੈ।

SESSION 2019-20

B.A / B.Sc(Medical) / B.Sc (Non Medical) / B.Sc (Computer Science) / B.Sc (Economics) / B.Com / BBA SEMESTER–III

ਮੁੱਢਲੀ ਪੰਜਾਬੀ

(In lieu of Compulsory Punjabi)

COURSE CODE- BARL/BSML/BSNL/BCSL /BECL/BCRL /BBRL-3031

Course outcomes

CO1:ਵਿਆਕਰਣਕ ਇਕਾਈਆਂ ਨੂੰ ਪੜ੍ਹਾਉਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀ ਅਮੀਰੀ ਦਾ ਅਤੇ ਬਾਰੀਕੀਆਂ ਨੂੰ ਸਮਝਣ ਲਈ ਵੱਖਰੇ ਵੱਖਰੇ ਸਿਧਾਂਤਾਂ ਦਾ ਵਿਕਾਸ ਕਰਨਾ ਅਤੇ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਨੂੰ ਸਿਖਾਉਣ ਦੀ ਪ੍ਰਕਿਰਿਆ ਵਿਚ ਪਾ ਕੇ ਇਕ ਹੋਰਭਾਸ਼ਾ ਸਿੱਖਣ ਦੇ ਮੌਕੇ ਪ੍ਰਦਾਨ ਕਰਨਾ ਹੈ।

CO2:ਪੈਰ੍ਹਾ ਰਚਨਾ ਦੇਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਬੁੱਧੀ ਨੂੰ ਤੀਖਣ ਕਰਦਿਆਂ ਉਨ੍ਹਾਂ ਦੀ ਲਿਖਣ ਪ੍ਰਤਿਭਾ ਨੂੰ ਉਜਾਗਰ ਕਰਨਾ ਹੈ।

CO3:ਘਰੇਲੂ ਅਤੇ ਦਫ਼ਤਰੀ ਚਿੱਠੀ ਪੱਤਰ ਲਿਖਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਇਸ ਕਲਾਵਿਚ ਨਿਪੁੰਨ ਕਰਨਾ ਹੈ ਜ਼

CO4:ਅਖਾਣ ਅਤੇ ਮੁਹਾਵਰਿਆਂ ਦੀ ਵਰਤੋਂ ਨਾਲ ਗੱਲਬਾਤ ਵਿਚ ਪਰਪੱਕਤਾ ਆਉਂਦੀਹੈ।ਇਹ ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਗੱਲਬਾਤ ਵਿਚ ਨਿਖਾਰ ਲਿਆਉਣ ਦਾ ਕੰਮ ਕਰਨਗੇ।

CO5: ਪੈਰ੍ਹਾ ਪੜ੍ਹ ਕੇ ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਉੱਤਰ ਦੇਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਬੁੱਧੀ ਨੂੰ ਤੀਖਣ ਕਰਦਿਆਂ ਉਨਾਂ ਦੀ ਲਿਖਣ ਪ੍ਰਤਿਭਾ ਨੂੰ ਉਜਾਗਰ ਕਰਨਾ ਹੈ।

CO6:ਸੰਖੇਪ ਰਚਨਾ ਕਰਨ ਨਾਲ ਵਿਦਿਆਰਥੀ ਆਪਣੀ ਗੱਲ ਨੂੰ ਸੰਖੇਪ ਵਿਚ ਕਹਿਣ ਦੀ ਜਾਚਸਿੱਖਣਗੇ ਅਤੇ ਇਹ ਦਿਮਾਗੀ ਕਸਰਤ ਵਿਚ ਸਹਾਈ ਹੋਵੇਗੀ।

SESSION 2019-19

B.A/ B.Sc (Medical)/ B.Sc (Non Medical)/B.Sc(Computer Science)/ B.S(Economics)/B.Com/ BBA SEMESTER–III

ਮੁੱਢਲੀ ਪੰਜਾਬੀ

(In lieu of Compulsory Punjabi)

COURSE CODE- BARL/BSML/BSNL/BCSL /BECL/BCRL /BBRL-3031

ਸਮਾਂ : 3 ਘੰਟੇ **Maximum Marks: 50**

Theory : 40

CA: 10

ਪਾਠ ਕ੍ਰਮ

ਯੂਨਿਟ I

ਵਿਆਕਰਣਕ ਇਕਾਈਆਂ ਦੀ ਪਛਾਣ ਅਤੇ ਵਰਤੋਂ; ਵਾਕੰਸ਼, ਉਪਵਾਕ ਅਤੇ ਵਾਕ

ਯੂਨਿਟ II

ਪ੍ਰਕਾਰਜੀ ਪੰਜਾਬੀ : ਪੈਰ੍ਹਾ ਰਚਨਾ,ਚਿੱਠੀ ਪੱਤਰ

ਯੂਨਿਟ III

I.**ਅਖਾਣ**

II. **ਮੁਹਾਵਰੇ**

ਯੂਨਿਟ IV

I.**ਪੈਰ੍ਹਾ ਅਧਾਰਿਤ ਪ੍ਰਸ਼ਨ**

II.**ਸੰਖੇਪ ਰਚਨਾ**

ਅੰਕ ਵੰਡ ਅਤੇ ਪਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਚਾਰ ਯੂਨਿਟ ਹੋਣਗੇ। ।ਸੈਕਸ਼ਨ ੍ਣ ਤੱਕ ਦੇ ਪ੍ਰਸ਼ਨ ਯੂਨਿਟ ਜ਼ੁਜ਼ੜ ਵਿਚੋਂ ਪੁੱਛੇ ਜਾਣਗੇ। ਹਰ ਯੂਨਿਟ ਵਿਚੋਂ ਦੋ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ।

2. ਵਿਦਿਆਰਥੀ ਨੇ ਕੁੱਲ ਪੰਜ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹਨ। ਹਰ ਭਾਗ ਵਿਚੋਂ ਇਕ ਪ੍ਰਸ਼ਨਲਾਜ਼ਮੀ ਹੈ। ਪੰਜਵਾਂ ਪ੍ਰਸ਼ਨ ਕਿਸੇ ਵੀ ਭਾਗ ਵਿਚੋਂ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ।

3. ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ ਅੱਠ ਅੰਕ ਹਨ।

4. ਪੇਪਰ ਸੈੱਟ ਕਰਨ ਵਾਲਾ ਜੇਕਰ ਚਾਹੇ ਤਾਂ ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਵੰਡ ਅੱਗੋਂ ਵੱਧ ਤੋਂ ਵੱਧਚਾਰ ਉਪ੍ਪ੍ਰਸ਼ਨਾਂ ਵਿਚ ਕਰ ਸਕਦਾ ਹੈ।

B.A/ B.SC/B.Com/B.B.A
(From 1000 -1605 A.D.)
PUNJAB HISTORY & CULTURE
Semester III

After completing the paper the students will have a thorough insight into the origin of Sikh faith and its major institutions in Punjab

CO 1: To able to construct original historical arguments using a blend of primary and secondary source material

CO 2: To be able to demonstrate the significance of historical topics with reference to broader historical context and their contemporary relevance

CO 3: Students will develop an ability to convey verbally their historical knowledge

CO 4: students will *develop skills in critical thinking and reading*

CO 5: To discuss understand and evaluate causes and results of the conflict with Mughals

FACULTY OF ARTS AND SOCIAL SCIENCES
KANYA MAHA VIDYALAYA, JALANDHAR
(Autonomous)
Session 2019-20
Punjab History & Culture (From 1000 to1605 A.D.)
(Special Paper in lieu of Punjabi compulsory)
SEMESTER-III

Time: 3 Hours **Max. Marks: 50**
Theory: 40
Continuous Assessment: 10

Instructions for the Paper Setters

The question paper will have 4 units, namely unit I, II, III and IV.
Question paper shall consist of four Units. Candidates shall attempt 5 questions in all, by at least selecting one question from each section and the 5th question may be attempted from any of the four units. Each question will carry 8 marks.

Unit -1.

1. Society and Culture of Punjab during Afghan Rule

2. The Punjab Under the Mughals

Unit-II:

3. Bhakti Movement and Impact of Society of Punjab

4. Suffism in Punjab with special refrence to Baba Farid

Unit-III:

Guru Nanak Life and Travels

Teachings of Guru Nanak Concept of Sangat, Pangat and dharmsal

Unit-IV:

7. Contribution of Guru Angad Dev, Guru Amar Das and Guru Ram Das

8. Compilation of Adi Granth and Martyadom of Guru Arjun Dev

Suggested Readings:

1. Chopra, P. N., Puri, B.N., & Das. M.N. (1974). A Social, Cultural and Economic History of India, Vol. II. New Delhi : Macmillan India.

2. Grewal, J.S. (1994) The Sikhsof the Punjab, Cambridge University Press, New Delhi.

3. Singh, Fauja (1972), A History of the Sikhs, Vol. II,I. Patiala: Punjabi University.

4. Singh, Khuswant (2011). A History of Sikhs- Vol. I (1469-1839), New Delhi: Oxford University Press.

B.A./B.Sc. (Medical)/B.Sc. (Non-Medical)/B.Sc. (Computer Science)/

B.Sc. (Economics)/B.Com./BBA (Session 2019-20)

SEMESTER III

ENGLISH (COMPULSORY)

COURSE CODE: BARL/BSML/BSNL/BCSL/BECL/BCRL/BBRL–3212

COURSE OUTCOMES

At the end of this course, the students will be able to:

CO 1: Develop an understanding of the poems taught, relate to the socio-cultural background of England and be able to answer questions regarding situations, themes and characters depicted in them

CO 2: Comprehend the basics of grammatical rules governing adjectives and adverbs, conjunctions and prepositions and phrasal verbs

CO 3: Enhance their reading and analysing power of texts through guided reading

CO 4: Enrich their vocabulary and use new words in their spoken and written language

CO 5: Develop skills to write an essay on a given topic

B.A./B.Sc. (Medical)/B.Sc. (Non-Medical)/B.Sc. (Computer Science)/

B.Sc. (Economics)/B.Com./BBA (Session 2019-20)

SEMESTER–III

ENGLISH (COMPULSORY)

Course Code: BARL–3212/BSML–3212/BSNL–3212/BCSL–3212/BECL–3212/ BCRL–3212/BBRL–3212

Time: 3 Hours

Max. Marks: 50

Theory: 40

Continuous Assessment: 10

Instructions for the paper-setter and distribution of marks:

The paper setters should avoid questions of theoretical nature on English Grammar.
The question paper will consist of 3 sections, namely A, B and C

SECTION–A

1. TWENTY (20) questions on the usage of grammar related to units 98-145 of *English Grammar in Use*, from Unit–III of the syllabus will be set for the students to attempt any FOURTEEN (14) of these questions.

(1×14=14 Marks)

SECTION–B

2. TWO (2) questions (with sub parts) based on strategies and skill development exercises as given before and after reading essays in UNIT-I & UNIT-II of the prescribed text book *Making Connections* will be set. The number of items in each question will be 50% more than what a student will be expected to attempt so that the question provides internal choice.

(2×5=10 Marks)

3. ONE (1) question (with internal choice) requiring students to explain a stanza withreference to context will be set. The stanzas for explanation will be taken from the poems prescribed in the syllabus.

(1×4=4 Marks)

SECTION–C

4. THREE (3) questions on central idea, theme, tone and style etc. of the poems from the prescribed textbook, *Moments in Time* from Unit–II of the syllabus will be set. The students will be required to attempt any TWO (2) of these questions.

(3×2=6 Marks)

5. ONE(1) question requiring the students to write an essay on ONE (1) of the TWO (2) given topics will be set.

(1×6=6 Marks)

Texts Prescribed:

1. *Making Connections* by Kenneth J. Pakenham, 2nd Edn. CUP
2. *Moments in Time: An Anthology of Poems*, GNDU, Amritsar
3. *English Grammar in Use* (Fourth Edition) by Raymond Murphy, CUP

The syllabus is divided in three units as mentioned below:

Unit I: *Making Connections* by Kenneth J. Pakenham, 2nd Edn. CUP: Unit-I and Unit-II

Unit II: *Moments in Time*: Poems at Sr. No. 1-6

Unit III: *English Grammar in Use* (Fourth Edition) by Raymond Murphy, CUP: Units 98-145

B.Sc. (Medical) (Semester–III) (Session 2019-20)

Zoology

EVOLUTION
Course Code: BSMM-3483(I)
(THEORY)

Course Outcome

Course code: BSMM- 3483 (I):Evolution

- CO1.Familiar with ecological adaptations.
- CO2.Identify the contributions of various Evolutionists.
- CO3. Understanding the process and theories in evolutionary biology.
- CO4. Develop an interest in the debates and discussions taking place in the field of evolutionary biology.

B.Sc. (Medical) (Semester–III) (Session 2019-20)

Zoology

EVOLUTION
Course Code: BSMM-3483(I)
(THEORY)

Max. Time: 3 Hrs. **Max Marks: 30**

Instructions for the Paper Setter

Eight questions of equal marks (6 marks each) are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

Units I

Introduction to evolution

Evidences of organic evolution

Theories of organic evolution

Units II

Origin of life

Concept of micro, macro and mega-evolution

Concept of Species

Speciation

Units III

Fossils, its types and significance

Evolutionary rate

Origin & Extinction of reptiles

Evolution of man (in Brief)

Units IV

Migration & Parental Care in Pisces

Flight adaptation & Bird migration

Adaptive radiations like scales & fins in fish, poison apparatus in snakes and dentition in Mammals.

Suggested Readings:

1. Avers, C. J.(1989). Evolution Process and Pattern in Evolution, Oxford University, Press, New York, Oxfor.
2. Ayala, F. J. and Valentine J. W. (1979). Evolving the theory and Process of Organic Evolution, Benjamin Cumming.
3. Bhamarah, H.S.(1993), Juneka K., Cytogenetics & Evolution, Anmol Publication Pvt. Ltd.
4. Brookfield, A. P. (1986). Modern aspects of Evolution. Hutchinson London, Melbourne.
5. Colbert. E.H.(1989), Evolution of Vertebrates, (2nd ed), Wiley Eastern Ltd.
6. Dobzhansky, Ayala, Stebbins & Valentine(1952), Evolution W.H. Freeman.
7. Gallow, P. (1983). Evolutionary principles. Chapman and Hall.
8. Freeman, S. and Herron, Jon C. (2007). Evolutionary analysis, Pearson Prentice Hall, New Jersey.
9. Futuyma, D. J. (1998), Evolutionary Biology, Sinauer Assoc. Inc. Pub. USA.
10. Meglitsch, P. A. (1991), Invertebrate Zoology (3rd ed), Oxford University Press.
11. Minkoff, E. C. (1983), Evolutionary Biology, Addison Wesley Pub. Co., London.
12. Wen-Hsiung Li (1997), Molecular Evolution, Sinauer associates Inc.Pub. USA.

B.Sc. (Medical) (Semester–III)(Session 2019-20)

ZOOLOGY

Biodiversity-III
(Chordates)
Course Code: BSMM-3483(II)
(THEORY)

Course Outcome

Course Code: BSMM-3483(II): Biodiversity-III (Chordates)

- CO1.Describe the diversity in form, structure and habits of vertebrates.
- CO2.Explain general characteristics and classification of different classes of vertebrates.
- CO3.Positive attitude towards Biodiversity Conservation.

B.Sc. (Medical) (Semester–III)(Session 2019-20)

ZOOLOGY

Biodiversity-III
(Chordates)
Course Code: BSMM-3483(II)
(THEORY)

Max. Time: 3 Hrs. **Max Marks: 30**

Instructions for the Paper Setter

Eight questions of equal marks (6 marks each) are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

Units I

Urochordata: External features and affinities of *Herdmania*
Cephalochordata: Type study-*Amphioxus*

Units II

Cyclostomata: External Characters of *Petromyzon*
Affinities of Cyclostomata

Pisces: Type study-*Labeo*

Units III

Amphibia: Type study-Frog
Reptilia: Type study-*Uromastix*

Units IV

Aves: Type study-Pigeon

Mammals: Type study-Rat

Suggested Reading Material.

1. Dhami, P.S. & Dhami J.K. (1998), Vertebrates, R. Chand & Co., New Delhi.
2. Goodrich, E. S. (1958), Structure and Development of Vertebrates, Vol. I and II. D. E. Publication, New York.
3. Hildebrand, M. and Goslow. Jr. G.E. (2001), Analysis of Vertebrates Structure, John Wiley, N. Y.
4. Jollie, M. (1968), Chordate Morphology, Reinhold, New York.
5. Kardong, K. V. (1995), Vertebrates – Comparative Anatomy, Function, Evolution. W.B.C. Pub. , Oxford.
6. Kent, G. C. and Carr, R. K. (2001), Comparative Anatomy of the Vertebrates (9^{th} ed), McGraw Hill Higher Education, New York.
7. Linzey, D. (2001), Vertebrate Biology, McGraw Hill Publishing Company, New York.
8. Pough, F. H., Heiser, J. B. and McFarland, W. N. (1990), Vertebrate Life (3^{rd} ed), Macmillan Pub. Co., New York.
9. Young, J. Z. (1982), The Life of Vertebrates, New York.
10. Parker, T.J. and Haswell, W.A (1981) Text Book of Zoology, Vol. II (Vertebrates), ELBS and Macmillian Press Ltd.

B.Sc. (Medical) (Semester–III) (Session 2019-20)

Practical-III (Related to Evolutionand Biodiversity-III)

Course Outcome

Course code: BSMM-3483(P)

Practical-III (Related to Evolutionand Biodiversity-III)

- CO1. Familiarize organ systems.
- CO2.Aware about economically important specimens. (preserved)

B.Sc. (Medical) (Semester–III) (Session 2019-20)

Practical-III (Related to Evolutionand Biodiversity-III)

Time: 3hrs. **Marks: 20**

Instructions for the Practical Examiners: Question paper is to set on the spot jointly by the Internal and External Examiners. Two copies of the same should be submitted for the record to COE Office, Kanya Maha Vidyalaya, Jalandhar

I. Classification up to order level, except in case of Pisces and Aves where classification up to subclass level, habits, habitat, external characters and economic importance (if any) of the following animals is required :

Urochordata : *Herdmania, Molgula, Pyrosoma, Doliolum, Salpa & Oikopleura.*

Cephalochordata: *Amphioxus.* Study of the following prepared slides:

T.S. *Amphioxus* through various regions, Pharynx of *Amphioxus*

Cyclostomata : *Myxine, Petromyzon & Ammocoetes* Larva.

Chondrichthyes : *Zygaena* (hammer head shark), *Pristis* (saw fish), *Narcine (electric ray), Trygon, Rhinobatus and Chimaera* (rabbit fish).

Actinoptergii : *Polypterus, Acipenser, Lepidosteus, Muraena, Mystus, Catla, Hippocampus, Syngnathus, Exocoetus, Anabas, Diodon, Tetradon, Echeneis and Solea.*

Dipneusti (**Dipnoi**) : *Protopterus* (african lung fish)

Amphibia : *Uraeotyphlus, Necturus, Amphiuma, Amblystoma* and its Axolotl Larva, *Triton, Salamandra, Hyla, Rhycophorus*

Reptilia : *Hemidactylus, Calotes, Draco, Varanus, Phrynosoma, Chamaeleon, Typhlops, Python, Eryx, Ptyas, Bungarus, Naja, Hydrus, Vipera, Crocodilus, Gavialis, Chelone* (turtle) and *Testudo* (tortoise),Differences in nonpoisonous and poisonous snakes.

Aves : *Casuarius, Ardea, Anas, Milvus, Pavo, Eudynamics, Tyto* and *Alcedo.*

Mammalia : *Ornithorynchus, Echidna, Didelphis, Macropus, Loris, Macaca, Manis, Hystrix, Funambulus, Panthera, Canis, Herpestes, Capra, Pteropus.*

II. Study of the following systems with the help of charts/models/videos:

Herdmania **:** General anatomy

Labeo : Digestive and reproductive systems, heart, afferent and branchial arteries, cranial nerves and internal ear.

Chick : Digestive, arterial, venous and urino-genital systems.

WhiteRat : Digestive, arterial, venous and urino-genital systems.

Study of permanent slides of whole mount of Pharynx of *Herdmania* and *Amphioxus.*
Cycloid scales of *Labeo*, blood smear of mammal, Histology of rat/rabbit (compound tissues)

Demonstration of evolutionary phenomena like homology, analogy, mimicry, crypsis.

Study of evolution of horse/elephant/man.

Assignment

Note:- Some changes can be made in the practicals depending on the availability of material.

Guidelines for conduct of Practical Examination:

1. Draw a labelled sketch of the system of the given animal & explain it to the Examiner. 3
2. Identify and classify the specimens upto order level. Write a short note on habitat, special features, feeding, habits and economic importance of the specimens. 6
3. Idendify and write a note on the evolutionary phenomenon in the given specimen. 2
4. Identify the slides/specimens, give two reasons for identification. 3
5. Assignment 2
6. Viva-voce & Practical file. 4

B.Sc Medical (Session 2019-20)

SEMESTER–III

Course Code: BSMM-3343

MICROBIAL NUTRITION AND METABOLISM

(THEORY)

Course Outcomes:

After passing this course the student will be able to:

CO1: Understand the Nutrition and requirements for growth of Microorganisms, medium designing. Also learn about Laws of thermodynamics and electron transport chain of bacteria.

CO2: Understand the various transport mechanisms in microbial cell.

CO3: Understand the growth and metabolic Pathways for breakdown of glucose (glycolysis, Kreb's cycle fermentation, pentose phosphate pathways) and gluconeogenesis.

CO4: Learn about the Enzymes kinetics and Biosynthesis of nucleic acids.

B.Sc Medical (Session 2019-20)

SEMESTER–III

Course Code: BSMM-3343

MICROBIAL NUTRITION AND METABOLISM

(THEORY)

Time: 3 Hrs. **Max Marks: 100**

Theory Marks: 60

Practical Marks: 20

CA: 20

Instructions for the Paper Setters: Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

UNIT–I

1. Nutrition, requirements for growth of Microorganisms, Nutrients and accessory constituents, medium designing. Nutritional types of microorganisms (photolithotrophs, photoorganotrophs, chemolithotrophs and chemoorganotrophs)

UNIT–II

2. Transport of nutrients across the cell membrane, diffusion, passive transport, active transport, and group translocation for the transport of nutrients across the membrane.

UNIT–III

3. Bioenergetics; Laws of thermodynamics, entropy, enthalpy and free energy of reaction standard, Oxidative phosphorylation, Electron transport, respiratory chains of bacteria, Energy metabolism in aerobic and anaerobic microorganisms, Pathways for breakdown of glucose (glycolysis, Kreb's cycle fermentation, pentose phosphate pathways), gluconeogenesis, metabolism of starch & cellulose by bacteria.

UNIT–IV

4. Assimilation of nitrogen, Biosynthesis of nucleic acids, for synthesis of purine and pyrimidine nucleotides. Enzymes, kinetics, Michaelis Menten equation and allosteric enzymes.

Books Recommended: (Edition of books updated)

1. Pelczar, M.I., Chan, E.C.S. and Krieg, N.R. 2011, 5th edition, Microbiology. Tata McGraw Hill Publishing Co., Ltd., New Delhi.
2. Stanier, R.Y., Ingraham, J.L., Wheelis, M.L. and Painter, P.R. 2005, 5th edition, General Microbiology, MacMillan Education Ltd. Publisher.
3. Powar, C.B. and Dagniwala, H.F. 2012, General Microbiology, Volume I and II, Himalaya Publishing House, Delhi.
4. Sharma, P.D. 2010, Microbiology, Rastogi Publications, Meerut. 142

B.Sc Medical (Session 2019-20)

SEMESTER–III

Course Code:BSMM-3343

MICROBIAL NUTRITION AND METABOLISM

(PRACTICAL)

Time: 3 hrs **Marks: 20**

Instructions for the practical examiner: Question paper is to be set on the spot jointly by the Internal and External Examiners. Two copies of the same may be submitted for the record to COE Office, Kanya Maha Vidyalaya, Jalandhar.

LIST OF PRACTICALS

1. Isolation and enumeration of total bacteria from soil by pour plating and spread plating.
2. Comparison of growth on complex medium and defined or minimal medium.
3. Distinction between fermenting and non-fermenting microorganisms.
4. Effects of various concentrations of carbon source on bacterial growth.
5. Effects of various concentrations of nitrogen source on bacterial growth.
6. Effect of temperature on bacterial growth.
7. Effect of pH on bacterial growth.

SESSION 2019-20

B.Sc. (Med & Non-Medical) SEMESTER–III

COURSE CODE: BSMM/BSNM-3084

(ORGANIC CHEMISTRY–I)

(THEORY)

Course outcomes: Organic Chemistry-A

Students will be able to

CO1: to resolve the different enantiomers and differentiate between dextrorotatory and leavorotatory compounds

CO2: understand the concept of isomerism

CO3: differentiate between chiral and achiral compounds, configuration and conformation

CO4: understand the concept of axial and equatorial bonds and draw the various projection formulae

CO5: Understand the methods of formation, chemical reactions, acidic character of alcohols

CO6: Understand structure and bonding, preparation of phenols, acidic character of phenols

CO7: Understand structure and bonding in phenols and carbonyl compounds

CO8: Compare reactivity of aliphatic and aromatic aldehydes and ketones

CO9: Understand the various reactions given by carbonyl compounds

SESSION 2019-20

B.Sc. (Med & Non-Medical) SEMESTER–III

COURSE CODE: BSMM/BSNM-3084

(ORGANIC CHEMISTRY–I)

(THEORY)

Time: 3 Hrs. **Marks: 30**

45 Hrs (3 Hrs/week)

Instructions for the Paper Setter

Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions,selecting at least one question from each section. The fifth question may be attempted from any Section. Each question carry equal marks (6 each).

Unit 1

Stereochemistry of Organic Compounds **(15 Hrs.)**

Concept of isomerism.Types of isomerism. Optical isomerism, elements of symmetry, molecular chirality, enantiomers, stereogeniccentre, optical activity, properties of enantiomers, chiral and achiral molecules with two stereogeniccentres, diastereomers, threo and erythrodiasteremers, meso compounds, resolution of enantiomers, inversion, retention and racemization. Relative and absolute configuration, sequence rules, D & L and R & S systems of nomenclature. Geometric isomerism–determination of configuration of geometric isomers.E & Z system of nomenclature.Conformational isomerism–conformational analysis of ethane and n–butane; conformation of cyclohexane, axial and equatorial bonds, conformation of mono substituted cyclohexane derivatives. Newman projection and Sawhorse formulae, Fischer and flying wedge formulae. Difference between configuration and conformation.

Unit–II

Alcohols **(8 Hrs.)**

Classification and nomenclature.Monohydric alcohols—nomenclature.Acidic nature.Reactions of alcohols. Dihydric alcohols—nomenclature, methods of formation, chemical reactions of vicinal glycols, oxidative cleavage [$Pb(OAC)_4$] and [HIO_4] and pinacol-pinacolone rearrangement.

Unit–III

Phenols **(7 Hrs.)**

Nomenclature, structure and bonding, Preparation of phenols, physical properties and acidic character, Comparative acidic strengths of alcohols and phenols, resonance stabilization of phenoxide ion. Reactions of phenols—electrophilic aromatic substitution, acylation and carboxylation.Mechanisms of Fries rearrangement, Claisen rearrangement, Gatterman synthesis, Reimer Tiemann reaction.

Unit–IV

Aldehydes and Ketones **(15 Hrs.)**

Nomenclature and structure of the carbonyl group. Synthesis of aldehydes and ketones with particular reference to the synthesis of aldehydes from acid chlorides, synthesis of aldehydes and ketones using 1,3-dithianes, synthesis of ketones from nitriles and from carboxylic acids. Physical properties. Mechanism of nucleophilic additions to carbonyl group with particular emphasis on benzoin, aldol, Perkin and Knoevenagelcondensa t ions. Condensation with ammoni a and its derivatives. Witting reaction.Mannich reaction.Use of acetals as protecting group.Oxidation of aldehydes, Baeyer-Villiger oxidation of Ketones, Cannizzaro reaction.MPV, Clemmensen, Wolff- Kishner, $LIAlH_4$ and $NaBH_4$ reductions.Halogenation of enolizable ketones.Halogenation of enoliable ketones.

Books suggested:

1. Morrison, R.T., Boyd, R.N., Organic Chemistry; 6th edition, Pubs: Prentice-Hall, 1992.
2. Wade Jr., L.G., Singh, M.S., Organic Chemistry; 6th edition, Pubs: Pearson Education, 2008.

3. Mukherji, S.M., Singh, S.P., Kapoor, R.P., Organic Chemistry; Pubs: Wiley Eastern Limited, 1985, Vol. I, II, III.
4. Solomons, T.W., Fryhle, C.B., Organic Chemistry; 9th edition, Pubs: Wiley India, 2007.
5. Carey, F.A., Organic Chemistry; 4th edition, Pubs: McGraw-Hill, 2000.
6. Streitwieser, A., Clayton, Jr., Heathcock, H., Introduction to Organic Chemistry; 3rd edition, Pubs:Macmillan Publishing Company, 1989.
7. University General Chemistry, C.N.R. Rao, Macmillan.

SESSION 2019-20

B.Sc. (Med & Non-Medical) SEMESTER–III

COURSE CODE: BSMM/BSNM-3084

(PHYSICALCHEMISTRY–II)

(THEORY)

Course outcomes: Physical Chemistry-II

Students will be able to

CO1: identify thermodynamic property of any system to apply it for various systems.

CO2: acquire the knowledge of phase equilibria of various systems.

CO3: demonstrate an understanding of completely miscible, partially miscible and immiscible liquids.

CO4: demonstrate an understanding of spontaneity of a reaction in terms of free energy change.

CO5: demonstrate Vant' Hoff equation and relationship between equilibrium constants.

CO6: demonstrate Clausius-Clapeyron equation.

SESSION 2019-20

B.Sc. (Med & Non-Medical) SEMESTER–III

COURSE CODE: BSMM/BSNM-3084

(PHYSICALCHEMISTRY–II)

(THEORY)

Time: 3 Hrs. **Marks: 30**

45 Hrs (3 Hrs/week)

Instructions for the Paper Setter

Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions,selecting at least one question from each section. The fifth question may be attempted from any Section. Each question carries equal marks (6 each).

Unit–I

Thermodynamics-I **15 Hrs.**

Definition of thermodynamic terms: System, surroundings etc. Types of systems, intensive and extensive properties.State and path functions and their differentials.Thermodynamic process.Concept of heat and work.

First Law of Thermodynamics: Statement, definition of internal energy and enthalpy. Heat capacity, heat capacities at constant volume and pressure and their relationship. Joule's law-Joule-Thomson coefficient and inversion temperature, Calculation of w,q,dU&dH for the expansion of ideal gases under isothermal and adiabatic conditions for reversible process.

Thermochemistry: Standard state, standard enthalpy of formation-Hess's Law of heat summation and its applications. Heat of reaction at constant pressure and at constant volume.Enthalpy of neutralization.Bond dissociation energy and its calculation from thermo-chemical data, temperature dependence of enthalpy.Kirchhoff's equation.

Unit–II

Thermodynamics-II **10 Hrs.**

Second Law of Thermodynamics: Need for the law, different statements of the law, Carnot cycle and its efficiency, Carnot theorem. Thermodynamic scale of temperature.

Concept of Entropy : Entropy as a state function, entropy as a function of V & T, entropy as a function of P & T, entropy change in physical change, Clausius inequality, entropy as a criteria of spontaneity and equilibrium. Entropy change in ideal gases and mixing of gases.

Unit–III

Thermodynamics-III **10 Hrs.**

Third Law of Thermodynamics: Nernst heat theorem, statement and concept of residual entropy, evaluation of absolute entropy from heat capacity data. Gibbs and Helmholtz functions; Gibbs function (G) and Helmholtz function (A) as thermodynamic quantities, A &G as criteria for thermodynamic equilibrium and spontaneity, their advantage over entropy change, Variation of G and A with P,V and T.

Chemical Equilibrium

Equilibrium constant and free energy.Thermodynamic derivation of law of mass action. Determination of K_p, K_c, $K_a$and their relationship, Clausius-Clapeyron equation, applications.

Unit–IV

Introduction to Phase Equilibrium **10 Hrs.**

Statement and meaning of the terms-phase, component and degree of freedom, derivation of Gibbs phase rule, phase equilibria of one component system-water, CO_2 and S systems. Phase equilibria of two component systems-solid-liquid equilibria, simple eutectic-Bi-Cd, Pb-Ag systems, desilverisation of lead. Solid solutions-compound formation with congruent melting point (Mg-Zn) and incongruent melting point, (NaCl-H_2O), $FaCl_3$-H_2O) and $CuSO_4$-H_2O) system.Freezing mixtures, acetone-dry ice.Non-ideal system-azeotropes-HCl-H_2O and ethanol-water system.Partially miscible liquids Phenol-water, trines-thylamin-water,Nicotine-water System.Lower and upper consulate temperature, Effect of impurity on consolute temperature, immiscible liquids, steam distillation.Nernst distribution law- thermodynamic derivation and applications.

Books suggested:

1. Atkins, P., Paula, J.de, Atkins Physical Chemistry; 8th edition, Pubs: Oxford University Press, 2008.
2. Puri, B.R., Sharma, L.R., Pathania, M.S., Principles of Physical Chemistry; 43rd edition, Pubs: Vishal Publishing Co., 2008.
3. Barrow, G.M., Physical Chemistry; 6th edition, Pubs: McGraw Hill Inc, 1996.
4. Rao, C.N.R., University General Chemistry; Pubs: Macmillan India, 1985.
5. Berry, R.S., Rice, S.A., Ross, J., Physical Chemistry; 2nd edition, Pubs: Oxford University Press, 2000.
6. Albert, R.A., Silbey, R.J., Physical Chemistry; 1st edition, Pubs: John Wiley & Sons Inc., 1992.
7. Dogra, S.K., Dogra, S., Physical Chemistry Through Problems; Pubs:Wiley Eastern Limited, 1991.
8. Levine, I.N., Physical Chemistry; 5th edition, Pubs: Tata McGraw Hill Publishing Co. Ltd., 2002.
9. Moore, W. J., Basic Physical Chemistry; Pubs: Prentice Hall of India Pvt. Ltd, 1983.
10. Metz, C.R., Theory and Problems of Physical Chemistry; Schaum's outline series, 2nd edition, Pubs: McGraw-Hall Book company, 1989.

SESSION 2019-20

B.Sc. (Med & Non-Medical) SEMESTER–III

COURSE CODE: BSMM/BSNM-3084

CHEMISTRY PRACTICAL

Course outcomes: Chemistry Practicals

Students will be able to

CO1: understand and master the technique of volumetric analysis

CO1: to understand and analyze an acidic & alkali content in different samples.

CO2: to understand and analyze the calcium content in various samples permanganometrically

CO4: to understand the concept of hardness of water and its analysis by EDTA method

CO5: understand and master the technique of gravimetric analysis

CO6: to understand the concept of TLC and its applications.

SESSION 2019-20

B.Sc. (Med & Non-Medical) SEMESTER–III

COURSE CODE: BSMM/BSNM-3084

CHEMISTRY PRACTICAL

Duration: 3½ Hrs. **Marks: 20**

6 Period/Week

Quantitative Analysis

Volumetric Analysis

a. Determination of acetic acid in commercial vinegar using NaOH.

b. Determination of alkali content-antacid tablet using HCl.

c. Estimation of calcium content in chalk as calcium oxalate by permanganometry.

d. Estimation of hardness of water by EDTA.

e. Estimation of ferrous and ferric by dichromate method.

f. Estimation of copper using sodiumthiosulphate.

Gravimetric Analysis

Analysis of Cu as CuSCN and Ni as Ni (dimethylgloxime)

Organic Chemistry Laboratory Techniques

Thin Layer Chromatography

Determination of Rf values and identification of organic compounds.

a. Separation of green leaf pigments (spinach leaves may be used).

b. Preparation and separation of 2, 4. dinitrophenylhydrazones of acetone, 2-butone, 2-Butanone, hexan-2 and 3-one using toluene and light petroleum (40 : 60).

c. Separation of a mixture of dyes using cyclohexane and ethyl acetate (8.5:1.5).

Practical Examination

1) Volumetry / Gravimetry	16
2) Thin Layer chromatography	07
3) Viva-Voce	04
4) Note Book	

Books suggested:

1. Vogel's Textbook of Quantitative Inorganic Analysis (revised), J. Bassett, R.C. Denney, G.H. Jeffery and J. Mandham, ELBS.
2. Standard Methods of Chemical. Analysis, W.W. Scott: The Technical Press.
3. Experimental Inorganic Chemistry, W.G. Palmer, Cambridge.
4. Laboratory Manual in Organic Chemistry, R.K. Bansal, Wiley Eastern.
5. Vogel's Textbook of Practical Organic Chemistry, B.S. Furniss, A.J. Hannaford, V. Rogers, P.W.G. Smith and A.R. Tatchell, ELBS.
6. Experiments in General Chemistry, C.N.R. Rao and U.C. Aggarwal, East-West Press.
7. Experimental Organic Chemistry, Vol. I & II, P.R. Singh, D.S. Gupta and K.S. Bajpai, Tata McGraw Hill

B.Sc. Medical (Semester-III) (Session 2019-20)

BOTANY

Course Code: BSMM-3075(I)

STRUCTURE, DEVELOPMENT AND REPRODUCTION IN FLOWERING PLANTS-I

(Theory)

Course outcome: -

After passing this course the student will develop:

CO1:understanding of basic body plan of a flowering plant, Diversity in plant form branching pattern and canopy architecture trees.

CO2:understanding of shoot apical meristem and its histological organization. Cambium and its function and formation of secondary xylem.

CO3:understanding of wood in relation to water and minerals, growth rings and structure of secondary phloem and periderm.

CO4:understanding of origin, development, arrangement and diversity in size and shape of leaf, internal structure in relation to photosynthesis and water loss, senescence and abscission.

B.Sc. Medical (Semester-III) (Session 2019-20)

BOTANY

Course Code: BSMM-3075(I)

STRUCTURE, DEVELOPMENT AND REPRODUCTION IN FLOWERING PLANTS-I

(Theory)

Time: 3Hrs **Max. Marks: 30**

Instructions for the Paper Setters:

Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

Unit I

The basic body plan of a flowering plant-modular type of growth. Diversity in plant form in annuals, biennials and perennials; trees-largest and longest-lived, branching pattern; monopodial and sympodial growth; canopy architecture.

Unit II

The Shoot System: The shoot apical meristem and its histological organization; meristematic and permanent tissue, formation of internodes. Cambium and its functions; formation of secondary xylem.

Unit III

A general account of wood structure in relation to conduction of water and minerals; characteristics of growth rings, sapwood and heart wood; role of woody skeleton; secondary phloem-structure function relationships; periderm.

Unit IV

Leaf: Origin, development, arrangement and diversity in size and shape; internal structure in relation to photosynthesis and water loss; adaptations to water stress; senescence and abscission.

Suggested Readings:

1. Beck, C.B. (2010). An Introduction to Plant Structure and Development: Plant anatomy for the Twenty First Century (2nd Edition). CambridgeUniversityPress, UK.

2. Cutler, D. F., Botha, T. and Stevenson, D. M. (2007). Plant Anatomy: An Applied Approach. Blackwell Publishing, Oxford, UK.

3. Dickison, W.C. (2000). Integrative Plant Anatomy. Academic Press, California, USA.

4. Mauseth, J.D. (1988). Plant Anatomy, The Benjamin/Cummings Publishing Company Inc., Menlo Park, California, USA.

5. Peau, K (1977) Anatomy of Seed Plants, 3rd edition. John Wiley & Sons, New York.

6. Raven, P.H., Evert, R.F. and Eichhorn, S.E. (1999). Biology of Plants, 5th edition. W.H. Freeman and Co., Worth Publishers, New York.

7. Rudall, P. J. (2007). Anatomy of Flowering Plants: An Introduction to Structure and

Development (3rd Edition). CambridgeUniversityPress, UK.

8. Thomas, P. (2000) Trees: Their Natural History, CambridgeUniversity Press, Cambridge.

B.Sc. Medical (Semester-III) (Session 2019-20)

BOTANY

Course Code: BSMM-3075(II)

STRUCTURE, DEVELOPMENT AND REPRODUCTION IN FLOWERING PLANTS-II

(Theory)

Course outcome: -

After passing this course the student will develop:

CO1:To recognize the major groups of vascular plants and their phylogenetic relationships.

CO2:To know the structure and development of monocot and dicot embryos.

CO3: Understand different means of vegetative reproduction.

CO4: Understand physiology of seed germination.

B.Sc. Medical (Semester-III) (Session 2019-20)

BOTANY

Course Code: BSMM-3075(I)

STRUCTURE, DEVELOPMENT AND REPRODUCTION IN FLOWERING PLANTS-II

(Theory)

Time: 3Hrs **Max Marks. 30**

Instructions for the Paper Setters:

Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

Unit I

The Root System: The root apical meristem; differentiation of primary and secondary tissues and their roles; structural modification for storage, respiration, reproduction and for interaction with microbes.

Unit II

Vegetative Reproduction: various methods of vegetative propagation. Detailed study and types of grafting and budding, economic aspects. Flower: A modified shoot; structure, development and varieties of flower; functions

Unit III

Structure of anther and pistil; the male and female gametophytes; types of pollination; attractions and reward for pollinators; (sucking and foraging types); pollen-pistil interaction self incompatibility.

Unit IV

Double fertilization: formation of seed endosperm and embryo: fruit development and maturation Significance of Seed: Suspended animation; ecological adaptation; unit of genetic recombination with reference to reshuffling of genes and replenishment; dispersal strategies.

Suggested readings:

1. Bhojwani, S.S. and Bhatnagar, S.P. (2000). The Embryology of Angiosperms, 4th revised and enlarged edition. Vikas Publishing House, Delhi.

2. Hartmann, H.T. and Kestler, D.E. (1976). Plant Propagation: Principles and Practices, 3rd edition, Prentice Hall of India Pvt. Ltd., New Delhi.

3. Mauseth, J.D. (1988). Plant Anatomy, The Benjamin/Cummings Publishing Company Inc., Menlo Park, California, USA.

4. Peau, K. (1977). Anatomy of Seed Plants, 3rd edition. John Wiley & Sons, New York.

5. Pegeri, K. and Vander Pijl (1979). The Principles of Pollination Biology, Pergamon Press, Oxford.

6. Raven, P.H., Evert, R.F. and Eichhorn, S.E. (1999). Biology of Plants, 5th edition. W.H. Freeman and Co., Worth Publishers, New York.

B.Sc. Medical (Semester-III) (Session 2019-20)

BOTANY

Course Code: BSMM-3075(P)

PRACTICAL – STRUCTURE, DEVELOPMENT AND REPRODUCTION IN FLOWERING PLANTS (I & II)

Course outcome: -

After passing this course the student will develop:

CO1: Herbarium techniques give knowledge to help the identification of plants.

CO2: understand different life forms exhibited by flowering plants.

CO3: understand anatomy of different plant parts using free hand razor technique.

CO4: examine flower and their mode of pollination.

B.Sc. Medical (Semester-III) (Session 2019-20)

BOTANY

Course Code: BSMM-3075(P)

PRACTICAL – STRUCTURE, DEVELOPMENT AND REPRODUCTION IN FLOWERING PLANTS (I & II)

TIME: 3 Hours **Practical: 20**

Instructions for the paper setter: question paper is to be set on the spot jointly by the Internal and External Examiners. Two copies of the same may be submitted for the record to COE Office, Kanya Maha Vidyalaya, Jalandhar.

Suggested Laboratory Exercises

1. Study of any commonly occurring dicotyledonous plant (for example *Solanum nigrum* or Kalanchoe) to the body plan, organography and modular type of growth.

2. Life forms exhibited by flowering plants (by a visit to a forest or a garden, Study of tree like habit in cycads, bamboo, banana, traveller's tree (*Revenala madagascariensis*) and Yucca and comparison with true trees as exemplified by conifers and dicotyledons.

3. L.S. Shoot tip to study the cytohistological zonation and origin of leaf primordia.

4. Monopodial and sympodial types of branching in stems (especially rhizomes).

5. Anatomy of primary and secondary growth in monocots and dicots using free hand razor technique (*Solanum*, *Boerhavia*, *Helianthus*, *Mirabilis*, *Nyctanthus*, *Draceana*, Maize) hand sections (or prepared slides). Structure of secondary phloem and xylem. Growth rings in wood, Microscopic study of wood in T.S., T.L.S. and R.L.S.

6. Field study of diversity in leaf shape, size, thickness, surface properties. Internal structure of leaf. Structure and development of stomata (using epidermal peels of leaf).

7. Anatomy of the root. Primary and secondary structure.

8. Examination of a wide range of flowers available in the locality and methods of their pollination.

9. Structure of anther, microsporogenesis (using slides) and pollen grains (using whole

mounts). Pollen viability using in vitro pollen germination.

10. Structure of ovule and embryo sac development using serial sections from permanent slides.

11. Nuclear and cellular endosperm. Embryo development in monocots and dicots (using permanent slides/dissections).

12. Simple experiments to show vegetative propagation (leaf cuttings in *Bryophyllum*. *Sansevieria*, *Begonia*; stem cuttings in rose, *Salix*, money plant, Sugarcane and *Bougainvillea*).

13. Germination of non-dormant and dormant seeds.

Suggested Readings (for laboratory exercises):

1. Bhojwani, S.S. and Bhatnagar, P. (2000). The Embryology of Angiosperms (4th revised and enlarged edition), Vikas Publishing House, New Delhi.

2. Mauseth, J.D. (1988). Plant Anatomy, The Benjamin/Cumminas Publishing Co., Inc., Mehlo Park, California, USA.

3. Raven, P.H., Evert, R.F. and Eichhorn, S.E. (1992). Biology of Plants (5th Edition). Worth Publishers, New York.

4. Steeves, T.A. and Sussex, I.M. (1989). Patterns in Plant Development (2nd Edition).

CambridgeUniversity Press, Cambridge

B.Sc Medical (Session 2019-20)

SEMESTER–III

COURSE CODE: BSMM-3255

Food Processing and Packaging

(THEORY)

Course Outcomes: After passing this course the student will be able to:

CO1: Understand basic principles of food preservation methods.

CO2: Understand basic principles underlying food processing operations including thermal processing, ionising radiation, refrigeration, freezing, and dehydration.

CO3: Understand definition, functions, types (metal, glass, wood, paper and plastics) of packaging materials.

CO4: Learn various types of machinery used for packaging food.

CO5: Understand processing of fats, oils, sugar, tea, coffee, chocolate and cocoa powder.

CO6: Learn about extruded foods.

CO7: Learn fermentation technology, enrichment and fortification technology, high protein food technology, spices and flavors, preservatives and additives used in food.

CO8: Understand techniques that can be used to monitor quality of raw materials, manufacturing process and testing of the finished products.

B.Sc Medical (Session 2019-20)

SEMESTER–III

COURSE CODE: BSMM-3255

Food Processing and Packaging

(THEORY)

Time: 3 Hours

Max. Marks: 100

Theory Marks: 60

Practical Marks: 20

CA: 20

Instructions for the Paper Setter: Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

UNIT-I

1. Physical principles underlying food processing operations including thermal processing, ionizing radiation, refrigeration, freezing, dehydration.

2. Chemical preservation in food processing, chemical changes in food that affect the texture, color, flavor, odor, stability and nutritive quality during processing and storage.

3. Fats and Oils: Types and sources of fats and oils (animal and vegetable), processing, uses, storage and nutritional aspects.

4. Sugar and Sugar Products: Different forms of sugar (sugar, jaggery, honey syrup), manufacture, selection, storage and use.

UNIT-II

5. Salt: preparation of brine and pickling.

6. Tea, coffee, chocolate and cocoa powder.

7. Quality control in food industry-methods of evaluation and control of the various aspects of quality of raw materials, manufacturing process and the testing of finished products.

UNIT-III

8. Fermentation technology, enrichment and fortification technology, high protein food technology.

9. Spices and flavor

10. Preservatives and additives

11. Extruded foods.

UNIT-IV

12. Definition and functions of Packaging

13. Types of packaging materials: metal, glass, wood, paper and plastics and their importance.

14. Types of packages and their evaluation: bottle, pouch, tetra-pack and cans.

15. Packaging machinery

16. Food and food package interaction.

17. Shelf life testing.

Books Recommended

1. Post Harvest Technology of Cereals, Pulses and Oilseeds byAmalendu Chakraverty.
2. Technology of Cereals by Norman Leslie Kent and A.D. Evers.
3. Preservation of Fruits & Vegetables by Girdhari Lal, G.S Siddappa and G.L Tandon.
4. Principles of Food Packaging by Stanley Sacharow and Roger C. Griffin.
5. Chemistry of food additives and preservatives by Titus A.M. Msagati.

B.Sc Medical (Session 2019-20)

SEMESTER–III

COURSE CODE: BSMM-3255

Food Processing and Packaging

(PRACTICAL)

Max. Marks: 20

Instructions for the practical examiner: Question paper is to be set on the spot jointly by the Internal and External Examiners. Two copies of the same may be submitted for the record to COE Office, Kanya Maha Vidyalaya, Jalandhar.

List of Practicals:

1. Determination of physical characteristics of cereals.
2. Milling of wheat into flour.
3. Determination of wet and dry gluten contents.
4. Milling of paddy.
5. Parboiling of paddy.
6. Identification of packaging materials.
7. To estimate the shelf life of packaged food.
8. To determine grease resistance of packaging material.
9. Determination of water vapor transmission rate of various packaging materials.
10. To find out the tin coating weight.
11. To find out the uniformity and amount of wax on wax paper.
12. To see the chemical resistance of packaging materials.
13. Visit to various industries dealing with food packaging material like, paper board and metal.

SEMESTER–III
BIOINFORMATICS (VOCATIONAL)
Introduction to Bioinformatics and Biological Databases
(THEORY)
Course Code: BSNM/ BSMM- 3046
Session (2019-2020)

Course outcomes: Introduction to Bioinformatics and Biological Databases

After passing this course the student will be able to:

CO1: Understand the basic concept and analysis of Genomic and Proteomics.

CO2: Understand the Transcriptomics, Metablomics, Pharmacogenomics and Population genomics.

CO3: Understand the Basics of Biological Databases, comes to know about the different tools used in Bioinformatics.

CO4: Understand the Nucleic Acid Sequence Databases, Protein Sequence Databases: Genome Databases.

CO5: Understand theStructural Databases, Motifs and Pattern Databases, RNA Databases, Carbohydrates and Lipid Databases, Protein sequence database Databases of protein-protein interaction

SEMESTER–III

BIOINFORMATICS (VOCATIONAL)
Introduction to Bioinformatics and Biological Databases
(THEORY)
Course Code: BSNM/ BSMM- 3046
Session (2019-2020)

Time: 3 Hrs

Max Marks: 100
Theory Marks: 60
Practical Marks: 20
CA: 20

Instructions for the Paper Setters and Candidates:

Eight questions of equal marks are to be set, two in each of the four Sections (A-D).Questions of Sections A-D should be set from Units I-IV of the syllabus respectively.Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

UNIT-I

Genomics and Proteomics: Basic concept and analysis, Functional and comparative genomics:
Definition and applications.
Introduction to sequencing project: Genome sequencing projects, Human genome sequencing project, microbial genome sequencing, Plant genome project and its applications.
Introduction and Applications: Transcriptomics, Metablomics, Pharmacogenomics and Population genomics.

UNIT–II

Introduction to Biological Databases: Introduction to NCBI and its Databases, Type and kind of biological databases. Introduction to ASN1. Significance of Biological databases. Open access bibliographic resources and literature databases: PubMed, BioMed Central.
Database Retrieval and Deposition Systems- SRS, Entrez, Bankit, Webin, Seqin, Sakura, AutoDep etc.
Sequence Formats: FASTA, Genbank, PIR, EMBL

UNIT–III

Nucleic Acid Sequence Databases: GenBank, EMBL, DDBJ; **Protein Sequence Databases:**
Uniprot-KB: SWISS-PROT, TrEMBL, UniParc
Genome Databases: Viral Genomes; Archeal and Bacterial Genomes; Ensemble Genome Project and TIGR, Eukaryotic genomes with special reference to model organisms (Yeast, Drosophila. *C elegans*, Rat, Mouse, Human, plants such as *Arabidopsis thaliana*, Rice, etc.).

UNIT–IV

Structural Databases: PDB, PDBsum, NDB etc.; **Motifs and Pattern Databases:** PROSITE,
Pfam etc.; **RNA Databases:** RNABase, SCOR. **Carbohydrates and Lipid Databases:**

GlycoSuiteDB, LIPIDAT.

Databases of protein-protein interaction: Biogrid, RNA-Binding protein , STRING, InterPro.

Recommended Books:

1 Higgins D.And Taylor W. (2000). Bioinformatics: Sequence Structure & Data Banks: A Practical Approach.*Oxford University Press, USA*..
2 Lesk A. M. (2002).Introduction to Bioinformatics.*Oxford University Press.*
3 Krane D. E. and Raymer M. L. (2002).Fundamental Concepts of Bioinformatics.
4 *Benjamin Cummings.*
5 Orengo C.A., Jones D.T. and Thornton J.M. (2003). Bioinformatics: Genes Proteins.

6 Zin-xiong J.(2013). Essential Bioinformatics . Cambridge university press, new York, USA .

SEMESTER–III
BIOINFORMATICS (VOCATIONAL)

LAB IN INTRODUCTION TO BIOINFORMATICS AND BIOLOGICAL DATABASES
(PRACTICAL)
Course Code: BSNM/ BSMM- 3046
Session (2019-2020)

Time: 3 Hrs.

Marks: 20

1. Study of NCBI .
2. Database Retrieval and deposition systems: SRS, Entrez, Bankit, Seqin, Webin, AutoDep.
3.Study of Nucleic acid and protein databases: GenBank, EMBL, DDBJ, SWISS PROT.
4. Prediction of Protein-Protein Interaction using INTERPRO, STRING.
5. Study of Various human, plants and animal databases: Ensembl Genome project, TIGR Database, Flybase, Maize GDB etc.
5 Study of Structural databases: PDB, PDBsum, NDB etc.
6 Study of Motifs and Pattern Databases: PROSITE, Pfam, etc.
7 Study of RNA databases: RNABase, SCOR
8 Carbohydrates and lipid databases: GlycoSuiteDB, LIPIDAT
9 Database Retrieval and deposition systems: SRS, Entrez, Bankit, Seqin, Webin, AutoDep.
10 Database for Searching Homologous Sequences.

B.Sc. (Medical) / B.Sc. (Non Medical) / B.Sc. (Computer Science) / B.Com. / BBA/ B.Sc. (Home Science) / BCA/B.Sc(IT)/ B.Sc. (BT)/ B.Sc (Hons.) Agriculture/ B.Com (Hons.)

Semester- III

COURSE OUTCOMES:

AECE-3221- Environmental Studies

- CO1. Reflect upon the concept and need of environmental education.
- CO2. Define major eco-systems and their conservation.
- CO3. Understand the role of different agencies in the protection of environment.
- CO4. Develop desirable attitude, values and respect for protection of environment.

B.Sc. (Medical) / B.Sc. (Non Medical) / B.Sc. (Computer Science) / B.Com. / BBA/ B.Sc. (HomeScience) / BCA/B.Sc(IT)/ B.Sc. (BT)/ B.Sc (Hons.) Agriculture/ B.Com (Hons.)
Semester-III
(session 2019-20)

Environmental studies (COMPULSORY PAPER)

Course Code: AECE-3221
(Theory)

Time: 3Hrs. **Max. Marks: 100**

Theory: 60

Project Report: 20

CA: 20

Instructions for the Paper Setter:

The question paper should carry 60 marks.

The structure of the question paper being:

Part-A, Short answer pattern – 20 marks

Attempt any five questions out of seven. Each question carries 4 marks. Answer to each question should not exceed 2 pages

Part-B, Essay type with inbuilt choice – 40 marks

Attempt any five questions out of eight. Each question carries 8 marks. Answer to each question should not exceed 5 pages.

Unit 1

The multidisciplinary nature of environmental studies

Definition, scope and importance, Need for public awareness

Unit 2

Natural Resources: Renewable and non-renewable resources:

Natural resources and associated problems.

(a) Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people.

(b) Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.

(c) Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.

(d) Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.

(e) Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources, case studies.

(f) Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification.

- Role of an individual in conservation of natural resources.
- Equitable use of resources for sustainable lifestyles.

Unit 3

Ecosystems

- Concept of an ecosystem
- Structure and function of an ecosystem
- Producers, consumers and decomposers
- Energy flow in the ecosystem
- Ecological succession
- Food chains, food webs and ecological pyramids
- Introduction, types, characteristic features, structure and function of the following ecosystem: Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystems (ponds, streams, lakes, rivers, ocean estuaries)

Unit 4

Biodiversity and its conservation

- Introduction – Definition: genetic, species and ecosystem diversity
- Biogeographical classification of India
- Value of biodiversity: consumptive use, productive use, social, ethical aesthetic and option values
- Biodiversity at global, national and local levels
- India as a mega-diversity nation
- Hot-spots of biodiversity
- Threats to biodiversity: habitat loss, poaching of wildlife, man wildlife conflicts

- Endangered and endemic species of India
- Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity

Unit 5

Environmental Pollution

Definition

- Causes, effects and control measures of Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution, Nuclear pollution
- Solid waste management: Causes, effects and control measures of urban and industrial wastes.
- Role of an individual in prevention of pollution
- Pollution case studies
- Disaster management: floods, earthquake, cyclone and landslides

Unit 6

Social Issues and the Environment

- From unsustainable to sustainable development
- Urban problems and related to energy
- Water conservation, rain water harvesting, watershed management
- Resettlement and rehabilitation of people; its problems and concerns. Case studies.
- Environmental ethics: Issues and possible solutions
- Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case studies.
- Wasteland reclamation
- Consumerism and waste products
- Environmental Protection Act, 1986
- Air (Prevention and Control of Pollution) Act, 1981
- Water (Prevention and control of Pollution) Act, 1974
- Wildlife Protection Act
- Forest Conservation Act

- Issues involved in enforcement of environmental legislation
- Public awareness

Unit 7

Human Population and the Environment

- Population growth, variation among nations
- Population explosion – Family Welfare Programmes
- Environment and human health
- Human Rights
- Value Education
- HIV / AIDS
- Women and Child Welfare
- Role of Information Technology in Environment and Human Health
- Case Studies

Unit 8

Field Work

- Visit to a local area to document environmental assets river/forest/grassland/hill/mountain
- Visit to a local polluted site – Urban / Rural / Industrial / Agricultural
- Study of common plants, insects, birds
- Study of simple ecosystems-pond, river, hill slopes, etc

References:

1. Bharucha, E. 2005. Textbook of Environmental Studies, Universities Press, Hyderabad.

2. Down to Earth, Centre for Science and Environment, New Delhi.

3. Heywood, V.H. & Waston, R.T. 1995. Global Biodiversity Assessment, Cambridge House, Delhi.

4. Joseph, K. & Nagendran, R. 2004. Essentials of Environmental Studies, Pearson Education (Singapore) Pte. Ltd., Delhi.

5. Kaushik, A. & Kaushik, C.P. 2004. Perspective in Environmental Studies, New Age International (P) Ltd, New Delhi.

6. Rajagopalan, R. 2011. Environmental Studies from Crisis to Cure. Oxford University Press, New Delhi.

7. Sharma, J. P., Sharma. N.K. & Yadav, N.S. 2005. Comprehensive Environmental Studies, Laxmi Publications, New Delhi.

8. Sharma, P. D. 2009. Ecology and Environment, Rastogi Publications, Meerut.

9. State of India‘s Environment 2018 by Centre for Sciences and Environment, New Delhi

10. Subramanian, V. 2002. A Text Book in Environmental Sciences, Narosa Publishing House, New Delhi

Session 2019-20

B.A/B.Sc/B.Com/BBA

Semester IV

PUNJABI COMPULSORY

COURSE CODE- BARL/BSML/BSNL/BCSL/BECL/BCRL /BBRL-4421

COURSE OUTCOMES

CO1: ‘ਪਗਡੰਡੀਆਂ’ (ਵੈਜੀਵਨੀ) ਨੂੰ ਪੜ੍ਹਾਉਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਵੈਜੀਵਨੀ ਇਸ ਸਾਹਿਤ ਰੂਪ ਪ੍ਰਤੀਦਿਲਚਸਪੀ, ਸੂਝ ਨੂੰ ਪੈਦਾ ਕਰਨਾਹੈ।

CO2: ਫ਼ਾਲ ’ (ਨਾਟਕ)ਨੂੰ ਸਿਲੇਬਸ ਵਿਚ ਸ਼ਾਮਿਲ ਕਰ ਕੇ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਨਾਟਕ ਨੂੰ ਪੜ੍ਹਣ ਦੀ ਰੁਚੀ ਨੂੰ ਪੈਦਾ ਕਰਨਾ ਹੈ ਅਤੇ ਨਾਟਕ ਜਗਤ ਨਾਲ ਜੋੜਣਾ ਹੈ।

CO3: ਦਫ਼ਤਰੀ ਚਿੱਠੀ ਪੱਤਰ ਲਿਖਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਇਸ ਕਲਾ ਵਿਚਨਿਪੁੰਨ ਕਰਨਾ ਹੈਜ਼

CO4:ਸ਼ਬਦ ਜੋੜਾਂ ਦੇ ਨਿਯਮ ਨੂੰ ਸਿਲੇਬਸ ਵਿਚ ਸ਼ਾਮਿਲ ਕਰਨ ਦਾ ਮਕਸਦਵਿਦਿਆਰਥੀਆਂ ਦੁਆਰਾ ਲਿਖ਼ਤ ਵਿਚ ਕੀਤੀਆਂ ਜਾਣ ਵਾਲੀਆਂ ਗਲਤੀਆਂ ਨੂੰ
ਸੁਧਾਰਨਾ ਹੈ।

CO5: ਗੁਰਮੁਖੀ ਲਿਪੀ ਦੀਆਂ ਵਿਸ਼ੇਸ਼ਤਾਵਾਂ ਨੂੰ ਪੜ੍ਹਾਉਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀ ਅਮੀਰੀ ਦਾ ਅਤੇ ਬਾਰੀਕੀਆਂ ਨੂੰ ਸਮਝਣਲਈ ਵੱਖਰੇ ਵੱਖਰੇ ਸਿਧਾਂਤਾਂ ਦਾ ਵਿਕਾਸ ਕਰਨਾ ਹੈ।

Session 2019-2020

B.A/B.Sc/B.Com/BBA

Semester IV

PUNJABI COMPULSORY

COURSE CODE- BARL/BSML/BSNL/BCSL/BECL/BCRL /BBRL-4421

ਸਮਾਂ : 3 ਘੰਟੇ **Maximum Marks: 50**

Theory:40

CA: 10

ਪਾਠ ਕ੍ਰਮ ਅਤੇ ਪਾਠ ਪੁਸਤਕਾਂ

ਯੂਨਿਟ -I

1. ਪਗਡੰਡੀਆਂ (ਵੈਜੀਵਨੀ) ਯ ਡਾ ।ਬਚਿੰਤ ਕੌਰ

ਨਾਇਕ ਬਿੰਬ ਸਾਰੇਵਿਸ਼ਾ ਵਸਤੂ 8 ਅੰਕ

ਯੂਨਿਟ II

2. ਫ਼ਾਲ (ਨਾਟਕ) ਯਜਤਿੰਦਰ ਬਰਾੜ,

ਵਿਸ਼ਾ ਵਸਤੂ/ਸਾਰ (ਦੋ ਵਿਚੋਂ ਇੱਕ) ਜਾਂ ਚਾਰ ਵਿਚੋਂ ਦੋ ਪਾਤਰਾਂ ਦੀ ਪਾਤਰ ਉਸਾਰੀ 8 ਅੰਕ

ਯੂਨਿਟ III

3. ਦਫ਼ਤਰੀ ਚਿੱਠੀ ਪੱਤਰ (ਦੋ ਵਿਚੋਂ ਇੱਕ) 8 ਅੰਕ

ਯੂਨਿਟ IV

4. ਵਿਆਕਰਣ

(ੳ) ਸ਼ਬਦ ਜੋੜਾਂ ਦੇ ਨਿਯਮ

(ਅ) ਗੁਰਮੁਖੀ ਲਿਪੀ ਦੀਆਂ ਵਿਸ਼ੇਸ਼ਤਾਵਾਂ 8 ਅੰਕ

ਅੰਕ ਵੰਡ ਅਤੇ ਪਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਚਾਰ ਯੂਨਿਟ ਹੋਣਗੇ।ਸੈਕਸ਼ਨ ਂਣ ਤੱਕ ਦੇ ਪ੍ਰਸ਼ਨ ਯੂਨਿਟ ਜ਼ਜ਼ਜ਼ ਵਿਚੋਂ ਪੁੱਛੇ ਜਾਣਗੇ। ਹਰ ਯੂਨਿਟ ਵਿਚੋਂ ਦੋ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ।

2. ਵਿਦਿਆਰਥੀ ਨੇ ਕੁੱਲ ਪੰਜ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹਨ। ਹਰ ਯੂਨਿਟ ਵਿਚੋਂ ਇਕ ਪ੍ਰਸ਼ਨਲਾਜ਼ਮੀ ਹੈ।ਪੰਜਵਾਂ ਪ੍ਰਸ਼ਨ ਕਿਸੇ ਵੀ ਯੂਨਿਟ ਵਿਚੋਂ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ।

3. ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 08 ਅੰਕ ਹਨ।

4. ਪੇਪਰ ਸੈੱਟ ਕਰਨ ਵਾਲਾ ਜੇਕਰ ਚਾਹੇ ਤਾਂ ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਵੰਡ ਅੱਗੋਂ ਵੱਧ ਤੋਂ ਵੱਧਚਾਰ ਉਪ ਪ੍ਰਸ਼ਨਾਂ ਵਿਚ ਕਰ ਸਕਦਾ ਹੈ।

B.A/ B.SC/B.Com/B.B.A
(From 1605-1849 A.D.)
PUNJAB HISTORY & CULTURE
Semester IV

After passing this course, the students will

CO 1: To understand and interpret sources of history of Punjab

CO 2: To discuss, understand and analyze the institutions started by Sikh Gurus and their implications till date

CO 3: To critically analyzing the rise and fall of Banda Singh Bahadur

CO 4: To understand the causes that led to the establishment of Sikh Misls and rise of Maharaja Ranjit Singh

CO 5: To evaluate the Anglo Sikh conflict and its repurcussions

CO 6: To identify and have complete grasp on the writings of History of Punjab

FACULTY OF ARTS AND SOCIAL SCIENCES
KANYA MAHA VIDYALAYA, JALANDHAR
(Autonomous)
Session 2019-20
Punjab History & Culture (From 1605 to1849 A.D.)
(Special Paper in lieu of Punjabi compulsory)
SEMESTER-IV

Time: 3 Hours **Max. Marks: 50**

Theory: 40

Continuous Assessment: 10

Instructions for the Paper Setters

The question paper will have 4 units, namely unit I, II, III and IV.
Question paper shall consist of four Units. Candidates shall attempt 5 questions in all, by at least selecting one question from each section and the 5th question may be attempted from any of the four units. Each question will carry 8 marks.

Unit-I

Politicization of Sikhism under Guru Har Gobind

Martydom of Guru Teg Bahadur

Unit –II

Creation of Khalsa

Khalsa and Its impact on Punjab

Unit-III

Rise of Banda Bahadur and his achievements

Rise of Misls

Unit – IV

Ranjit Singh's rise to Power, Civil, Military and Land Revenue administration

Art and Architecture, Fair, Festivals and Folk Music in the Punjab during the Medieval Period

Suggested Readings:

1. Chopra, P. N., Puri, B.N., &Das. M.N. (1974). A Social, Cultural and Economic History of India, Vol. II. New Delhi : Macmillan India

2. Grewal, J.S. (1994) The Sikhsof the Punjab, Cambridge University Press, New Delhi

3. Singh, Fauja (1972), A History of the Sikhs, Vol. II,I. Patiala: Punjabi University

4.Singh, Khuswant (2011). A History of Sikhs- Vol. I (1469-1839), New Delhi:Oxford University Press

B.A./B.Sc. (Medical)/B.Sc. (Non-Medical)/B.Sc. (Computer Science)/

B.Sc. (Economics)/B.Com./BBA (Session 2019-20)

SEMESTER IV

ENGLISH (COMPULSORY)

COURSE CODE: BARL/BSML/BSNL/BCSL/BECL/BCRL/BBRL–4212

COURSE OUTCOMES

At the end of this course, the students will be able to:

CO 1: Develop an understanding of the poems taught, relate to the socio-cultural background of England and USA and be able to answer questions regarding situations, themes and characters depicted in them

CO 2: Understand the basic tenets of English Grammar and use of language correctly

CO 3: Enhance their reading and analysing power of texts through guided reading

CO 4: Enrich their vocabulary and use newly learnt words in both spoken and written language

CO 5: Develop skills to write an essay on a given topic

B.A./B.Sc. (Medical)/B.Sc. (Non-Medical)/B.Sc. (Computer Science)/

B.Sc. (Economics)/B.Com./BBA (Session 2019-20)

SEMESTER–IV

ENGLISH (COMPULSORY)

Course Code: BARL–4212/BSML–4212/BSNL–4212/BCSL–4212/BECL–4212/ BCRL–4212/BBRL–4212

Time: 3 Hours

Max. Marks: 50

Theory: 40

Continuous Assessment: 10

Instructions for the Paper-Setter and Distribution of Marks:

The paper setters should avoid questions of theoretical nature on English Grammar.

The question paper will consist of 3 sections,namely A, B and C

SECTION–A

1. TWENTY (20) questions on the usage of grammar related to units 26-37, 42-48, 92-97, 113-120 of *English Grammar in Use* from Unit III of the Syllabuswill be set for the students to attempt any FOURTEEN (14) of these questions.

(1×14=14 Marks)

SECTION–B

2. TWO (2) questions (with sub parts) based on strategies and skill development exercises as given before and after reading essays in UNIT-III & UNIT-IV of the prescribed text book *Making Connections* will be set. The number of items in each question will be 50% more than what a student will be expected to attempt so that the question provides internal choice.

(2×5=10 Marks)

3. ONE (1) question (with internal choice) requiring students to explain a stanza with reference to context will be set. The stanzas for explanation will be taken from the poems prescribed in Unit II of the syllabus.

(1×4=4 Marks)

SECTION–C

4. THREE (3) questionson central idea, theme, tone and style etc. of the poems from the prescribed textbook, *Moments in Time* from Unit–II of the syllabus will be set. The students will be required to attempt any TWO (2) of these questions.

(3×2=6 Marks)

5. ONE(1) question requiring the students to write an essay on ONE (1) of the TWO (2) given topics will be set.

(1×6=6 Marks)

Texts Prescribed:

1. *Making Connections* by Kenneth J. Pakenham 2nd Edn. CUP
2. *Moments in Time: An Anthology of Poems*, GNDU, Amritsar
3. *English Grammar in Use* (Fourth Edition) by Raymond Murphy, CUP

The syllabus is divided in three units as mentioned below:

Unit I: *Making Connections* by Kenneth J. Pakenham, 2nd Edn. CUP: Unit-III and Unit-IV

Unit II: *Moments in Time*: Poems at Sr. No. 7-12

Unit III: *English Grammar in Use* (Fourth Edition) by Raymond Murphy, CUP: Revision of units: 26-37, 42-48, 92-97, 113-120.

B.Sc. (Medical) (Semester–IV) (Session 2019-20)

ZOOLOGY

BIOCHEMISTRY

(THEORY)

Course Outcome

Course code: BSMM-4483 (I)

Biochemistry

- CO1.Familiar with various biochemical pathways.
- CO2. Understand the chemical nature of life and life process.
- CO3. Get an idea on structure and functioning of biologically important molecules.
- CO4. Help to explore new developments in biochemistry.

B.Sc. (Medical) (Semester–IV) (Session 2019-20)

ZOOLOGY
BIOCHEMISTRY

(THEORY)

Max. Time: 3 Hrs. **Max Marks: 30**

Instructions for the Paper Setter

Eight questions of equal marks (6 marks each) are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

Units I

Biochemistry and its scope
Classification and functions of:
- Carbohydrates
- Proteins
- Lipids
- Nucleic acids

Units II

Enzymes:
- Nature and their classification
- Coenzymes.

Lipid Metabolism:
- B-Oxidation of fatty acid
- Ketosis

Units III

Carbohydrate Metabolism:
- Glycolysis
- Tricarboxylic acid cycle
- Hexose monophosphate shunt
- Glycogenesis
- Glycogenolysis
- Gluconeogenesis
- Oxidative Phosphorylation

Units IV

Protein Metabolism:
- Metabolism of amino acids

Oxidative deamination
Transamination
Decarboxylation

Hydrolysis of proteins
Ornithine cycle

Suggested Reading Material:-

1. Conn, E.E., Stump. P.K. Bruening, S. and Doi R.H. (1987), Outlines of Biochemistry (5th ed), John Wiley and Sons Inc., New York.
2. Fischer, J. and Arriold, J.R.P. (2001). Instant notes in Chemistry for Biologists, Viva Books Pvt. Ltd.
3. Harper, H.A. (2000): Harper's Biochemistry (25^{th} ed).
4. Holde, K.E.V., Johnson, W.C. and Shing, P. (1998). Principles of Physical Biochemistry Prentice Hall, Inc., USA.
5. Lehninger, A (2000). Principles of Biochemistry, (3^{rd} ed).
6. Morris, H. Best, L.R., Pattison, S., Arerna, S. (2001). Introduction to General Organic Biochemistry, (7^{th} ed), Wadsworth Group.
7. Rawn, J.D. (1989), Biochemistry, Niel Patterson Publication U.S.A. North Carolina.
8. Robert, K., Murray, Mayes Daryl, K. Granner, Victor, W., Woodwell (1990), Harper's Biochemistry, 22nd Edition, Prentice Hall International Inc.
9. Sheehon, D (2000). Physical Biochemistry: Principles and Applications – John Wiley & Sons Ltd., England.
10. Stryer, L. (1988). Biochemistry (3rd ed), San Francisco W.H. Freeman.

B.Sc. (Medical) (Semester–IV) (Session 2019-20)

ZOOLOGY

Animal Physiology
(THEORY)

Course Outcome

COURSE CODE: BSMM-4483 (II)
Animal Physiology

- CO1.Understand the functioning of various systems.
- CO2.Apply the knowledge to lead a healthy life.
- CO3. Familiarize with various biochemical pathways.
- CO4. Compare the functioning of organ systems across the animal world.
- CO5. Learn more about human physiology and anatomy.

B.Sc. (Medical) (Semester–IV) (Session 2019-20)

ZOOLOGY

Animal Physiology
(THEORY)

Max. Time: 3 Hrs. **Max Marks: 30**

Instructions for the Paper Setter

Eight questions of equal marks (6 marks each) are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

Units I

Digestion : Digestion of dietary constituents, regulation of digestive processes and absorption. Extra and intra cellular digestion, enzymatic digestion and symbiotic digestion.

Respiration : Transport of O_2 and CO_2, Oxygen dissociation curve of haemoglobin, Bohr effect, chloride (-) shift, Haldane effect and control of breathing.

Units II

Heart : Origin and regulation of heart beat, cardiac cycle, electrocardiogram, cardiac output, Blood pressure and micro-circulation.

Blood : Composition and functions of blood and lymph, Blood clotting, Blood groups including Rh factor, haemopoiesis

Excretion : Urine formation and osmoregulation.

Units III

Muscles : Ultrastructure, chemical and physical basis of skeletal muscle contraction.

Neural Integration: Structure of neuron, resting membrane potential, Origin and propagation of

impulse along the axon, synapse and myoneural function.

Units IV

Physiology of Behavior: Taxes and reflexes, instinctive and motivate learning and reasoning

Endocrine : Structure and physiology of thyroid, parathyroid, adrenal, hypothalamus, pituitary, pancreas and gonads.

Suggested Reading Material:

1. Guyton, A.S.(1994), Text Book of Medical Physiology, 7th Edition, W.B. Saunders Company.
2. Hill, R. W., Wyse, G. K. and Anderson, N. (2004), Animal physiology, Sinauer Associate, INC. Pub. Saunderland, Massachusettes, USA.
3. Hoar, W. S. (1984), General and Comparative Physiology, Prentice Hall of India Pvt. Limited, New Delhi, India.
4. Prosser, C.L. (1984), Comparative Animal Physiology, Satish Book Enterprise Books seller & Publishers, Agra.
5. Purves, W. K., Oriane, G. H., Space, H. C. and Salava, D. (2001), Life – The Science of Biology (6^{th} ed), Sinauer Assoc. Inc., USA.
6. Randall, D., Burggren, K.L. and French, K. (2002), Eckert Animal Physiology: Mechanisms and Adaptations, W.H. Freeman and Company, New York.
7. Taneja, S.K.(1997), Biochemistry & Animal Physiology, Trueman Book Co.
8. Willmer, P. Stone, G. and Johnston, I (2000). Environmental Physiology of Animals, Blackwell Science.
9. Withers, P.C. (1992), Comparative Animal Physiology, Saunder College Publishing, New York.

B.Sc. (Medical) (Semester–IV) (Session 2019-20)

ZOOLOGY

Practical–IV (Related to Biochemistryand Animal Physiology)

Course Outcome

COURSE CODE: BSMM- 4483 (P)

Practical–IV (Related to Biochemistryand Animal Physiology)

- CO1. Learn clinical procedures for blood & urine analysis.
- CO2.Develop skill in simple biochemical laboratory procedures.
- CO3.Skill in observing and to some extent in analysing various Biological Data.

B.Sc. (Medical) (Semester–IV) (Session 2019-20)

ZOOLOGY

Practical–IV (Related to Biochemistryand Animal Physiology)

Time: 3hrs. **Marks: 20**

Instructions for the Practical Examiners: Question paper is to set on the spot jointly by the Internal and External Examiners. Two copies of the same should be submitted for the record to COE Office, Kanya Maha Vidyalaya, Jalandhar

1. Study of the skeleton of *Scoliodon, Rana, Varanus, Gallus* and *Oryctolagus*.
2. Identification of food stuffs: starch, glucose, proteins and fats in solution.
3. Demonstration of osmosis and diffusion.
4. Demonstrate the presence of amylase in saliva, denaturation by pH and temperature.
5. Determination of coagulation and bleeding time of blood in man/rat/rabbit.
6. Determination of blood groups of human blood sample.
7. Recording of blood pressure of man.
8. Analysis of urine for urea, chloride, glucose and uric acid.
9. Estimation of haemoglobin content.
10. Field study: Visit to a fossil Park/Lab/ Science City and submit a report.
11. Familiarity with the local vertebrate fauna.

Note:- Some changes can be made in the practicals depending on the availability of material.

Guidelines for conduct of Practical Examination:

1. Identify the given bones, make labeled sketches of their respective–views 8
2. Write down the steps and determine the constituents in the given sample. 3
3. Write the procedure and perform the given physiology experiment. 3
4. Report on visit to a fossil park/lab/Science City/study of local vertebrate fauna. 2
5. Viva-voce & Practical file.

B.Sc Medical (Session 2019-20)

SEMESTER–IV

Course Code: BSMM-4343

MICROBIAL ECOLOGY

(THEORY)

Course Outcomes:

After passing this course the student will be able to:

CO1: Understand the Diversity of various microbial habitats.

CO2: Understand the various microbial interactions and competition for survival in nature (for nutrients, space and oxygen).

CO3: Understand the role of microorganisms in geochemicals cycles, concept of microbial toxins, biofertilizers and bioinsecticides.

CO4: Understand the microbiological aspects of pollution and concept of BOD and COD, effluent treatment, bioremediation and bioleaching.

B.Sc Medical (Session 2019-20)

SEMESTER–IV

Course Code:BSMM-4343

MICROBIAL ECOLOGY

(THEORY)

Time: 3 Hrs. **Max Marks: 100**

Theory Marks: 60

Practical Marks: 20
CA: 20

Instructions for the Paper Setters: Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

UNIT–I

1. Diversity of microbial habitats: Environmental selecting factors:- physical, chemical and biological types of microbial habitats:- atmospheric, aquatic and terrestrial environments.

UNIT–II

2. Microbial interactions, antagonism, commensalism, symbiosis, parasitism miscellaneous associations in nature. Competition for survival in nature (for nutrients, space, oxygen).

UNIT–III

3. Role of microorganisms in geochemicals cycles: Carbon cycle, nitrogen cycle, phosphorus cycle and sulphur cycle, microbial toxins in the enviornment: Types of Microbial toxins, ecological consequences of microbial toxins as insecticidal agents, bioinsecticides, biofertilizers.

UNIT–IV

4. Concept of BOD and COD, Sewage and effluent treatment by primary, secondary and tertiary methods. Role of microbes in bioremediation of persistent pollutants and bioleaching of metals.

Books Recommended: (Edition of books updated)

1. Edmonds, P., 1978, Microbiology: An Environmental Perspective, MacMillan Publishing Co., Inc., New York.

2. Powar C.B. and Danginwala, H.F., 2017, General Microbiology, Volume II, 2nd ed. Himalaya Publishing House, New Delhi.

3. Sharma, P.D., 2010, Microbiology, Rastogi Publication, Meerut.

4. Pleczar, M.J., Chan, E.C.S. and Krieg N.R., 2011 (reprint), Microbiology, 2nd ed. Tata McGraw Hill Publishing Co., Ltd., New Delhi.

5. Patel, A.H., 2011, Industrial Microbiology, 2nd ed. Macmillan India Ltd., Delhi.

B.Sc Medical (Session 2019-20)

SEMESTER–IV

Course Code: BSMM-4343

MICROBIAL ECOLOGY

(PRACTICAL)

Time: 3 hrs **Marks: 20**

Instructions for the practical examiner: Question paper is to be set on the spot jointly by the Internal and External Examiners. Two copies of the same may be submitted for the record to COE Office, Kanya Maha Vidyalaya, Jalandhar.

LIST OF PRACTICALS

1) Isolation and enumeration of fungi from air and soil by pour plating and spread plating.
2) Determination of dissolved oxygen content (DO) of the given water sample by Titrimetric method.
3) Determination of COD of the given water sample by Titrimetric method.
4) To conduct bacteriological examination of water sample by MPN method.
5) To isolate symbiotic nitrogen bacteria from root nodules.
6) To perform crowded plate method for studying microbial interactions.

SESSION 2019-20

B.Sc. (Med & Non-Medical) SEMESTER–IV

COURSE CODE: BSMM/BSNM-4084

(INORGANIC CHEMISTRY–I)

(THEORY)

Course outcomes: Inorganic chemistry-I

Students will be able to

CO1: understand the key features of coordination compoundsviz. variety of structures, oxidation numbers and electronic configurations, coordination numbers and explain the bonding and stability of complexes

CO2: understand the magnetic properties of coordination compounds by using CFT.

CO3: describe the shapes and structures of coordination complexes with coordination numbers ranging from 4 to 12.

CO4: do nomenclature of coordination compounds.

CO5: write both reduction and oxidation half reactions for a simple redox reaction

CO6: identify the oxidation number (charge) on a neutral metal, metal and non-metal ion

CO7: carry out the common applications of the activity series of metals

CO8: understand the Laimer, frost and Pourbaix diagram.

CO9: understand the positions,electronic configurations,relative stability,preparation, properties, structures and characteristics of the f-block elements in the periodic table;

CO10:understand the role of metal ions and other inorganic elements in biological systems.

CO11:understand theproperties and reactions of non-aqueous solvents.

SESSION 2019-20

B.Sc. (Med & Non-Medical) SEMESTER–IV

COURSE CODE: BSMM/BSNM-4084

(INORGANIC CHEMISTRY–I)

(THEORY)

Time: 3 Hrs.

45 Hrs. (3 Hrs./Week) **Marks: 30**

Note:

Instructions for the Paper Setter

Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section. Each question carries equal marks (6 each).

Unit–I

Coordination Compounds **10 Hrs.**

Werner's coordination theory and its experimental verification, effective atomic number concept, chelates, nomenclature of coordination compounds, isomerism in coordination compounds, valence bond theory of transition metal complexes.

Non-aqueousSolvents **5 Hrs.**

Physical properties of a solvent, types of solvents and their general characteristics, reactions in non-aqueous solvents with reference to liquid NH_3 and liquid SO_2.

Unit–II

Oxidation and Reduction **8 Hrs.**

Use of redox potential data-analysis of redox cycle, redox stability in water-Frost, Latimer and Pourbaix diagrams.

Chemistry of Lanthanide Elements **7 Hrs.**

Electronic structure, oxidation states and ionic radii and lanthanide contraction.Electronic absorption and magnetic properties of lanthanides.

Unit–III

Chemistry of Actinides **5 Hrs.**

General features and chemistry of actinides, similarities between the later actinides and the later lanthanides. Electronic and magnetic properties of actinides and their general comparison with the lanthanide elements.

Unit–IV

Bioinorganic Chemistry **10 Hrs.**

Essential and trace elements in biological processes, metalloporphyrins and special reference to haemoglobin and myoglobin.Biological role of alkali and alkaline earth metal ions with special reference to Ca^{2+}.

Books Suggested:

1. Cotton, F.A., Wilkinson, G., Gaus, P.L., Basic Inorganic Chemistry; 3rd edition, Pubs: John Wiley Sons. 1995.
2. Lee, J.D., Concise Inorganic Chemistry; 4th edition, Pubs: Chapman Hall Ltd., 1991.
3. Shriver, D.E., Alkins, P.W., Langford, C.H., Inorganic Chemistry; 4th edition, Oxford Publisher: Oxford University Press, 2006.
4. Douglas, B. McDamiel, D., Alexander, J., Concepts and Models of Inorganic Chemistry; 3rd edition, Pubs: John Wiley and Sons Inc., 1994.

5. Porterfield, W.W., Wesley, A., Inorganic Chemistry; Pubs: Addison-Wesley Publishing Company, 1984.
6. Miessler, G.L., Larr, D.A., Inorganic Chemistry; 3rd edition, Pubs: Pearson Education Inc., 2004.
7. Jolly, W.L., Modern Inorganic Chemistry; 2nd edition, Pubs: McGraw-Hill Publishing Company Limited, 1991.
8. Purcell, K.F., Kotz, J.C., Inorganic Chemistry; Pubs: W.B. Saunders Company, 1977.
9. Puri, B.R., Sharma, L.R., Kalia, K.C., Principles of Inorganic Chemistry; 30th edition, Pubs: Milestones Publisher, 2006-07.
10. Inorganic Chemistry, W.W. Porterfield Addison-Wesley.
11. Inorganic Chemistry, A.G. Sharpe, ELBS.
12. University General Chemistry, C.N.R. Rao, Macmillan.

SESSION 2019-20

B.Sc. (Med & Non-Medical) SEMESTER–IV

COURSE CODE: BSMM/BSNM-4084

(ORGANIC CHEMISTRY–II)

(THEORY)

Course outcomes: Organic Chemistry-II

Students will be able to

CO1: understand structure and bonding in carboxylic acids and carboxylic acid derivatives

CO2: Compare the acidity of alcohols,phenols and acids

CO3: understand the effect of various substituents on the acidity of acids

CO4: describe preparations, physical properties,and reactions of carboxylic acids and carboxylic acid derivatives

CO5: understand preparations and reactions of ethers and epoxides

CO6: understand various cleavages in ethers

CO7: understand the ring opening reactions of epoxides

CO8:understand preparation and reactions of nitroalkanes and nitroarenes

CO9: understand nomenclature, structural features, methods of formation and chemical reactions of Organomagnesium, Organolithium ,Organozinc and Organocopper compounds.

CO10: know the various methods of synthesis and compare electrophilic substitution, reactions of pyrrole, furan, thiophene and nucleophilic substitution reactions of pyridine.

CO11: compare the basicity of pyridine, piperidine and pyrrole.

SESSION 2019-20

B.Sc. (Med & Non-Medical) SEMESTER–IV

COURSE CODE: BSMM/BSNM-4084

(ORGANIC CHEMISTRY–II)

(THEORY)

Time: 3 Hrs.

45 Hrs. (3 Hrs./Week) **Marks: 30**

Note:

Instructions for the Paper Setter

Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section. Each question carries equal marks (6 each).

Unit–I

Carboxylic Acids **(8 Hrs.)**

Nomenclature, structure and bonding, physical properties, acidity of carboxylic acids, effects of substituents on acid strength.Reactions of carboxylic acids.Hell-Volhard-Zelinsky reaction.Synthesis of acid chlorides, esters and amides.Reduction of carboxylic acids.Mechanism of decarboxylation.

Carboxylic Acids Derivatives **(7 Hrs.)**

Structure and nomenclature of acid chlorides, esters, amides and acid anhydrides, Relative stability & reactivity of acyl derivatives.Physical properties, interconversion of acid derivatives by nucleophilic

acyl substitution.Preparation of carboxylic acid derivatives, chemical reactions.Mechanisms of esterification and hydrolysis (acidic and basic).

Unit–II

Ethers and Epoxides **(5 Hrs.)**

Nomenclature of ethers and methods of their formation, physical properties.Chemical reaction-cleavage and autoxidation, Ziesel's method.Synthesis of epoxides. Acid and base-catalyzed ring opening of epoxides, orientation of epoxide ring opening, reactions of Grignard and organolithium reagents with epoxiedes.

Unit-III

Organic Compounds of Nitrogen **(10 Hrs.)**

Preparation of nitroalkanes and nitroarenes.Chemical reactions of nitroalkanes, Mechanisms of nucleophilc substitution in nitroarenes and their reduction in acidic, neutral and alkaline media.Reactivity, Structure and nomenclature of amines, Methods of preparation of amines by Reductive amination of aldehydic and ketonic compounds, Gabriel-phthalimide reaction and Hofmann bromamide reaction.Physical properties.Stereochemistry of amines.separation of a mixture of primary, secondary and tertiary amines. Structural features effecting basicity of amines. Amine salts as phase-transfer catalysts.

Unit–IV

Organometallic Compounds **(7 Hrs.)**

Organomagnesium Compounds: The Grignard reagentsformation, structure and chemical reactions.

Organolithium Compounds: Formation and chemical reactions.

Organozinc and Organo copper Compounds: Nomenclature, structural features, Methods of formation and chemical reactions.

Heterocyclic Compounds **(8 Hrs.)**

Introduction: Molecular orbital picture and aromatic characteristics of pyrrole, furan, thiophene and pyridine. Methods of synthesis and chemical reactions with particular emphasis on the mechanism of electrophilic substitution.Mechanism of nucleophilic substitution reactions in pyridine derivatives.Comparison of basicity of pyridine, piperidine and pyrrole.

Book Suggested:

1. Morrison, R.T., Boyd, R.N., Organic Chemistry; 6th edition, Pubs: Prentice-Hall, 1992.
2. Wade Jr., L.G., Singh, M.S., Organic Chemistry; 6th edition, Pubs: Pearson Education, 2008.
3. Mukherji, S.M., Singh, S.P., Kapoor, R.P., Organic Chemistry; Pubs: Wiley Eastern Limited, 1985, Vol.I, II, III.
4. Solomons, T.W., Fryhle, C.B., Organic Chemistry; 9th edition, Pubs: Wiley India, 2007.
5. Carey, F.A., Organic Chemistry; 4th edition, Pubs: McGraw-Hill, 2000.
6. Streitwieser, A., Clayton, Jr., Heathcock, H., Introduction to Organic Chemistry; 3rd edition, Pubs: Macmillan Publishing Company, 1989.
7. Introduction to Organic Chemistry, Sireitwieser, Heathcock and Kosover, Macmilan.

SESSION 2019-20

B.Sc. (Med & Non-Medical) SEMESTER–IV

COURSE CODE: BSMM/BSNM-4084

CHEMISTRY PRACTICAL

Course outcomes: Practical

Students will be able to analyze the given organic compound through

CO1:detection of elements (N, S and halogens) in organic compounds.

CO2:detection of functional groups (phenolic, carboxylic, carbonyl, esters, carbohydrates, amines,amides, nitro and anilide) in simple organic compounds

CO3: preparation of their derivatives

SESSION 2019-20

B.Sc. (Med & Non-Medical) SEMESTER–IV

COURSE CODE: BSMM/BSNM-4084

CHEMISTRY PRACTICAL

Duration: 3½ hrs. **Marks: 20**

6 Period/Week

Qualitative Analysis

Detection of elements (N, S and halogens)

Detection of functional groups (phenolic, carboxylic, carbonyl, esters, carbohydrates, amines, amides, nitro and anilide) in simple organic compounds and preparing their derivatives.

Practical Examination

1) Detection of Elements	05
2) Detection of functional group and derivative preparation	18
3) Viva-Voce	04
4) Note Book	03

Book Suggested:

1. Experimental Organic Chemistry, Vol. I & II, P.R. Singh, D.S. Gupta and K.S. Bajpai, Tata McGraw Hill.
2. Laboratory Manual in Organic Chemistry, R.K. Bansal, Wiley Eastern.
3. Vogel's Textbook of Practical Organic Chemistry, B.S. Furniss, A.J. Hannaford, V. Rogers, P.W.G. Smith and A.R. Tatchell, ELBS.
4. Experiments in General Chemistry, C.N.R. Rao and U.C. Aggarwal, East-West Press.

B.Sc. Medical (Semester-IV) (Session 2019-20)

BOTANY

Course Code: BSMM-4075(I)

DIVERSITY OF SEED PLANTS AND THEIR SYSTEMATICS-I

(Theory)

Course outcome: -

After passing this course the student will develop:

CO1: understanding of characters of seed plants, origin and evolution of seed habit, angiosperms and gymnosperms

CO2: understanding of general characters of gymnosperms, their classification and evolution including fossil and living gymnosperms.

CO3:understanding of morphology of vegetative and reproductive parts of *Pinus* and *Cycas*

CO4:understanding of morphology of vegetative and reproductive parts of *Ephedra* and *Ginkgo*

B.Sc. Medical (Semester-IV) (Session 2019-20)

BOTANY

Course Code: BSMM-4075(I)

DIVERSITY OF SEED PLANTS AND THEIR SYSTEMATICS-I

(Theory)

Time: 3Hrs **Max. Marks: 30**

Instructions for the Paper Setters:

Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

Unit–I

Characteristics of seed plants; Evolution of the seed habit; Distinguishing features of angiosperms and gymnosperms. Angiosperms: Origin and evolution. Some examples of primitive angiosperms.

Unit–II

General features of gymnosperms and their classification; evolution and diversity of Gymnosperms including fossil and living gymnosperms; Geological time scale and fossilization.

Unit–III

Morphology of vegetative and reproductive parts; Anatomy of root, Stem and leaf; reproduction and life cycle of *Pinus*, *Cycas*.

Unit–IV

Morphology of vegetative and reproductive parts; Anatomy of root, Stem and leaf; reproduction of life cycle of *Ephedra* and *Ginkgo*.

Suggested Readings:-

1. Bhatnagar, S.P. and Moitra, A. (1996). Gymnosperms, New Age Internationl Limited, New Delhi.

2. Gifford, E.M. and Foster, A.S. (1988). Morphology and Evolution of Vascular Plants, W.H.Freeman & Company, New York.

3. Pellant, C. (1994). Fossils, Dragon's World, Great Britain

4. Sporne, K.R. (1965). The Morphology of Gymnosperms, Hutchinson & Co. (Publishers) Ltd., London.

5. Taylor, T. N., Taylor, E. L. and Krings, M. (2008). Paleobotany: The Biology and Evolution of Fossil Plants (2nd Edition). Elsevier Inc. Netherlands.

6. Vashistha, P. C. (2016). Botany for degree students. S.Chand and Company, New Delhi.

B.Sc. Medical (Semester-IV) (Session 2019-20)

BOTANY

Course Code: BSMM-4075(I)

DIVERSITY OF SEED PLANTS AND THEIR SYSTEMATICS-II

(Theory)

Course outcome: -

After passing this course the student will develop:

CO1: Plant description, describe the morphological and reproductive stretch of plant and also identify the different families.

CO2: understanding of Botanical Nomenclature, classification of angiosperms and Salient features of the systems proposed by Bentham and Hooker, Engler and Prantl

CO3:understanding diversity of flowering plants in families like Ranuculaceae, Brassicaceae, Rutaceae, Fabaceae, Apiaceae, Acanthaceae.

CO4:understanding diversity of flowering plants in families likeApocynaceae, sclepiadaceae, Solanaceae, Lamiaceae, Chenopodiaceae, Euphorbiaceae, Liliaceae, Orchidaceae and Poaceae.

B.Sc. Medical (Semester-IV) (Session 2019-20)

BOTANY

Course Code: BSMM-4075(II)

DIVERSITY OF SEED PLANTS AND THEIR SYSTEMATICS-II

(Theory)

Time: 3Hrs **Max. Marks: 30**

Instructions for the Paper Setters:

Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

Unit–I

Angiosperm taxonomy; Brief history, Aims and fundamental components (alpha-taxonomy, Omega-taxonomy, Holotaxonomy); Identification, keys. Taxonomic literature. Botanical nomenclature: Taxonomic ranks; Type concept; Principle of priority.

Unit–II

Botanical nomenclature: Taxonomic ranks; Type concept; Principle of priority. Major contribution of cytology, Phytochemistry and taximetrics to taxonomy. Classification of angiosperms; Salient features of the systems proposed by Bentham and Hooker, Engler and Prantl

Unit–III

Diversity of flowering plants as illustrated by members of the families Ranuculaceae, Brassicaceae, Rutaceae, Fabaceae, Apiaceae, Acanthaceae.

Unit–IV

Diversity of flowering plants as illustrated by members of the families Apocynaceae, sclepiadaceae, Solanaceae, Lamiaceae, Chenopodiaceae, Euphorbiaceae, Liliaceae, Orchidaceae and Poaceae.

Suggested Readings:-

1. Bendre, A. (2007). Practical Botany, Rastogi Publications, Meerut.

2. Davis, P.H. and Heywood, V.H. (1963). Principles of Angiosperm Taxonomy, Oliver and Boyd, London.

3. Gifford, E.M. and Foster, A.S. (1988). Morphology and Evolution of Vascular Plants, W.H. Freeman & Company, New York.

4. Jeffrey, C. (1982). An Introduction to Plant Taxonomy, CambridgeUniversity Press,

Cambridge, London.

5. Jones, S.B., Jr. and Luchsinger, A.E. (1986). Plant Systematics (2nd edition). McGraw- Hill Book Co., New York.

6. Radford, A.E. (1986). Fundamental of Plant Systematics, Harper and Row, New York

B.Sc. Medical (Semester-IV) (Session 2019-20)

BOTANY

Course Code: BSMM-4075(I)

DIVERSITY OF SEED PLANTS AND THEIR SYSTEMATICS-II

(PRACTICAL)

Course outcome: -

After passing this course the student will able to:

CO1: identify different plants from different families through their vegetative and reproductive characters.

CO2: understanding different types of placentation system.

B.Sc. Medical (Semester-IV) (Session 2019-20)

BOTANY

Course Code: BSMM-4075(P)

PRACTICAL – DIVERSITY OF SEED PLANTS AND THEIR SYSTEMATICS

(I &II)

TIME: 3Hours **Practical: 20**

Instructions for the paper setter: question paper is to be set on the spot jointly by the Internal and External Examiners. Two copies of the same may be submitted for the record to COE Office, Kanya Maha Vidyalaya, Jalandhar.

Suggested Laboratory Exercises

1. Angiosperms The following species are suitable for study.

2. This list is only indicative. Teachers may select plants available in their locality. Teachers may select plants/material available in their locality/institution.

1. Ranunculaceae: *Ranunculus, Delphinium*

2. Brassicaceae: *Brassica, Alyssum, Iberis, Coronopus.*

3. Malvaceae*: Hibiscus, Abutilon.*

4. Rutaceae: *Murraya, Citrus*.

5. Fabaceae: Faboideae: *Lathyrus, Cajanus, Melilotus, Trigonella,* Caesalpinioideae*: Cassia,Caesalpinia*, Mimosoideae: *Prosopis, Mimosa, Acacia*.

6. Apiaceae: *Coriandrum. Foeniculum, Anethum*.

7. Acanthaceae: *Adhatoda, Peristrophe*.

8. Apocynaceae: *Vinca, Thevetia, Nerium.*

9. Asclepiadaceae: *Calotropis*.

10. Solanaceae: *Solanum, Withania, Datura*.

11. Euphorbiaceae: *Euphorbia, Phyllanthus*.

12. Lamiaceae: *Ocimum, Salvia*.

13. Chenopodiaceae: *Chenopodium, Beta*.

14. Liliaceae: *Asphodelus, Asparagus*.

15. Poaceae: *Avena, Triticum, Hordeum, Poa, Sorghum*.

The Students should be made familiar with the use of identification keys including use ofcomputers in taxonomy. The teachers should prevent students from collecting plants fromthe wild and submitting them for the practical examination. Instead, the student should be asked to prepare field reports.

Gymnosperms

Cycas (i) Habit, armour of leaf bases on the stem (if specimen is not available show

photography), very young leaf (circinate vernation) and old foliage leaves, scale leaf, bulbils, male cone (specimen); Microsporophyll, megasporophyll mature seed. (ii) Study through permanent slides—normal root (T.S.), stem (T.S.) (if sections are not available show photographs), ovule (L.S.).
(iii) Study through hand sections or dissections-coralloid root (T.S.), rachis (T.S.), leaflet (V.S.), microsporophyll (V.S.) pollen grains (W.M.). *Pinus* (i) Habit, long and dwarf shoot showing cataphylls and scale leaves, T.S. wood showing growth rings, male cone, 1st year, 2nd year and 3rd year female cones, winged seeds. (ii) Study through permanent slides-root (T.S.), female cone (L.S.) ovule (L.S.), embryo (W.M.) showing polycotyledonous condition. (iii) Study through hand sections or dissections-young stem (T.S.), old stem (wood) (T.L.S. and R.L.S.), needle (T.S. male cone (L.S.), male cone (T.S.), Pollen grains (W.M.). *Ephedra* (i) Habit and structure of whole and female cones. (ii) Permanent slides-female cone (L.S.). (iii) Hand sections/dissections-node (L.S.), internode (T.S.), macerated stem to see vessel structure; epidermal peel mount of vegetative parts to study stomata, male cone (T.S. and L.S.), pollen grains. *Ginkgo* (i) Habit and structure of whole plant. (ii) Permanent slides-male and female reproductive parts. (iii) pollen grains

Suggested Readings:

1. Angiosperm Phylogeny Group (2003). An update of the Angiosperm Phylogeny Group

classification for the orders and families of the flowering plants: APG

2. Botanical Journal of the Linnaean Society 141: 399-436. 2. Cronquist, A. (1981). An

Integrated System of Classification of Flowering Plants. ColumbiaUniversity Press, New

York.

3. Simpson, M.C. (2006). Plant Systematics. Elsevier, Amsterdam

B.Sc Medical (Session 2019-20)

SEMESTER–IV

COURSE CODE: BSMM-4255

QUALITY ASSURANCE

(THEORY)

Course Outcomes: After passing this course the student will be able to:

CO1: Understand principles and methods of quality control and assurance in foods.

CO2: Understand principles of HACCP and GMP.

CO3: Understand the principles of sensory evaluation, sampling.

CO4: Learn food laws and regulations (FSSAI, PFA, AGMARK, FPO, MFPO, BIS, ISO)

CO5: Understand quality attributes (Colour, texture, size, shape and flavour).

CO6: Learn the methods of quality assessment of food materials.

B.Sc Medical (Session 2019-20)

SEMESTER–IV

COURSE CODE: BSMM-4255

QUALITY ASSURANCE

(THEORY)

Time: 3 Hours

Max. Marks: 100

Theory Marks: 60

Practical Marks: 20

CA: 20

Instructions for the Paper Setter: Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

UNIT-I

1. Objectives, importance and functions of quality control
2. Quality attributes

UNIT-II

3. Methods of quality assessment of food materials: fruits, vegetables, cereals, dairy products, meat, egg and processed products.
4. Color: Definition, importance, different color measuring instruments used in food industries.
5. Texture: Definition, importance, different texture analyzing instruments used in food industries to analyze texture.

UNIT-III

6. Sampling, specifications of raw materials and finished products
7. Sensory evaluation.

UNIT-IV

8. Concept of HACCP and GMP.
9. Food Laws and Regulations- FSSAI,AGMARK, FPO, PFA, MFPO, BIS, ISO.

Recommended Books:

1. Quality Control for Food Industry by A. Kramer and B.A. Twigg
2. Handbook of Analysis and Quality Control for Fruits and Vegetable Products by S. Ranganna
3. Food Science by N.N. Potter

B.Sc Medical (Session 2019-20)

SEMESTER–IV

COURSE CODE: BSMM-4255

QUALITY ASSURANCE

(PRACTICAL)

Max. Marks: 20

Instructions for the practical examiner: Question paper is to be set on the spot jointly by the Internal and External Examiners. Two copies of the same may be submitted for the record to COE Office, Kanya Maha Vidyalaya, Jalandhar.

List of Practicals:

1. Determination of acidity and pH of milk.
2. Platform tests for determining the quality of milk.
3. Determination of free fatty acids in flour and rice bran.
4. Determination of cooking quality of rice.
5. Determination of iodine value of oil/fat.
6. Determination of saponification value of oil/fat.
7. Determination of reducing and non-reducing sugars.
8. Determination of interior and exterior quality of eggs.
9. Determination of alcoholic acidity of flour.
10. Adulterants in milk, cereals, oils and fats and their detection.
11. Determination of TSS, Acidity and pH of commonly available fruit beverages (RTS/Nectar/Cordial/Squash/Crush/Syrup).
12. Cut out analysis of canned fruits and vegetable.
13. Determination of preservative (Sulphur dioxide or benzoic acid).
14. Chromatographic identification of colors.

SEMESTER–IV
BIOINFORMATICS (VOCATIONAL)
Computer Programming in C++ and PERL
(THEORY)
Course Code: BSNM/ BSMM- 4046
Session (2019-2020)

Course outcomes: Computer Programming in C++ and PERL

After passing this course the student will be able to:

CO1: Understand the basic Principles of computing, benefits and applications of object oriented programming.

CO2: Understand the Programming basics in C++.

CO3: Understand the Programming of C++ with Arrays, strings.

CO4: Understand the Programming of C++ with functions, Inheritance, Polymorphism, Pointers.

CO5: Understand the Programming basics in PERL

CO6: Understand the different data types used in PERL.

CO7: Understand the different Conditional, logical, control Statements used in PERL.

SEMESTER–IV

BIOINFORMATICS (VOCATIONAL)
Computer Programming in C++ and PERL
(THEORY)
Course Code: BSNM/ BSMM- 4046
Session (2019-2020)

Time: 3 Hrs

Max Marks: 100
Theory Marks: 60
Practical Marks: 20
CA: 20

Instructions for the Paper Setters and Candidates:

Eight questions of equal marks are to be set, two in each of the four Sections (A-D).Questions of Sections A-D should be set from Units I-IV of the syllabus respectively.Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

UNIT–I

Principles of Computing: Computer Hardware, System Software, Applications Software, Algorithm Design and Flow Charts. Introduction to procedure oriented programming and object oriented programming. Basic concepts, benefits and applications of object oriented Programming.
C++ Programming Basics: Variable, constant, Expression, Statements, Comments and Keywords of C++, Arithmetic, Relational, Logical, Assignment, Increment/Decrement, Conditional, Precedence of Operators, Data type.
Decision Making and Looping Statement: If Statement, If else statement, nesting of if statement, switch statement, conditional operator statement, While loop, do loop, for loop, nesting of loops, break and continue statement, go to statement.
Arrays Defining an array, array type, array elements, Accessing, and averaging array elements,
initializing array, Programming of C++ with array, String handling, array of strings.

UNIT–II

Functions: Declaring and defining function, Local, global variables, execution of function, passing argument to function, Return values, Overloading functions, Inline function.
Object Oriented Programming: Objects & Classes, Constructor & Destructor, Operator overloading, Overloading unary operators, Overloading binary operators, Data conversion.
Inheritance: Derived class and Base Class, Derived Class Constructors, Overriding member functions.
Polymorphism: Virtual Functions, single inheritance, Multiple inheritance.
Structures A simple structure, specifying the structure, defining a structure variable.
Pointers: Addresses and pointers, Pointers and Arrays, Pointer to objects.
Advanced C++ I/O

UNIT–III

Getting Started with PERL: Perl's Benefits, Downloading & installing perl in Linux/Windows environment, How to run perl Programs in linux/windows environment. Applications of perl in Bioinformatics.
Perl Values and Data Types: Scalar, Arrays, Hashes, Operators; Operator precedence, I/O: Input from STDIN, Built in File handlers, Input from file, Input from file named on command line, Output to file.

UNIT–IV

Conditional and Logical Statements: Statement Blocks, if, else, elsif, unless, while, do while,
do until, for, foreach statements. **Control Statements:** Next, last, redo, continue statements.
Regular Expressions: Match, substitute and translate operators, Meta characters, Metasymbols
and Pattern Modifiers. PERL subroutines and functions, Introduction to Bioperl.

Recommended Books:

1. Schildt H. C++: the Complete Reference. Tata McGraw Hill.New Delhi (1999).
2. Balagurisamy E. ooP with C++. 2nd Edition.Tata McGraw Hill.New Delhi (2002).
3. Eubbard. Schaum's Outline Series: Programming with C++. 2nd Edition.Tata McGraw Hill. New Delhi (2002).
4. Lafore, R. C++. Galgotia Publication (2000).
5. James D.Tisdall, *(2001).* –Beginning Perl for Bioinformatics,*"O"Rilley and Associates*
6. D. Curtis Jamison. *Perl programming for biologists.*Hoboken, N.J.: Wiley-Liss, 2003.

SEMESTER–IV
BIOINFORMATICS (VOCATIONAL)
LAB IN COMPUTER PROGRAMMING IN C++ AND PERL
(PRACTICAL)
Course Code: BSNM/ BSMM- 4046
Session (2019-2020)

Time: 3 Hrs **Marks: 20**

Practicals Using C++ Language:

1 Writea Program for addition and multiplication of two matrices.
2 Write a Program to create dynamic array.
3 Create a class having default constructor, copy constructor and destructor.
4 Write a Program to implement the concept of virtual base class.
5 Write a Program to implement multiple inheritances.
6 Write a Program to overload binary operator (-).
7 Write a Program to implement run time polymorphism.
8 Write a program to collect student information.

Practicals Using PERL Language:

1 Write a Program to show the concept of standard input/output.
2 Write a Program to declare and use variables.
3 Write a Program to use the operators.
4 Write a Program to use hashes and arrays.
5Write a Program to use Array & hashes its function.
5 Write a Program to implement the conditional statements.
6 Write a Program to implement the iterative statement.
7 Write a Program which uses NEXT, LAST, REDO, and CONTINUE statement
8 Write a program to show file handling.
9 Write a Program to show the concept of subroutine.
10 Write a program to transcription of DNA.
11 Write a program to concatenate two strings
12 Programs related with Regular Expression
- Searching for a regular expression in a file.
- Searching and replacing a regular expression a file.

SEMESTER–IV
BIOINFORMATICS (VOCATIONAL)
ON JOB TRAINING

Satisfactory/Unsatisfactory

This should be taken up during summer vacations over a period of one month in the area of Bioinformatics/Computer. The college should send the satisfactory/Unsatisfactory report of students after receiving the project/training report from the student.