

FACULTY OF SCIENCES

SYLLABUS of B. Sc. Medical (Semester I -II)

(Under Continuous Evaluation System)

Session: 2018-19



**The Heritage Institution
KANYA MAHA VIDYALAYA
JALANDHAR
(Autonomous)**

**Scheme of Courses and Examination
B. Sc. Medical**

B. Sc. Medical Semester I							
Course Code	Course Name	Course Type	Marks				Examination time (in Hours)
			Total	Ext.		CA	
				L	P		
BSMM-1421 BSMM-1031 BSMM-1431	Punjabi (Compulsory) Basic Punjabi PHC	C	50	40	-	10	3
BSMM-1212	English (Compulsory)	C	50	40	-	10	3
BSMM-1483	Zoology	E	100	60 <small>(30+30)</small>	20	20	3+3+3
BSMM-1343	Microbiology	E	100	60	20	20	3+3
BSMM-1084	Chemistry	C	100	60	20	20	3+3+3
BSMM-1075	Botany	E	100	60 <small>(30+30)</small>	20	20	3+3+3
BSMM-1255	Food Science	E	100	60	20	20	3+3
BSMM-1046	Bioinformatics	E	100	60	20	20	3+3
AECD-1161	*Drug Abuse: Problem Management and Prevention (Compulsory)	AECC	50	40	-	10	3
SECF-1492	*Foundation Programme	VBCC	25	25	-	-	2
Total							

***Marks of these papers will not be added in total marks and only grades will be provided.**

C-Compulsory

E-Elective

AECC- Ability Enhancement Compulsory Course

VBCC- Value Based Compulsory Course

B. Sc. Medical Semester II

Course Code	Course Name	Course Type	Marks				Examination time (in Hours)
			Total	Ext.		CA	
				L	P		
BSMM-2421 BSMM-2031 BSMM-2431	Punjabi (Compulsory) Basic Punjabi PHC	C	50	40	-	10	3
BSMM-2212	English (Compulsory)	C	50	40	-	10	3
BSMM-2483	Zoology	E	100	60 (30+30)	20	20	3+3+3
BSMM-2343	Microbiology	E	100	60	20	20	3+3
BSMM-2084	Chemistry	C	100	60	20	20	3+3+3
BSMM-2075	Botany	E	100	60 (30+30)	20	20	3+3+3
BSMM-2255	Food Science	E	100	60	20	20	3+3
BSMM-2046	Bioinformatics	E	100	60	20	20	3+3
AECD-2161	*Drug Abuse: Problem Management and Prevention (Compulsory)	AECC	50	40	-	10	3
SECM-2502	*Moral Education Programme	VBCC	25	25	-	-	2
Total							

***Marks of these papers will not be added in total marks and only grades will be provided.**

C-Compulsory

E-Elective

AECC- Ability Enhancement Compulsory Course

VBCC- Value Based Compulsory Course

Session 2018-19

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 ਵਿਲੋਂ ਅਤੇ ਪ੍ਰੀਤਮ ਸਿੰਘ ਸਰਗੋਧੀਆ), ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ, ਅੰਮ੍ਰਿਤਸਰ।

(ਲੇਖਕ ਦਾ ਜੀਵਨ ਤੇ ਰਚਨਾ ਪ੍ਰੰਗ ਹਸਤ ਹਵਾਅਠਖਐਕਹਵਤਾ ਦ੍ਵ ਤੂ)ਹਵਸ਼ਾ 8 ਅੰਕ

ਯੂਨਿਟ II

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

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

(ਹਵਸ਼ਾਵ ਤੂ ੰਾਰੇਨਾਇਕ ਹਬ' ਬ)

8 ਅੰਕ

ਯੂਨਿਟ III

(ੳ) ਪੈਰਾ ਰਚਨਾ (ਤਿੰਨ ਵਿਚੋਂ ਇਕ)

(ਅ) ਪੈਰਾ ਪੜ੍ਹ ਕੇ ਪੁਸ਼ਨਾਂ ਦੇ ਉਤਰ।

8 ਅੰਕ

ਯੂਨਿਟ IV

(ੳ) ਭਾਸ਼ਾ ਵੰਨਗੀਆਂ : ਭਾਸ਼ਾ ਦਾ ਟਕਸਾਲੀ ਰੂਪ, ਭਾਸ਼ਾ ਅਤੇ ਉਪਭਾਸ਼ਾ ਵਿਚ ਅੰਤਰ, ਪੰਜਾਬੀ ਉਪਭਾਸ਼ਾਵਾਂ ਦੇ ਪਛਾਣ ਚਿੰਨ੍ਹ।

(ਅ) ਪੰਜਾਬੀ ਭਾਸ਼ਾ : ਨਿਕਾਸ ਤੇ ਵਿਕਾਸ

8 ਅੰਕ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਚਾਰ ਯੂਨਿਟ ਹੋਣਗੇ। ਸੈਕਸ਼ਨ ਟੁਕ ਤੱਕ ਦੇ ਪ੍ਰਸ਼ਨ ਯੂਨਿਟ I-IV ਵਿਚੋਂ ਪੁੱਛੇ ਜਾਣਗੇ ਹਰ ਯੂਨਿਟ ਵਿਚ ਦੋ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ।
2. ਵਿਦਿਆਰਥੀ ਨੇ ਕੁਲ ਪੰਜ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹਨ। ਹਰ ਯੂਨਿਟ ਵਿਚੋਂ ਇਕ ਪ੍ਰਸ਼ਨ 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 ਤੋਂ ਵਧ ਚਾਰ ਉਪ ਪ੍ਰਸ਼ਨਾਂ ਵਿਚ ਕਰ ਸਕਦਾ ਹੈ।

Session 2018-19

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

CA: 10

ਪਾਠ ਕ੍ਰਮ ਅਤੇ ਪਾਠ ਪੁਸਤਕਾਂ

ਯੂਨਿਟ I

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

(ਹਵਸ਼ਾਵ ਤੋਂ ਿੰਾਰੇਲੇ ਖਕ ਦਾ ਜੀਵਨ ਤੇ ਰਚਨਾ)

8 ਅੰਕ

ਯੂਨਿਟ II

ਸੰਸਾਰ ਦੀਆਂ ਪ੍ਰਸਿਧ ਹਸਤੀਆਂ (ਜੀਵਨੀ ਨੰ: 10 ਤੋਂ 18 ਤਕ)(ਸੰਪਾ. ਪ੍ਰਿੰ. ਤੇਜਾ ਸਿੰਘ, ਹਰਨਾਮ ਸਿੰਘ ਸ਼ਾਮ),

ਪੰਜਾਬੀ ਸਾਹਿਤ ਪ੍ਰਕਾਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।

(ਹਵਸ਼ਾ ਿੰਾਰੇਨਾਇਕ ਹਬ' ਬ)

8 ਅੰਕ

ਯੂਨਿਟ III

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

(ਅ) ਸ਼ਬਦ ਸ਼੍ਰੇਣੀਆਂ

8 ਅੰਕ

ਯੂਨਿਟ IV

(ੳ) ਦਫ਼ਤਰੀ ਚਿਠੀ ਪਤਰ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਚਾਰ ਯੂਨਿਟ ਹੋਣਗੇ। ਸੈਕਸ਼ਨ ਟੱਕ ਦੇ ਪ੍ਰਸ਼ਨ ਯੂਨਿਟ I-IV ਵਿਚੋਂ ਪੁੱਛ ਜਾਣਗੇ ਹਰ ਯੂਨਿਟ ਵਿਚ ਦੋ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ।
2. ਵਿਦਿਆਰਥੀ ਨੇ ਕੁਲ ਪੰਜ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹਨ। ਹਰ ਯੂਨਿਟ ਵਿਚੋਂ ਇਕ ਪ੍ਰਸ਼ਨ 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 ਤੋਂ ਵਧ ਚਾਰ ਉਪ ਪ੍ਰਸ਼ਨਾਂ ਵਿਚ ਕਰ ਸਕਦਾ ਹੈ।

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 ਮਾਤ੍ਰਵਾਂ (ਮੁਢਲੀ ਜਾਣ ਪਛਾਣ) ਲਗਾਖਰ (ਬਿੰਦੀ, ਟਿਪੀ, ਅਧਕ) : ਪਛਾਣ ਅਤੇ ਵਰਤੋਂ । 08ਅੰਕ

ਯੂਨਿਟ II

ਪੰਜਾਬੀ ਸ਼ਬਦ ਬਣਤਰ : ਮੁਢਲੀ ਜਾਣ ਪਛਾਣ (ਸਾਧਾਰਨ ਸ਼ਬਦ, ਸੰਯੁਕਤ ਸ਼ਬਦ, ਮਿਸ਼ਰਤ ਸ਼ਬਦ, ਮੂਲ ਸ਼ਬਦ, ਅਗੇਤਰ ਅਤੇ ਪਿਛੇਤਰ) 08ਅੰਕ

ਯੂਨਿਟ III

ਨਿਤ ਵਰਤੋਂ ਦੀ ਪੰਜਾਬੀ ਸ਼ਬਦਾਵਲੀ : ਬਾਜ਼ਾਰ, ਵਪਾਰ, ਰਿਸ਼ਤੇਨਾਤੇ, ਖੇਤੀ ਅਤੇ ਹੋਰ ਧੰਦਿਆਂ ਆਦਿ ਨਾਲ ਸੰਬੰਧਤ। 08 ਅੰਕ

ਯੂਨਿਟ IV

ਹਫ਼ਤੇ ਦੇ ਸਤ ਦਿਨਾਂ ਦੇ ਨਾਂ, ਬਾਰਾਂ 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 ਟੱਕ ਦੇ ਪ੍ਰਸ਼ਨ ਯੂਨਿਟ ਜ਼ਰੂਰ ਵਿੱਚੋਂ ਪੁੱਛੇ ਜਾਣਗੇ। ਹਰ ਯੂਨਿਟ ਵਿੱਚ ਦੋ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ।
2. ਵਿਦਿਆਰਥੀ ਨੇ ਕੁਲ ਪੰਜ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹਨ। ਹਰ ਭਾਗ ਵਿੱਚੋਂ ਇੱਕ ਪ੍ਰਸ਼ਨ ਲਾਜ਼ਮੀ ਹੈ। ਪੰਜਵਾਂ ਪ੍ਰਸ਼ਨ ਕਿਸੇ ਵੀ ਭਾਗ ਵਿੱਚੋਂ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ।
3. ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ ਅੱਠ ਅੰਕ ਹਨ।
4. ਪੇਪਰ ਸੈਟ ਕਰਨ ਵਾਲਾ ਜੇਕਰ ਚਾਹੇ ਤਾਂ ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਵੰਡ ਅਗੋਂ ਵਧ ਤੋਂ ਵਧ ਚਾਰ ਉਪ ਪ੍ਰਸ਼ਨਾਂ ਵਿੱਚ ਕਰ ਸਕਦਾ ਹੈ।

SESSION 2018-19

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 : ਮੁਢਲੀ ਜਾਣ ਪਛਾਣ

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

(ਅ) ਬਿਆਨੀਆ ਵਾਕ, ਪ੍ਰਸ਼ਨਵਾਚਕ ਵਾਕ ਅਤੇ ਹੁਕਮੀ ਵਾਕ (ਪਛਾਣ ਅਤੇ ਵਰਤੋਂ)

08 ਅੰਕ

ਯੂਨਿਟ III

ਪੈਰ੍ਰਾ ਰਚਨਾ

ਸੰਖੇਪ ਰਚਨਾ

08 ਅੰਕ

ਯੂਨਿਟ -IV

ਚਿਠੀ ਪੱਤਰ (ਘਰੇਲੂ ਅਤੇ ਦਫ਼ਤਰੀ)

ਅਖਾਣ ਅਤੇ ਮੁਹਾਵਰੇ

08 ਅੰਕ

ਅੰਕ ਵੰਡ ਅਤੇ ਪਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਚਾਰ ਯੂਨਿਟ ਹੋਣਗੇ। ਸੈਕਸ਼ਨ ਟੁਕ ਤੱਕ ਦੇ ਪ੍ਰਸ਼ਨ ਯੂਨਿਟ I-IV ਵਿਚੋਂ ਪੁੱਛੇ ਜਾਣਗੇ। ਹਰ ਯੂਨਿਟ ਵਿਚ ਦੋ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ।
2. ਵਿਦਿਆਰਥੀ ਨੇ ਕੁਲ ਪੰਜ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹਨ। ਹਰ ਭਾਗ ਵਿਚੋਂ ਇਕ ਪ੍ਰਸ਼ਨ ਲਾਜ਼ਮੀ ਹੈ। ਪੰਜਵਾਂ ਪ੍ਰਸ਼ਨ ਕਿਸੇ ਵੀ ਭਾਗ 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 ਤੋਂ ਵਧ ਚਾਰ ਉਪ ਪ੍ਰਸ਼ਨਾਂ ਵਿਚ ਕਰ ਸਕਦਾ ਹੈ।

SEMESTER-I

Punjab History & Culture (From Earliest Times to C. 320) (Special Paper in lieu of Punjabi compulsory)

Course Code: BSNL -1431

Time: 3 Hours

Max. Marks: 50

Theory: 40

CA: 10

Instructions for the Paper Setters

Eight questions of equal marks (8 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 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 later *Rig* Vedic Age.
6. Social, Religious and Economic life during later Vedic Age.

Unit -IV

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

Suggested Readings

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

SEMESTER-II
Punjab History & Culture (C. 320 to 1000 A.D)
(Special Paper in lieu of Punjabi compulsory)
Course Code: BSNL -2431

Time: 3 Hours

Max. Marks: 50
Theory: 40
CA: 10

Instructions for the Paper Setters

Eight questions of equal marks (8 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. 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. L. Joshi (ed): *History and Culture of the Punjab*, Art-I, Patiala, 1989 (3rd edition)
2. L.M. Joshi and Fauja Singh (ed); *History of Punjab*, Vol.I, Patiala 1977.
3. Budha Parkash :*Glimpses of Ancient Punjab*, Patiala, 1983.
4. B.N. Sharma: *Life in Northern India*, Delhi. 1966.

**B.A./ B.Sc. (Medical)/ B.Sc. (Non Medical)/ B.Sc. (Computer Science)/
B.Sc. (Economics)/ B.Com./ BBA (Session 2018-19)**

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.A./ B.Sc. (Medical)/ B.Sc. (Non Medical)/ B.Sc. (Computer Science)/ B.Sc. (Economics)/ B.Com./ BBA (Session 2018-19)

**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-I) (Session 2018-19)

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 (4th 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)

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. Dhama, P.S. & Dhama, 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 (2nd 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 (3rd ed). Oxford University Press, New York.
8. Pechenik, A. Jan. (2000), Biology of the invertebrates, (4th 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)

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

Guidelines for conduct of practical Examination:-

1. Identify 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 chromatography/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 Astringia. 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 *Pontobdella*

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 (Semester-II) (Session 2018-19)

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. Krebs 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 2018-19)

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 2018-19)

ZOOLOGY

PRACTICAL–II Related To Ecology & Biodiversity-II

Course Code: BSMM-2483 (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

Guidelines for conduct of practical Examination:-

1. Identify 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), *Poeciloceris* (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 2018-19)

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 Immunofluorescence, Electron microscopy.
4. **Methods in Microbiology:** Methods of sterilization, preparation of a culture media, pure culture concept, staining techniques 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 2018-19)

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. Medical (Session 2018-19)

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 2018-19)

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-2018-19)

B. Sc (Medical 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 hybridization and 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 , SnCl_6 . Valence shell electron pair repulsion (VSEPR) theory to NH_3 , H_3O^+ , SF_4 , ClF_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 antiferite, 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. McDaniell, 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-2018-19)

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, aromaticity 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, arennes 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, $\text{S}_{\text{N}}2$ and $\text{S}_{\text{N}}1$ 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 vs allyl, 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 cyclopropane ring : 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-2018-19)

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

ICOURSE 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, Kanya Maha Vidyalaya, 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.

(Session-2018-19)

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

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. 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, solvation 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), tetrasulphur tetranitride, basic properties of halogens, interhalogens and polyhalide, Silicones and phosphazenes as examples of inorganic polymers, 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 3d 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. Porterfeld, 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-2018-19)

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

COURSE CODE: BSMM/BSNM-1084(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 path and 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 of nematic 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:WileyEastern Limited, 1991.
8. Levine, I.N., Physical Chemistry; 5th edition, Pubs: Tata McGraw HillPublishing 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-2018-19)

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

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, Kanya Maha Vidyalaya, Jalandhar.

Crystallisation:

Concept of indication of crystallisation. 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, Bharati Bhavan.

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

Course Code: BSMM-1075 (I)

DIVERSITY OF MICROBES

(Theory)

Time: 3 Hrs

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 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:

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

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

BOTANY

Course Code: BSMM-1075(II)

DIVERSITY OF CRYPTOGAMS

(Theory)

Time: 3 Hrs

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. Cambridge University Press, 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 2018-19)

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 (Semester-II) (Session 2018-19)

BOTANY

Course Code: BSMM-2075(I)

CELL BIOLOGY

(Theory)

Time: 3 Hrs

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 Escherichia coli.

UNIT-II

Extranuclear Genome: Presence and function of mitochondrial and plastid DNA; plasmids.

Structure and Function of other Organelles: Golgi bodies, ER, 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 Wileyand Sons Inc., U.S.A.

B.Sc. Medical (Semester-II)(Session 2018-19)

BOTANY

Course Code: BSMM-2075(II)

**GENETICS
(Theory)**

Time: 3 Hrs

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.

UNIT-III

Genetic Inheritance: Mendelism; laws of segregation and independent assortment; linkage analysis; allelic and non–allelic interactions. Gene expression: Structure of gene; transfer of genetic information; transcription, translation, protein synthesis, tRNA; ribosomes; regulation of gene expression in prokaryotes and eukaryotes; proteins, 1D, 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 2018-19)

BOTANY

Course Code: BSMM-2075 (P)

PRACTICAL – GENETICS AND CELL BIOLOGY

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

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 Barlett Publishers, Boston, Massachusetts.
3. Harns, N. and Oparka, K.J. 1994. Plant Cell Biology, A Practical Approach. IRL Press,
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 2018-19)

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 2018-19)

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.

B.Sc Medical (Session 2018-19)

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 2018-19)

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-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 soundfile 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 : History 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
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. Freeman 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:3Hrs.

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.

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.

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 (**upto 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 its 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)
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/BCA/B.Com/BBA Semester – I (Session 2018-19)

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 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: Concept and Overview, Historical Perspective of Drug Abuse,

Drug Dependence, Drug Addiction, Physical and Psychological Dependence:
Drug Tolerance and withdrawal symptoms.

UNIT-II

2) Types of Abused Drugs and their Effects -I

- 1) Stimulants: Amphetamines – Benzedrine, Dexedrine, Cocaine.
- 2) Depressants: Alcohol Barbiturates: Nembutal, Seconal, Phenobarbital and Rohypnol.
- 3) Narcotics: Heroin, Morphine, Oxycodone.

UNIT-III

3) Types of abused drugs and their effects - II

- 1) Hallucinogens: Cannabis, Marijuana, Hashish, Hash Oil, MDMA, LSD.
- 2) Steroids.

UNIT-IV

4) Nature and Extent of the Problem: Magnitude or prevalence of the menace of Drug Abuse

in India and Punjab, Vulnerable groups by age, gender and economic status, Signs and Symptoms of Drug Abuse: Physical, Academic, Behavioural and Psychological Indicators.

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.

B.A/B.Sc/BCA/B.Com/BBA Semester – II (Session 2018-19)

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 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) Consequences of Drug Abuse for:

- 1) Individual – Education, employment and income issues.
- 2) Family – Violence
- 3) Society – Crime.
- 4) Nation – Law and order problem

UNIT-II

2) Management of Drug abuse:

- 1) Medical Management: Medication for treatment and to reduce withdrawal effects, Drug De-addiction clinics, Relapse management.
- 2) Psycho-Social Management: Counselling, family and group therapy, behavioural and cognitive therapy, Environmental Intervention.

UNIT-III

3) Prevention of Drug Abuse:

- 1) Role of family: Parent child relationship, Family support, Supervision, Shaping values, Active Scrutiny.
- 2) School
Counselling, Teacher as role-model. Parent-Teacher-Health Professional Coordination, Random testing on students.

UNIT-IV

4) Awareness of drug abuse

- 1) Media:
Restraint on advertisements of drugs, advertisements on bad effects of drugs, Publicity and media, Campaigns against drug abuse, Educational and awareness program.
- 2) legislation:

NDDPs act, statutory warnings, policing of borders, checking supply/ smuggling of drugs, strict enforcement of laws, time bound trial.

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.