FACULTY OF SCIENCES

SYLLABUS
of
B.Sc. Computer Science
(Semester I -IV)

(Under Continuous Evaluation System)

Session: 2019-20

The Heritage Institution

KANYA MAHA VIDYALAYA
JALANDHAR
(Autonomous)

B.Sc. Computer Science (Session 2019-20)

Scheme of Studies and Examination

SemesterI							
Course Code	**Course Name**	**Course Type**	**Marks**				**Examination time (in Hours)**
			Total	**Ext.**		**CA**	
				L	**P**		
BCSL-1421 BCSL-1031 BCSL-1431	Punjabi(Compulsory) Basic Punjabi PHC	C	50	40	-	10	3
BCSL-1212	English (Compulsory)	C	50	40	-	10	3
BCSM -1333	Maths (Algebra) Maths(Calculus and Trigonometry)	C	100	80 (40+40)	-	20	3+3
BCSM-1134	Computer Science (Computer Fundamental & Pc Software)	C	100	50	30	20	3+3
BCSM-1395	Physics (Mechanics) Physics(Electricity And Magnetism) Physics Practical	C	100	60 (30+30)	20	20	3+3+3
AECD-1161	*Drug Abuse: Problem Management and Prevention (Compulsory)	AECC	50	40	-	10	3
SECF-1492	*Foundation Course	VBCC	25	25	-	-	2
Total			400				

SemesterII							
Course Code	**Course Name**	**Course Type**	**Marks**				**Examination time (in Hours)**
			Total	**Ext.**		**CA**	
				L	**P**		
BCSL-2421 BCSL-2031 BCSL-2431	Punjabi(Compulsory) Basic Punjabi PHC	C	50	40	-	10	3
BCSL-2212	English (Compulsory)	C	50	40	-	10	3
BCSM -2333	Maths (Calculus and Differential equations) Maths(Calculus)	C	100	80 (40+40)	-	20	3+3
BCSM-2134	Computer Science (Programming In C)	C	100	50	30	20	3+3
BCSM-2395	Physics(Relativity And Electromagnetism) Physics(Vibration And Waves) Physics Practical	C	100	60 (30+30)	20	20	3+3+3
AECD-2161	*Drug Abuse: Problem Management and Prevention (Compulsory)	AECC	50	40	-	10	3
SECM-2502	*Moral Education Course	VBCC	25	25	-	-	2
Total			400				

B.Sc. Computer Science (Session 2019-20)

SemesterIII							
Course Code	**Course Name**	**Course Type**	**Marks**				**Examination time (in Hours)**
			Total	**Ext.**		**CA**	
				L	**P**		
BCSL-3421 BCSL-3031 BCSL-3431	Punjabi(Compulsory) Basic Punjabi PHC	C	50	40	-	10	3
BCSL-3212	English (Compulsory)	C	50	40	-	10	3
BCSM-3333	Maths (Analysis) Maths(Analytical Geometry)	C	100	80 (40+40)	-	20	3+3
BCSM-3134	Computer Science (Computer Oriented Numerical And Statistical Methods)	C	100	50	30	20	3+3
BCSM-3395	Physics(Statistical Physics & Thermodynamics) Physics(Optics) Physics Practical	C	100	60 (30+30)	20	20	3+3+3
AECE-3221	*EVS (Compulsory)	AC	50	40	-	10	3
SECP-3512	*Personality Development Course	AC	25	Grade only			1
Total			400				

SemesterIV							
Course Code	**Course Name**	**Course Type**	**Marks**				**Examination time (in Hours)**
			Total	**Ext.**		**CA**	
				L	**P**		
BCSL-4421 BCSL-4031 BCSL-4431	Punjabi(Compulsory) Basic Punjabi PHC	C	50	40	-	10	3
BCSL-4212	English (Compulsory)	C	50	40	-	10	3
BCSM -4333	Maths (Statics and Vector Calculus) Maths(Solid Geometry)	C	100	80 (40+40)	-	20	3+3
BCSM-4134	Computer Science (Data Structures & Programming Language Using C++)	C	100	50	30	20	3+3
BCSM-4395	Physics(Quantum Mechanics) Physics(Atomic Spectra & Lasers) Physics Practical	C	100	60 (30+30)	20	20	3+3+3
SECS-4522	*Social Work	AC	Grade only				10 hours per Sem
Total			400				

B.Sc. Computer Science (Session 2019-20)

***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

Programme Specific Outcomes – B. Sc. C.Sc. (Phy. C.Sc. Maths.)

Upon successful completion of this course, students will be able to:

PSO 1. Demonstrate proficiency in mathematics and the mathematical concepts needed for a proper understanding of physics and computers.

PSO 2. Solve mathematical problems by critical understanding, analysis and synthesis.

PSO 3. Demonstrate knowledge of mechanics, electromagnetism, quantum mechanics, optics & lasers, waves & vibrations, statistical physics, condensed matter physics, electronics, nuclear & particle physics and be able to apply this knowledge to analyse a variety of physical phenomena.

PSO 4. Demonstrate knowledge of various languages of Computer programming and apply this knowledge to interpret and analyse quantitative data.

PSO 5. Show that they have learned laboratory skills, enabling them to take measurements in a physics laboratory and analyse the measurements to draw valid conclusions.

PSO 6. Capable of oral and written scientific communication i.e. able to communicate effectively by oral, written, computing and graphical means.

B.Sc. Computer Science (Session 2019-20)

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

CO1ਦੋ ਰੰਗ (ਕਵਿਤਾ ਭਾਗ) ਨੂੰ ਪੜ੍ਹਾਉਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਕਵਿਤਾ ਪ੍ਰਤੀ ਦਿਲਚਸਪੀ, ਸੂਝ ਨੂੰ ਪੈਦਾ ਕਰਨਾ ਹੈ ਤਾਂ ਕਿ ਉਹ ਆਧੁਨਿਕ ਦੌਰ ਵਿਚ 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 ਸ਼ਾਮਿਲ ਕਰ ਕੇ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਜੀਵਨੀ ਨੂੰ ਪੜ੍ਹਣ ਦੀ ਰੁਚੀ ਨੂੰ ਪੈਦਾ ਕਰਨਾ ਹੈ ਅਤੇ 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।

CO6:ਭਾਸ਼ਾ ਵੰਨਗੀਆਂ ਨੂੰ ਪੜ੍ਹਾਉਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀ ਅਮੀਰੀ ਦਾ ਅਤੇ ਬਾਰੀਕੀਆਂ ਨੂੰ ਸਮਝਣ ਲਈ ਵੱਖਰੇ - ਵੱਖਰੇ ਸਿਧਾਂਤਾਂ ਦਾ ਵਿਕਾਸ ਕਰਨਾ ਹੈ।

B.Sc. Computer Science (Session 2019-20)

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 /ਪ੍ਰਸੰਗ ਸਹਿਤ ਵਿਆਖਿਆ/ਕਵਿਤਾ 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 ਸਾਹਿਤ ਪ੍ਰਕਾਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।

(ਵਿਸ਼ਾ-ਵਸਤੂ/ਸਾਰ/ਨਾਇਕ ਬਿੰਬ) 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 ਵਿਚ ਅੰਤਰ, ਪੰਜਾਬੀ ਉਪਭਾਬਾਵਾਂ ਦੇ ਪਛਾਣ ਚਿੰਨ੍ਹ।

(ਅ) ਪੰਜਾਬੀ ਭਾਸ਼ਾ : ਨਿਕਾਸ ਤੇ ਵਿਕਾਸ 8 ਅੰਕ

ਅੰਕ ਵੰਡ ਅਤੇ ਪਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਚਾਰ ਯੂਨਿਟ ਹੋਣਗੇ।ਸੈਕਸ਼ਨ A-D ਤੱਕ ਦੇ ਪ੍ਰਸ਼ਨ ਯੂਨਿਟ I-IV ਵਿਚੋਂ ਪੁੱਛੇ ਜਾਣਗ 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.Sc. Computer Science (Session 2019-20)

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 ਭਾਸ਼ਾ ਨੂੰ ਸਿਖਾਉਣ ਦੀ ਪ੍ਰਕਿਰਿਆ ਵਿਚ ਪਾ ਕੇ ਇਕ ਹੋਰ ਭਾਸ਼ਾ ਸਿੱਖਣ ਦੇ ਮੌਕੇ ਪ੍ਰਦਾਨ ਕਰਨਾ ਹੈ।

CO2:ਇਸ ਵਿਚ ਵਿਦਿਆਰਥੀ ਨੂੰ ਬਾਰੀਕਬੀਨੀ ਨਾਲ ਭਾਸ਼ਾ ਦਾ ਅਧਿਐਨ ਕਰਵਾਇਆ 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।

B.Sc. Computer Science (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 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। 08ਅੰਕ

ਯੂਨਿਟ-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 A-D 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 ਪ੍ਰਸ਼ਨ ਲਾਜਮੀ ਹੈ। ਪੰਜਵਾਂ ਪ੍ਰਸ਼ਨ ਕਿਸੇ ਵੀ ਭਾਗ ਵਿਚੋ 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 ਵਿਚ ਕਰ ਸਕਦਾ ਹੈ।

B.Sc. Computer Science (Session 2019-20)

Punjab History & Culture (From Earliest Times to C. 320)
(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.

CO 1: Identify and describe the emergence of earliest civilizations in: Indus Valley Civilization and Aryan Societies.

CO 2: Identify and analyses the Buddhist, Jain and Hindu faith in the Punjab

CO 3: Analyses the emergence of Early Aryans and Later Vedic Period, their Society, Culture, Polity and Economy

CO 4: To make students understand the concepts of two faiths Jainism and Buddhism, its principles and their application and relevance in present times

B.Sc. Computer Science (Session 2019-20)

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

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 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.

B.Sc. Computer Science (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.Sc. Computer Science (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 CA: 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. Computer Science (Session 2019-20)

B.A./B.Sc.Semester–I
Session: 2019-20
Course Title: Algebra
Course Code: BARM/BECM/ BCSM/BSNM-1333(I)

Course Outcomes

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

CO 1: Distinguish between solution of cubic equations and Bi-quadratic equations.

CO 2: Classify real quadratic form in variables, definite, semi- definite and indefinite real quadratic form.

CO 3: Understand the concept of matrix congruence of skew symmetric matrices and its reduction in real field.

CO 4: Solve system of linear equations and obtain Eigen values, Eigen vectors, minimal and characteristic equation of a matrix and to apply it in advanced dynamics and electric current.

CO 5: To find the relations between the roots and coefficients of general polynomial equation in one variable.

B.Sc. Computer Science (Session 2019-20)

SEMESTER-I

MATHEMATICS

ALGEBRA

Course Code: BCSM -1333 (I)

Time: 3 hrs. **Max.Marks:40**

Passing Marks: 14

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

Linear independence of row and column vectors. Row rank, Column rank of a matrix, Equivalence of column and row ranks, Nullity of matrix, Applications of matrices to a system of linear (both homogeneous and non–homogeneous) equations. Theorems on consistency of a system of linear equations.

Unit-II

Eigen values, Eigen vectors, minimal and the characteristic equation of a matrix. Cayley Hamilton theorem and its use in finding inverse of a matrix.Quadratic Forms, quadratic form as a product of matrices.The set of quadratic forms over a field.

Unit–III

Congruence of quadratic forms and matrices.Congruent transformations of matrices.Elementary congruent transformations.Congruent reduction of a symmetric matrix.Matrix Congruence of skew–symmetric matrices.Reduction in the real field.Classification of real quadratic forms in variables. Definite, semi–definite and indefinite real quadratic forms. Characteristic properties of definite, semi–definite and indefinite forms.

Unit-IV

Relations between the roots and coefficients of general polynomial equation in one variable. Transformation of equations and symmetric function of roots, Descarte's rule of signs, Newton's Method of divisors, Solution of cubic equations by Cardon method, Solution of biquadratic equations by Descarte's and Ferrari's Methods.

Books Recommended:

1. K.B. Dutta: Matrix and Linear Algebra, Prentice Hall of India Pvt. Ltd., New Delhi (2002).
2. H.S. Hall and S.R. Knight: Higher Algebra, H.M. Publications, 1994.
3. Chandrika Parsad: Text book on Algebra and Theory of Equations, Pothishala Pvt. Ltd., Allahabad.
4. S.L. Loney: Plane Trigonometry Part–II, Macmillan and Company, London.
5. Shanti Narayan and P.K. Mittal : Text Book of Matrices.

B.Sc. Computer Science (Session 2019-20)

B.A./B.Sc.Semester–I

Session: 2019-20

Course Title: Calculus and Trigonometry
Course Code: BARM/BECM/ BCSM/BSNM-1333(II)

Course Outcomes

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

CO 1: Understand real number system, lub & glb of set of real numbers, limit of a function, basic properties of limit & to apply it in real world problem.

CO 2: Analyses continuous and discontinuous function, Apply concept of continuity in uniform continuity.

CO 3: Manage to solve problems related to successive differentiation, Leibnitz theorem, Taylor's & Maclaurin's theorem with various forms of remainders and to use these expansion to compute values of Sine, Cosine, tangent or log function.

CO 4: Understand the concept of De Moivre's theorem & its applications. Identify circular, hyperbolic function and their inverses and use these function to describe the shape of the curve formed by high voltage line suspended between two towers.

CO 5: Demonstrate exponential and logarithmic function of complex numbers, and to solve Gregory's series and summation of series.

B.Sc. Computer Science (Session 2019-20)

SEMESTER-I
MATHEMATICS
CALCULUS AND TRIGONOMETRY
Course Code: BCSM -1333 (II)

Time : 3 hrs. **Max.Marks:40**

Passing Marks: 14

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

Real number system and its properties, lub, glb of sets of real numbers, limit of a function, Basic properties of limits, Continuous functions and classification of discontinuities, Uniform continuities.

Unit-II

Differentiation of hyperbolic functions, Successive differentiation, Leibnitz theorem, Taylor's and Maclaurin's theorem with various forms of remainders, Indeterminate forms.

Unit-III

De–Moivre's Theorem and its applications, circular and hyperbolic functions and their inverses.

Unit-IV

Exponential and Logarithmic function of a complex numbers, Expansion of trigonometric functions, Gregory's series, Summation of series.

Books Recommended:

1. N. Piskunov: Differential and Integral Calculus, Peace Publishers, Moscow.

2. Gorakh Prasad: Differential Calculus, Pothishala Pvt. Ltd., Allahabad.

3. Erwin Kreyszig: Advanced Engineering Mathematics, John Wiley and Sons, 1999.

B.Sc. Computer Science (Session 2019-20)

SEMESTER- I
COMPUTER FUNDAMENTAL & PC SOFTWARE
(THEORY)
Course Code: BCSM-1134

Course Outcomes

After passing this course the student will be able to:

CO 1. Have knowledge of Computer components - hardware and software.
CO 2. Use computer system for general tasks at user level, including operative systems and programming environments.
CO 3. Learn the basics of Operating System and Programming environment.
CO 4. Gain knowledge on office automation software and recognise when to use a particular office program to create professional and academic documents.
CO 5. Analyze, design and implement solutions to various problems using algorithms, flowcharts, decision tables and psuedocodes.

B.Sc. Computer Science (Session 2019-20)

SEMESTER- I
COMPUTER FUNDAMENTAL & PC SOFTWARE
(THEORY)

Course Code: BCSM-1134

Time: 3Hrs **Theory: 50**

Pass Marks: 18

Instructions for Paper Setter -

Eight questions of equal marks are to 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 divided 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 computer and its uses: milestones in hardware and software. Batch oriented/Online/real time application.
2. Computer as a system: basic concepts: stored programs, functional units and their inter–relation: communication with the computer.
3. Data storage devices and media: primary storage: storage addressed, and capacity, type of memory: secondary storage; magnetic tape – data representation and R/W: magnetic disc, fixed & removable, data representation and R/W, floppy disc drives, Winchester disc drive, conventional disc drives, Data organization, Compact Disc.

UNIT -II

1. Input/Output devices: Key–tape/diskette devices, light pen mouse and joystick, source data automation (MICR, OMR, and OCR), screen assisted data entry; portable/hand held terminals for data collection, vision input system.
2. Printed output: Serial, line, page, printers; plotters, visual output; voice response units.

UNIT–III

Introduction to Windows based operating system and Desktop icons

UNIT–IV

MS–Word:

Introduction to Word, Introduction to Parts of Word Window (Title Bar, Menu Bar, Tool Bar, The Ruler, Status Area), Page Setup, Creating New Documents, Saving Documents, Opening an Existing documents, insert a second document into an open document, Editing and formatting in document, Headers and Footers, Spell Checking, Printing document, Creating a Table Using the Table Menu and table formatting, Borders and Shading, Templates and Wizards, Mail Merge

MS Power Point:

Introduction to MS Power point, Power point elements, Templates, Wizards, Views, Exploring Power Point Menu, Working with Dialog Boxes, Adding Text, Adding Title, Moving Text Area, Resizing Text Boxes, Adding Art, Starting a New Slide, Starting Slide Show, Saving presentation; Printing Slides, Views (View slide sorter view, notes view, outlines view) Formatting and enhancing text formatting, Creating Graphs (Displaying slide show and adding multi–media).

References:

1. R.K. Taxali: Introduction to Software Packages, GalgotiaPublicaions.
2. MS–Office Compiled by SYBIX
3. MS–Office BPB Publications.
4. Introduction to Computer by P.K. Sinha
5. Windows Based Computer Courses by Gurvinder Singh &Rachpal Singh, Kalyani Publishers.

B.Sc. Computer Science (Session 2019-20)

SEMESTER- I
COMPUTER FUNDAMENTAL & PC SOFTWARE
(PRACTICAL)
Course Code: BCSM-1134

Time: 3Hrs **Practical: 30**
Pass Marks: 9

Instructions to Practical Examiner
Question paper is to be set on the spot jointly by the external and internal examiners. Two copies of the same to be submitted for the record to COE office, KanyaMahaVidyalaya, Jalandhar

Practical based on Computer Fundamental & PC Software
Windows, MS Word, Power Point

B.Sc. Computer Science (Session 2019-20)

SEMESTER-I

PHYSICS

MECHANICS

(THEORY)

Course code: BCSM-1395 (I)

Course Outcomes

After passing this course, students will be able to:

CO 1. Understand the various coordinate systems and its applications. Students will be able to know the conservations laws and the symmetries of space & time.

CO 2. Know the fundamental forces of nature, concept of centre mass, central forces and the motion of particle under central force and to determine the turning points of orbit.

CO 3. Understand the frames of reference, coriolis forces and its applications and effect of rotation of earth on g.

CO 4. Understand the elastic collision in different systems, cross section of elastic scattering as well as Rutherford scattering and know the motion of rigid body.

B.Sc. Computer Science (Session 2019-20)

SEMESTER–I
PHYSICS
MECHANICS
(THEORY)
Course code: BCSM-1395 (I)

Time: 3 Hours **Marks: 30**
Pass Marks: 11

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.

Note: Students can use Non-Scientific calculators or logarithmic tables.

UNIT–I
Cartesian and spherical polar co–ordinate systems, area, volume, velocity and Acceleration inthese systems, Solid angle, Relationship of conservation laws and symmetries of space and time.

UNIT–II
Various forces in Nature (Brief introduction) centre of mass, equivalent one body problem, centralforces, equation of motion under central force, equation of orbit and turning points. Kepler Laws.Concept of Ether and Michel son–Morley experiment.

UNIT–III
Inertial frame of reference.Galilean transformation and Invariance. Non Inertial frames, Coriolisforce and its applications. Variation of acceleration due to gravity with latitude.Foucaultpendulum.

UNIT–IV
Elastic collision in Lab and C.M. system, velocities, angles and energies, cross section of elasticscattering, Rutherford scattering. Rigid Body motion; Rotational motion, principal moments and
Axes.Euler's equations, precession and elementary gyroscope.

Books Suggested:
1. Mechanics, Berkeley Vol.–I by C. Kittle.
2. Mechanics, H.S. Hans & S.P. Puri.

B.Sc. Computer Science (Session 2019-20)

SEMESTER–I

PHYSICS
ELECTRICITY AND MAGNETISM
(THEORY)

Course code: BCSM-1395 (II)

Course Outcomes:

After passing this course the students will be able to:

CO 1. Understand the vector calculus and vector algebra and its applications in electricity and magnetism. The students will be able to solve the electrostatic problems with the help of Gauss law and Coulomb's law.

CO 2. Understand the applications of scalar potential for the calculation of electric field and electric potential due to an arbitrary charge distribution.

CO 3. Solve the problems with the help of method of images and understand the conduction of electric current and fundamental laws of electricity.

CO 4. Relate the electric and magnetic fields in two inertial frames of reference.

B.Sc. Computer Science (Session 2019-20)

SEMESTER–I
PHYSICS
ELECTRICITY AND MAGNETISM
(THEORY)
Course code:BCSM-1395 (II)

Time: 3 Hours **Marks: 30**
Pass Marks: 11

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.

Note: Students can use Non-Scientific calculators or logarithmic tables.

UNIT–I
Basic ideas of Vector Calculus Gradient, Divergence, curl and their physical significance.Laplacian in rectangular, cylindrical and spherical coordinates. Coulomb's Law for point charges andcontinuous distribution of charges. Electric field due to dipole, line charge and sheet ofcharge. Electric flux, Gauss's Law and its applications. Gauss's divergence theorem anddifferential form of Gauss's Law.Green's theorem.

UNIT–II
Work and potential difference.Potential difference as line integral of field. Electric potential due to a point charge a group of point charges, dipole and quadruple moments, long uniformlycharged wire, charged disc. Stoke's theorem and its applications in Electrostatic field, curl E=0.Electric fields as gradient of scalar potential.Calculation of E due to a point charge and dipolefrom potential.Potential due to arbitrary charge distribution and multipole moments.

UNIT–III
Poisson and Laplace's equation and their solutions in Cartesian and spherical coordinates.Conceptof electrical images.Calculation of electric potential and field due to a point charge placed near aninfinitely conducting sheet.Current and current density, equation of continuity. Microscopic formof Ohm's Law ($J=\sigma E$) and conductivity, Failure of Ohm's Law. Invariance of charge.

UNIT–IV
E in different frames of reference.Field of a point charge moving with constant velocity.Interaction between moving charges and force between parallel currents.Behavior of varioussubstances in magnetic field.Definition of M and H and their relation to free and bound currents.
Permeability and susceptibility and their interrelationship.Orbital motion of electrons andDiamagnetism.

Books Suggested:
1. Fundamentals of Electricity and Magnetism by Arthur F. Kipp.
2. Electricity and Magnetism, Berkeley Physics Course, Vol. II by E.M. Purcell.
3. Introduction to Classical Electrodynamics by David Griffith.
4. EM Waves and Radiating System by Edward C. Jordan and K.G. Balmain.
5. Fields and Waves Electromagnetic by David K. Cheng.

B.Sc. Computer Science (Session 2019-20)

SEMESTER–I
PHYSICS
PHYSICS PRACTICAL
Course code:BCSM-1395 (P)

Course Outcomes : Phy Lab Sem I

CO 1. Students will be able to find the value of acceleration due to gravity using pendulums.
CO 2. It will give understanding of collisions In 1-Dimension.
CO 3. It helps to study the moment of inertia of a body & on what factors its depends.

SEMESTER–I
PHYSICS
PHYSICS PRACTICAL
Course code:BCSM-1395 (P)

Instructions to Practical Examiner

Question paper is to be set on the spot jointly by the external and internal examiners. Two copies of the same to be submitted for the record to COE office, KanyaMahaVidyalaya, Jalandhar

General Guidelines for Practical Examination

I. The distribution of marks is as follows: **Marks: 20**
i) One experiment **7 Marks**
ii) Brief Theory **3 Marks**
iii) Viva–Voce **5 Marks**
iv) Record (Practical file) **5 Marks**
II. There will be one sessions of 3 hours duration. The paper will have one session.
Paper will consist of 8 experiments out of which an examinee will mark 6 experiments andone of these is to be allotted by the external examiner.
III. Number of candidates in a group for practical examination should not exceed 12.
IV. In a single group no experiment isto be allotted to more than three examinees in any group.

LIST OF EXPERIMENTS

1. To study the dependence of moment of inertia on distribution of mass (by noting time periodsof oscillations using objects of various geometrical shapes but of same mass).
2. To establish relationship between torque and angular acceleration using fly wheel.
3. To find the moment of inertia of a flywheel.
4. Study of bending of beams and determination of Young's modulus.
5. Determination of Poisson's ratio for rubber.
6. To determine energy transfer, coefficient of restitution and verify laws of conservation oflinear momentum and kinetic energy in elastic collisions using one dimensional collisions ofhanging spheres.
7. To verify the laws of vibrating string by Melde's experiment.
8. Measure time period as a function of distance of centre of suspension (oscillation) fromcentre of mass, plot relevant graphs, determine radius of gyration and acceleration due togravity.
9. Find the value of 'g' by Kater's pendulum.
10. Measure time period of oscillation of a Maxwell needle and determine modulus of rigidity of the material of a given wire.
11. To measure logarithmic decrement, coefficient of damping, relaxation time, and quality factor of a damped simple pendulum.

B.Sc. Computer Science (Session 2019-20)

SEMESTER – I

DRUG ABUSE

Course Code: AECD-1161

(Theory)

Course Outcomes:

CO 1. 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;

CO 2. How to be supportive during the detoxification and rehabilitation process.

CO 3. Main focus of substance abuse education is teaching individuals about drug and alcohol abuse and how to avoid, stop, or get help for substance use disorders.

CO 4. Substance abuse education is important for students alike; there are many misconceptions about commonly used legal and illegal substances, such as alcohol and marijuana.

B.Sc. Computer Science (Session 2019-20)

SEMESTER – I
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.Sc. Computer Science (Session 2019-20)

FOUNDATION PROGRAMME

Course Title: Foundation Programme

Course Duration: 30 hours

Course intended for: Semester I students of undergraduate degree programmes of all streams.

Course Credits: 1

Course Code: SECF-I

PURPOSE & AIM

This course has been designed to strengthen the intellectual foundation of all the new entrants in the college. One of the most common factors found in the students seeking admission in college after high school is the lack of an overall view of human history, knowledge of global issues, peaks of human intellect, social/political benchmarks and inventors & discoverers who have impacted human life. For a student, the process of transformation from school to college is full of apprehension and intimidation of the system. The Foundation Programme intends to bridge the gap between high school and college education and develop an intellectual readiness and base for acquiring higher education.

INSTRUCTIONAL OBJECTIVES

- to enable the students to realise their position in the whole saga of time and space
- to inculcate in them an appreciation of life, cultures and people across the globe
- to promote, in the students, an awareness of human intellectual history
- to make them responsible and humane world citizens so that they can carry forward the rich legacy of humanity

B.Sc. Computer Science (Session 2019-20)

FOUNDATION PROGRAMME

Course title: Foundation Programme
Course duration: 30 hours
Course intended for: Sem. I students of all streams (UG Only)
Course credits: 1
Course code: SECF-I

CURRICULUM

Course Code: V1 **Course Credits: 1** **Total Contact Hours: 20**

MODULE	TITLE	HOURS
I	Introduction & Initial Assessment	2
II	The Human Story	3
III	*The Vedas*, *The Gita*& Eastern Philosophy	2.5
IV	*The Holy Bible*& Genesis	2.5
V	Woman: A Journey through the Ages	2.5
VI	Changing Paradigms in Society, Religion & Literature	2.5
VII	Makers of Modern India	2.5
VIII	Racism & Martin Luther King Jr.	2.5
IX	Modern India at a Glance: Political & Economic Perspective	2.5
X	Technology & Human Life	2.5
XI	The KMV Experience	2.5
XII	Final Assessment, Feedback & Closure	2.5

EXAMINATION

• Total Marks: 25 (Final Exam: 20; Internal Assessment: 5)

• Final Exam: multiple choice quiz**.** Marks – 20; Time: 1 hour

• Internal Assessment: 5 (Assessment: 3; Attendance:2)

Comparative assessment questions (medium length) in the beginning and close of the programme. Marks: 3; Time: 0.5 hour each at the beginning and end.

• Total marks: 25 converted to grade for final result

• Grading system: 90% marks & above: A grade

80% - 89% marks : B grade
70% - 79% marks : C grade
60% - 69% marks : D grade
50% - 59% marks : E grade
Below 50% marks : F grade (Fail - must give the exam again)

SYLLABUS

Module I Being a Human: Introduction & Initial Assessment

• Introduction to the programme

• Initial Assessment of the students through written answers to a couple of questions

Module 2 The Human Story

• Comprehensive overview of human intellectual growth right from the birth of human history

• The wisdom of the Ancients

• Dark Middle Ages

• Revolutionary Renaissance

• Progressive modern times

• Most momentous turning points, inventions and discoveries

Module 3 *The Vedas, The Gita* & The Indian Philosophy

• Origin, teachings and significance of *The Vedas*

• Upnishads and Puranas

• Karma Theory of *The Bhagwad Gita*

• Main tenets of Buddhism & Jainism

• Teachings of Guru Granth Sahib

Module 4 *The Holy Bible* & Genesis

• Book of Genesis: Creation and Fall

• Noah's Ark

• Moses &The Ten Commandments

• Christ and His teachings

• Christianity and the world

Module 5 Changing Paradigms in Society, Religion & Literature

• Renaissance: The Age of Rebirth

• Transformation in human thought

• Importance of humanism

• Geocentricism to heliocentricism

• Copernicus, Galileo, Columbus, Darwin and Saint Joan

• Empathy and Compassion

Module 6 Woman: A Journey through the Ages

• Status of women in pre-vedic times

• Women in ancient Greek and Roman civilizations

• Women in vedic and ancient India

• Status of women in the Muslim world

• Women in the modern world

• Crimes against women

• Women labour workforce participation

• Women in politics

• Status of women- our dream

Module 7 Makers of Modern India

• Early engagement of foreigners with India

• Education: The first step to modernization

• Railways: The lifeline of India

• Raja Ram Mohan Roy, Gandhi, Nehru, Vivekanand, Sardar Patel etc.

• Indira Gandhi, Mother Teresa, Homai Vyarawala etc.

• The Way Ahead

Module 8 Racism: Story of the West

• European beginnings of racism

• Racism in the USA - Jim Crow Laws

• Martin Luther King Jr. and the battle against racism

• Apartheid and Nelson Mandela
• Changing face of racism in the modern world

Module 9 Modern World at A Glance: Political & Economic Perspective
• Changing world order
• World War I & II
• UNO and The Commonwealth
• Nuclear Powers; Terrorism
• Economic Scenario: IMF, World Bank
• International Regional Economic Integration

Module 10 Technology and Human Life
• Impact of technology on modern life
• Technological gadgets and their role in our lives
• Technology and environment
• Consumerism and materialism
• Psychological and emotional consequences of technology
• Harmonising technology with ethics and humaneness

Module 11 The KMV Experience
• Historical Legacy of KMV
• Pioneering role in women emancipation and empowerment
• KMV Contribution in the Indian Freedom Struggle
• Moral, cultural and intellectual heritage of KMV
• Landmark achievements
• Innovative initiatives; international endeavours
• Vision, mission and focus
• Conduct guidelines for students

Module 12 Final Assessment, Feedback & Closure
• Final multiple choice quiz
• Assessment through the same questions asked in the beginning
• Feedback about the programme from the students
• Closure of the programme

PRESCRIBED READING
• ***The Human Story*** published by Dawn Publications

SEMESTER II

B.Sc. Computer Science (Session 2019-20)

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 ਦੌਰ ਵਿਚ 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 ਸ਼ਾਮਿਲ ਕਰ ਕੇ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਜੀਵਨੀ ਨੂੰ ਪੜ੍ਹਣ ਦੀ ਰੁਚੀ ਨੂੰ ਪੈਦਾ ਕਰਨਾ ਹੈ ਅਤੇ 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 ਵੱਖਰੇ - ਵੱਖਰੇ ਸਿਧਾਂਤਾਂ ਦਾ 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।

B.Sc. Computer Science (Session 2019-20)

SEMESTER II
PUNJABI COMPULSORY
COURSE CODE: BCSL -2421

ਸਮਾਂ: 3 ਘੰਟੇ

Maximum Marks: 50
Theory: 40
CA: 10

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪਾਠਪੁਸਤਕਾਂ

ਯੂਨਿਟ-I

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

(ਵਿਸ਼ਾ-ਵਸਤੂ/ਸਾਰ/ਲੇਖਕ ਦਾ ਜੀਵਨ ਤੇ ਰਚਨਾ)8 ਅੰਕ

ਯੂਨਿਟ-II

ਸੰਸਾਰ ਦੀਆਂ ਪ੍ਰਸਿਧ ਹਸਤੀਆਂ (ਜੀਵਨੀ ਨੰ: 10 ਤੋਂ18 ਤਕ)(ਸੰਪਾ. ਪ੍ਰਿੰ. ਤੇਜਾ ਸਿੰਘ, ਹਰਨਾਮ ਸਿੰਘ ਸ਼ਾਮ),
ਪੰਜਾਬੀ ਸਾਹਿਤ ਪ੍ਰਕਾਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।

(ਵਿਸ਼ਾ/ਸਾਰ/ਨਾਇਕ ਬਿੰਬ) 8 ਅੰਕ

ਯੂਨਿਟ-III

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

(ਅ) ਸ਼ਬਦ ਸ਼੍ਰੇਣੀਆਂ 8 ਅੰਕ

ਯੂਨਿਟ-IV

(ੳ) ਦਫ਼ਤਰੀ ਚਿਠੀ ਪਤਰ

(ਅ) ਮੁਹਾਵਰੇ ਅਤੇ ਅਖਾਣ 8 ਅੰਕ

ਅੰਕ ਵੰਡ ਅਤੇ ਪਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਚਾਰ ਯੂਨਿਟ ਹੋਣਗੇ।ਸੈਕਸ਼ਨ A-D ਤੱਕ ਦੇ ਪ੍ਰਸ਼ਨ ਯੂਨਿਟ I-IV ਵਿਚੋਂ ਪੁੱਛੇ ਜਾਣਗ 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.Sc. Computer Science (Session 2019-20)

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-1031

Course outcomes

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

CO2:ਇਸ ਵਿਚ ਵਿਦਿਆਰਥੀ ਨੂੰ ਬਾਰੀਕਬੀਨੀ ਨਾਲ ਭਾਸ਼ਾ ਦਾ ਅਧਿਐਨ ਕਰਵਾਇਆ 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 ਅਤੇ ਭਾਸ਼ਾ 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 ਕਹਿਣ ਦੀ 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 ਪਰਪੱਕਤਾ ਆਉਂਦੀ ਹੈ।ਇਹ ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਗੱਲਬਾਤ ਵਿਚ ਨਿਖਾਰ ਲਿਆਉਣ ਦਾ ਕੰਮ ਕਰਨਗੇ।

B.Sc. Computer Science (Session 2019-20)

SEMESTER–II
ਮੁੱਢਲੀ ਪੰਜਾਬੀ

(In lieu of Compulsory Punjabi)

COURSE CODE: BCSL-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

ਪੈਰ੍ਹਾ 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 A-D 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।

B.Sc. Computer Science (Session 2019-20)

Punjab History & Culture (From Earliest Times to C. 320)
(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

B.Sc. Computer Science (Session 2019-20)

SEMESTER-II
Punjab History & Culture (From Earliest Times to C. 320)
(Special Paper in lieu of Punjabi compulsory)
Course Code: BCSL -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 Gurpta 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.Sc. Computer Science (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.Sc. Computer Science (Session 2019-20)

SEMESTER–II

ENGLISH (COMPULSORY)

Course Code: BCSL -2212

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

Passing Marks: 14 **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. Computer Science (Session 2019-20)

B.A./B.Sc.Semester–II
Session: 2019-20
Course Title: Calculus and Differential Equations
Course Code: BARM/BECM/ BCSM/BSNM-2333(I)

Course Outcomes

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

CO 1: Demonstrate Asymptotes, points of inflexion, multiple points on a curve & also to differentiate between concavity and convexity & hence tracing of curve.

CO 2: Understand the concept of linear differential equation with constant and variable coefficients & also the exact differential equations & to apply in a wide variety of disciplines like Bio, Eco, Physics& Engineering.

CO 3: Demonstrate the geometrical meaning of a differential equation & the orthogonal trajectories.

CO 4: Manage to solve the problem related to series solution of differential equations like Bessel and Legendre equation by Power series method.

CO 5: Apply reduction formula on different functions & to develop the concept of variation of parameter.

B.Sc. Computer Science (Session 2019-20)

SEMESTER–II

MATHEMATICS
CALCULUS AND DIFFERENTIAL EQUATIONS
Course code: BCSM-2333 (I)

Time : 3 hrs. **Max.Marks:40**
Passing Marks: 14

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

Asymptotes, Tests for concavity and convexity, Points of inflexion, Multiple Points, Curvature, Tracing of Curves (Cartesian and Parametric coordinates only).

Unit-II

Integration of hyperbolic functions.Reduction formulae.Definite integrals.Fundamental theorem of integral calculus.Quadrature, rectification.

Unit– III

Exact differential equations. First order and higher degree equations solvable for x,y,p. Clairaut's form and singular solutions. Geometrical meaning of a differential equation.Orthogonal trajectories.

Unit-IV

Linear differential equations with constant and variable coefficients.Variation of Parameters method, reduction method, series solutions of differential equations.Power series method, Bessel and Legendre equations (only series solution).

Books Recommended:

1. D.A. Murray: Introductory Course in Differential Equations. Orient Longman (India), 1967.
2. G.F. Simmons: Differential Equations, Tata McGraw Hill, 1972.
3. E.A. Codington: An Introduction to Ordinary Differential Equations, Prentice Hall of India, 1961.
4. Gorakh Prasad: Integral Calculus, Pothishala Pvt. Ltd., Allahabad.
5. Erwin Kreyszig: Advanced Engineering Mathematics, John Wiley and Sons, 1999. 52

B.Sc. Computer Science (Session 2019-20)

B.A./B.Sc.Semester–II
Session: 2019-20
Course Title: Calculus
Course Code: BARM/BECM/ BCSM/BSNM-2333(II)

Course Outcomes

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

CO 1: Understand the concept of Double and Triple integrals, & application to evaluation of areas, volumes, surfaces of solid of revolution and to apply to find out area and volume of plane and solid figure.

CO 2: Differentiate between limit and continuity of function of two variables and apply this concept in partial derivatives & differentiability of real valued function of two variables.

CO 3: Manage to solve problems related to Maxima, Minima & Saddle points of functions of two variables.

CO 4: Classify Envelopes & Evolutes, Application of inverse & implicit function theorems.

B.Sc. Computer Science (Session 2019-20)

SEMESTER–II
MATHEMATICS
CALCULUS
Course code: BCSM-2333 (II)

Time: 3 hrs. **Max.Marks:40**
Passing Marks:14

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

Limit and Continuity of functions of two variables, Partial differentiation, Change of variables, Partial derivatives and differentiability of real–valued functions of two variables, Schwartz's and Young's Theorem, Statements of Inverse and implicit function theorems and applications.

Unit-II

Euler's theorem on homogeneous functions, Taylor's theorem for functions of two variables, Jacobians, Envelopes.Evolutes, Maxima, Minima and saddle points of functions of two variables.

Unit-III

Lagrange's undetermined multiplier method, Double and Triple Integrals, Change of variables., Applications to evaluation of areas, Volumes, Surfaces of solid of revolution, Change of order of integration in double integrals.

Unit-IV

Application to evaluation of area, volume, surface of solids of revolutions.

Books Recommended:

1. Narayan, S. and P.K. Mittal: Integral Calculus. Sultan Chand & Sons.
2. Kreyszig, E.: Advanced Engineering Mathematics.
3. Narayan S. and P.K. Mittal : Differential Calculus, Sultan Chand & Sons.

B.Sc. Computer Science (Session 2019-20)

SEMESTER- II
PROGRAMMING IN C
(THEORY)
Course Code: BCSM-2134

Course Outcomes:

After passing this course the student will be able to:

CO 1. Understand problem solving techniques.
CO 2. Write different algorithms to solve programming problems.
CO 3. Write C Code for given problem.
CO 4. Read, Understand, Trace the execution of C Programs.
CO 5. Understand different programming elements like Functions, Arrays, Pointers, Structures and File handling

B.Sc. Computer Science (Session 2019-20)

SEMESTER- II

PROGRAMMING IN C
(THEORY)
Course Code: BCSM-2134

Time: 3Hrs **Theory: 50**

Pass Marks: 18

Instructions for Paper Setter -
Eight questions of equal marks are to 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 divided 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

Data Representation, Introduction to Number Systems and Character Codes, Flow Charts, Problem Analysis, decision tables, pseudo codes and, algorithms.

UNIT–II

Programming Languages C:

Basics of C: Introduction to C, Applications and Advantages of C, Tokens, Types of Errors **Data Types:** Basic & Derived Data Types, User Defined Data Types, Declaring and initializingvariables.

Operators and Expressions: Types of operators (Unary, Binary, Ternary), Precedence andAssociativity
Data I/O Functions: Types of I/O function, Formatted & Unformatted console I/O Functions

UNIT–III

Control Statements: Jumping, Branching and Looping–Entry controlled and exit controlled,Advantages/Disadvantages of loops, difference between for, while and do–while.
Arrays: Types of Arrays, One Dimensional and Two Dimensional Arrays.
Strings: Introduction to Strings and String functions, array of strings.

UNIT-IV

Functions: User Defined & Library Function, Function (Prototype, Declaration, Definition),Methods of passing arguments, local and global functions, Recursion.
Storage Classes: Introduction to various storage classes, scope and lifetime of a variable, Storage class specifiers (auto, register, static, extern), advantages and disadvantages.
Structure and Union: Introduction to structure and union, pointers with structure.

Books Suggested:

(i) Programming with C Languages C. Schaum Series.
(ii) YashwantKanitkar – Let Us C
(iii) C Programming by Stephen G Kochan
(iv) Balaguruswamy: “Programming in ANSIC”.

B.Sc. Computer Science (Session 2019-20)

SEMESTER- II
COMPUTER FUNDAMENTAL & PC SOFTWARE
(PRACTICAL)
Course Code: BCSM-2134

Time: 3Hrs **Practical: 30**
Pass Marks: 9

Instructions to Practical Examiner
Question paper is to be set on the spot jointly by the external and internal examiners. Two copies of the same to be submitted for the record to COE office, KanyaMahaVidyalaya, Jalandhar

Practical based on Programming in C

B.Sc. Computer Science (Session 2019-20)

SEMESTER–II
PHYSICS
RELATIVITY AND ELECTROMAGNETISM
(THEORY)
Course code: BCSM-2395 (I)

Course Outcomes:

After passing this course, students will be able to:

CO 1. Understand special theory of relativity and related basic concepts and applications.
CO 2. Derive Maxwell equations and their applications in propagation of e.m. waves in conductors and insulators.
CO 3. Apply the BiotSavart's Law and Ampere's circuital law in different situations and frames.
CO 4. Understand the Faraday's Law of electromagnetic induction and LCR circuits.

B.Sc. Computer Science (Session 2019-20)

SEMESTER–II
PHYSICS
RELATIVITY AND ELECTROMAGNETISM
(THEORY)
Course code: BCSM-2395 (I)

Time: 3 Hours **Marks: 30**
Pass Marks: 11

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.

Note: Students can use Non-Scientific calculators or logarithmic tables.

UNIT–I
Postulates of special theory of relatively.Lorentz transformations, observer and viewer in relativity.Relativity of simultaneity, Length, Time, velocities.Relativistic Dopper effect. Variation of mass with velocity, mass–energy equivalence, rest mass in an inelastic collision, relativistic momentum & energy, their transformation, concepts of Murkowski space, four vector formulation.

UNIT–II
Lorentz's force, Definition of B. Biot Savart's Law and its application to long straight wire, circular current loop and solenoid. Ampere's Circuital law and its application.Divergence and curl of B. Hall effect, expression and co–efficient.Vector potential, Definition and derivation, current–density–definition, its use in calculation of charge in magnetic field at a current sheet.Transformation equation of E and B from one frame to another.

UNIT–III
Faraday's Law of EM induction, Displacement current, Mutual inductance and reciprocity theorem. Self inductance, L for solenoid, Coupling of Electrical circuits. Analysis of LCR series and parallel resonant, circuits Q–factor, Power consumed, power factor.

UNIT–IV
Maxwell's equations their derivation and characterizations, E.M. waves and wave equation in a medium having finite permeability and permittivity but with conductivity $\sigma = 0$). Poynting vector,impedance of a dielectric to EM waves. EM waves in a conducting medium and Skin depth. EM wave velocity in a conductor and anomalous dispersion.Response of a conducting medium to EM waves.Reflection and transmission of EM waves at a boundary of two dielectric media for normal and oblique incidence.

Recommended Books:
1. Introduction to Electrodynamics - D.J. Griffiths-Pearson Education Ltd., New Delhi, 1991
2. Physics of Vibrations and Waves by H.J. Pain.
3. EM Waves and Radiating Systems by Edward C. Jordan and K.G. Balmain.
4. Fields and Waves Electromagnetic by David K. Cheng.

B.Sc. Computer Science (Session 2019-20)

SEMESTER–II
PHYSICS
VIBRATION AND WAVES
(THEORY)
Course code: BCSM-2395 (II)

Course Outcomes:

After passing this course the student will be able to:

CO 1. Demonstrate Lissajous figures by mechanical and analytical method with different cases.

CO 2. Understand Free, damped and resonance oscillations, both mechanical and electric using differential equations.

CO 3. Solve differential equation of forced oscillations &to obtain related quantities.

CO 4. Understand concept of coupled oscillators and wavemotion. Student will also be able to apply the concept of waves and oscillations to any type of waves like e. m. waves, mechanical waves.

B.Sc. Computer Science (Session 2019-20)

SEMESTER–II
PHYSICS
VIBRATION AND WAVES
(THEORY)
Course code: BCSM-2395 (II)

Time: 3 Hours **Marks: 30**
Pass Marks: 11

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.

Note: Students can use Non-Scientific calculators or logarithmic tables.

UNIT–I

Simply harmonic motion, energy of a SHO.Compound pendulum. Torsional pendulum Electrical Oscillations Transverse Vibrations of a mass on string, composition of two Perpendicular SHM of same period and of period in ratio 1:2.

UNIT–II

Decay of free Vibrations due to damping. Differential equation of motion, types of motion, types of damping. Determination of damping co–efficient– Logarithmic decrement, relaxation time and Q–Factor.Electromagnetic damping (Electrical oscillator).

UNIT–III

Differential equation for forced mechanical and electrical oscillators.Transient and steady state behavior. Displacement and velocity variation with driving force frequency, variation of phase with frequency, resonance. Power supplied to an oscillator and its variation with frequency. Q–value and band width.Q–value as an amplification factor. Stiffness coupled oscillators, Normal co–ordinates and normal modes of vibration. Inductance coupling of electrical oscillators.

UNIT–IV

Types of waves, wave equation (transverse) and its solution characteristic impedance of a string.Impedance matching.Reflection and Transmission of waves at boundary.Reflection and transmission of energy. Reflected and transmitted energy coefficients. Standing waves on a string of fixed length.Energy of vibration string.Wave and group velocity.

Recommended Books:
1. Fundamentals of Vibrations and Waves by S.P. Puri.
2. Physics of Vibrations and Waves by H.J. Pain.

B.Sc. Computer Science (Session 2019-20)

SEMESTER–II
PHYSICS PRACTICAL
(THEORY)
Couse code: BCSM-2395 (P)

COURSE OUTCOMES:

CO 1. Students will be able to study resonance in series & parallel LCR circuit.
CO 2. At the end of this course, students will be able to find the value of capacitor, coefficient of self inductance, permeability & permittivity of air.
CO 3. Students will be able to study the variation of magnetic field on the axis of coil & can find the value of horizontal component of magnetic field.

SEMESTER–II
PHYSICS PRACTICAL
(THEORY)
Couse code: BCSM-2395 (P)

Instructions to Practical Examiner

Question paper is to be set on the spot jointly by the external and internal examiners. Two copies of the same to be submitted for the record to COE office, KanyaMahaVidyalaya, Jalandhar

General Guidelines for Practical Examination: (4.5h/week)

I. The distribution of marks is as follows: **Marks: 20**
i) One experiment **7 Marks**
ii) Brief Theory **3 Marks**
iii) Viva–Voce **5 Marks**
iv) Record (Practical file) **5 Marks**
II. There will be one sessions of 3 hours duration. The paper will have one session.
Paper will consist of 8 experiments out of which an examinee will mark 6 experiments and one of these is to be allotted by the external examiner.
III. Number of candidates in a group for practical examination should not exceed 12.
IV. In a single group no experiment is to be allotted to more than three examinees in any group.

LIST OF EXPERIMENTS

1. To determine low resistance with Carey-Foster's Bridge.
2. To study the magnetic field produced by a current carrying solenoid using a search coil and calculate permeability of air.
3. To study the induced e.m.f. as a function of the velocity of the magnet.
4. Study of phase relationships using impedance triangle for LCR circuit and calculate impedance.
5. Resonance in a series and parallel LCR circuits for different R–value and calculate Q–value.
6. Capacitance by flashing and quenching of a neon lamp.
7. Measurement of capacitance, determination of permittivity of a medium air and relative permittivity by de–Sauty's bridge.
8. To determined L using Anderson Bridge.
9. To find the value of BH the horizontal component of earth's magnetic field in the lab using a deflection & vibration magnetometer.
10. To study the variation of magnetic field with distance along the axis of coil carrying current by plotting a graph.

B.Sc. Computer Science (Session 2019-20)

SEMESTER – II
DRUG ABUSE
Course Code: AECD-2161

Course Outcomes:

CO 1. 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;
CO 2. How to be supportive during the detoxification and rehabilitation process.
CO 3. Main focus of substance abuse education is teaching individuals about drug and alcohol abuse and how to avoid, stop, or get help for substance use disorders.
CO 4. Substance abuse education is important for students alike; there are many misconceptions about commonly used legal and illegal substances, such as alcohol and marijuana.

B.Sc. Computer Science (Session 2019-20)

SEMESTER – II

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, behaviouraland 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) SchoolCounselling, Teacher as role-model. Parent-Teacher-Health ProfessionalCoordination, Random testing on students.

UNIT-IV

4) Awareness of drug abuse

1) Media:Restraint on advertisements of drugs, advertisements on bad effects ofdrugs, Publicity and media, Campaigns against drug abuse,Educational and awareness program.
2) legislation: NDPs act, statuory 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 andEmpowerment, 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, ClinicalEpidemiological Unit, All India Institute of Medical Sciences, 2004.
7. Sain, Bhim 1991, *Drug Addiction Alcoholism*, Smoking obscenity New Delhi: MittalPublications.
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 andCessation,* Cambridge University Press.

B.Sc. Computer Science (Session 2019-20)

SEMESTER III

MORAL EDUCATION

Course title: Moral Education Programme
Course duration: 30 hours
Course intended for: Sem II students of all streams (UG Only)
Course credits: 1
Course code: SECM-2502

Course Objectives:

- To sensitize students about the role and importance of human values and ethics in personal, social and professional life.
- To enable students to understand and appreciate ethical concerns relevant to modern lives.
- To prepare a foundation for appearing in various competitive examinations.
- To sensitize the students about the current issues and events of national and international importance.
- To highlight plausible implications of ethical human conduct, trustful and mutually fulfilling human behaviour and mutually enriching interaction with nature.

Course Contents:

- Introduction to Moral Education
- Need , content and purpose
- Vedic values
- Character building

The Self and You

- Understanding the Self –Self awareness, fighting the five evils (lust, anger, attachment, ego and greed), Self growth.
- Personal ethics
- Aspiration v/s ambition, self- seeking v/s selflessness
- Physical and mental health

The Family and You

- Importance of family- the basic unit of human interaction.
- Generation gap
- Relationship with siblings and elders

The Society and You

- Social responsibility
- Our rights and duties
- Civic sense
- Opposite sex relations
- Globalization and IT boom – cellphone menace
- Peer pressure
- Gender issues

The Nation and You

- International peace and brotherhood
- Saving the environment
- Communal harmony, Tolerance, Understanding of Cultures
- Respect for Martyrs
- National Pride

B.Sc. Computer Science (Session 2019-20)

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:ਆਧੁ ਨਿਕਪੰਜਾਬੀਵਾਰਤਕ 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 ਕੇ ਵਿਦਿਆਰਥੀਆਂ 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 ਦਾ ਵਿਕਾਸ ਕਰਨਾ ਹੈ।

B.Sc. Computer Science (Session 2019-20)

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 ਨਿਕਪੰਜਾਬੀਵਾਰਤਕ** (ਸੰਪਾ**.ਡਾ . ਗੁਰਬਚਨ ਸਿੰਘ ਤਾ ਲਿਖ੍ਹ**ਪੰਜਾਬੀ ਸਾਹਿਤ ਪ੍ਰਕਾਸ਼ਨ,ਅੰਮ੍ਰਿਤਸਰ।

ਵਿਸ਼ਾ ਵਸਤੂ/ਸਾਰ/ਨਾਇਕ ਬਿੰਬ (ਦੋ ਵਿਚੋਂ ਇਕ) 8 ਅੰਕ

ਯੂਨਿਟ-II

2. ਸਮਾਂ ਮੰਗ ਕਰਦਾ ਹੈ (ਇਕਾਂਗੀ ਸੰਗ੍ਰਹਿ) **(ਸੰਪਾ . ਕੇਵਲਧਾਲੀਵਾਲ)**ਚੇਤਨਾ ਪ੍ਰਕਾਸ਼ਨ,ਲੁਧਿਆਣਾ।

ਵਿਸ਼ਾ ਵਸਤੂ /ਸਾਰ (ਦੋ ਵਿਚੋਂ ਇਕ) ਜਾਂ ਚਾਰ ਵਿਚੋਂ ਦੋ ਪਾਤਰਾਂ ਦੀ ਪਾਤਰ ਉਸਾਰੀ8 ਅੰਕ

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 A-D ਤੱਕ ਦੇ ਪ੍ਰਸ਼ਨ ਯੂਨਿਟ I-IV ਵਿਚੋਂ ਪੁੱਛੇ ਜਾਣਗੇ। ਹਰ ਯੂਨਿਟ ਵਿਚੋਂ ਦੋ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ।

2. ਵਿਦਿਆਰਥੀ ਨੇ ਕੁੱਲ 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 ਅੱਗੋਂ ਵੱਧ ਤੋਂ ਵੱਧ ਚਾਰ ਉਪ-ਪ੍ਰਸ਼ਨਾਂ ਵਿਚ ਕਰ ਸਕਦਾ ਹੈ।

B.Sc. Computer Science (Session 2019-20)

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 ਹੋਰ ਭਾਸ਼ਾ 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 ਕਲਾ ਵਿਚ ਨਿਪੁੰਨ ਕਰਨਾ ਹੈ।

CO4:ਅਖਾਣ ਅਤੇ ਮੁਹਾਵਰਿਆਂ ਦੀ ਵਰਤੋਂ ਨਾਲ ਗੱਲਬਾਤ ਵਿਚ ਪਰਪੱਕਤਾ ਆਉਂਦੀ ਹੈ।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 ਜਾਚ ਸਿੱਖਣਗੇ ਅਤੇ ਇਹ ਦਿਮਾਗੀ ਕਸਰਤ ਵਿਚ ਸਹਾਈ ਹੋਵੇਗੀ।

B.Sc. Computer Science (Session 2019-20)

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 A-D ਤੱਕ ਦੇ ਪ੍ਰਸ਼ਨ ਯੂਨਿਟ I-IV ਵਿਚੋਂ ਪੁੱਛੇ ਜਾਣਗੇ। ਹਰ ਯੂਨਿਟ ਵਿਚੋਂ ਦੋ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ।

2. ਵਿਦਿਆਰਥੀ ਨੇ ਕੁੱਲ 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 ਅੱਠ ਅੰਕ ਹਨ।

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

B.Sc. Computer Science (Session 2019-20)

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

B.Sc. Computer Science (Session 2019-20)

Session 2019-20
Punjab History & Culture (From Earliest Times to C 320)
(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.Sc. Computer Science (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.Sc. Computer Science (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 with reference 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. Computer Science (Session 2019-20)

B**.A./B.Sc. Semester–III**

Session 2019-20
Course Title: Analysis
Course Code: BARM/BECM/ BCSM/BSNM-3333(I)

Course Outcomes

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

CO 1: Demonstrate an understanding of limits and how they are used in sequences and series.

CO 2: To understand the concepts of Riemann sum, partitions, upper and lower sums, Riemann integrability of continuous functions and of monotone functions.

CO 3: To know and describe the converging behavior of improper integrals and Beta , Gamma functions.

CO 4: Distinguish between the absolute convergence and conditional convergence.

CO 5: To find the relation between Beta and Gamma functions.

B.Sc. Computer Science (Session 2019-20)

B.A./B.Sc. Semester–III
Session 2019-20
Course Title: Analysis
Course Code: BARM/BECM/ BCSM/BSNM-3333(I)

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.

.

Section–A

Definition of a sequence.Theorems on limits of sequences.Bounded and monotonic sequences.Cauchy's convergence criterion.

Section–B

Series of non-negative terms.Comparison tests.Cauchy's integral tests.Ratio tests.Cauchy's root test.Raabe's test, logarithmic test.Demorgan's and Bertrand's tests. Kummer's test, Cauchy Condensation test, Gauss test, Alternating series. Leibnitz's test, absolute and conditional convergence.

Section–C

Partitions, Upper and lower sums.Upper and lower integrals, Riemann integrability.Conditions of existence of Riemann integrability of continuous functions and of monotone functions.Algebra of integrable functions.

Section–D

Improper integrals and statements of their conditions of existence. Test of the convergence of improper integral, beta and gamma functions.

Books Recommended:

1. Malik, S.C.: Mathematical Analysis, Wiley Eastern Ltd. (1991).
2. Apostal, T.M.: Mathematical Analysis, Addison Wesley Series in Mathematics (1974).

B.Sc. Computer Science (Session 2019-20)

B.A./B.Sc. Semester–III
Session 2019-20
Course Title: Analytical Geometry
Course Code: BARM/BECM/ BCSM/BSNM-3333(II)

Course Outcomes

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

CO 1: Understand the concept of the geometry of lines and conics in the Euclidian plane.

CO 2: Develop geometry with a degree of confidence and will gain fluency in the basics of Euclidian geometry.

CO 3: Sketch conic sections; identify conic sections, their focal properties and classifications.

CO 4: Demonstrate the concept of parabola, ellipse, hyperbola, sphere and the general quadratic equation.

CO 5: Understand the concept of coordinate geometry on a wider scale with the help of shifting of origin and rotation of axis.

B.Sc. Computer Science (Session 2019-20)

B.A./B.Sc. Semester–III
Session 2019-20
Course Title: Analytical Geometry
Course Code: BARM/BECM/ BCSM/BSNM-3333(II)

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.

Section–A

Transformation of axes, shifting of origin, Rotation of axes in two dimension and three dimension, the invariants, Joint equation of pair of straight lines, equations of bisectors

Section–B

Parabola and its properties.Tangents and normal, Pole and polar, pair of tangents at a point, Chord of contact, equation of the chord in terms of mid point and diameter of conic.

Section–C

Ellipse and hyperbola with their properties.Tangents and normal, Pole and polar.pair of tangents at a point, Chord of contact, Identifications of curves represented by second degree equation (including pair of lines).

Section–D

Intersection of three planes, condition for three planes tointersect in a point or along a line or to form a prism. Sphere: Section of a sphere by a plane, spheres of a given circle. Intersection of a line and a sphere.Tangent line, tangent plane, power of a point w.r.t. a shpere, radical planes.

Books Recommended

1. Gorakh Prasad and H.C. Gupta: Text Book on Coordinate Geometry.
2. S.L. Loney: The Elements of Coordinate Geometry, Macmillan and Company, London.
3. Narayan, S and P.K.Mittal.: Analytical Solid Geometry, Sultan Chand & Sons (2005).
4. Kreyszig, E.: Advanced Engineering Mathematics.
5. Thomos, G.B. and Finney, R.L.: Calculus and Analytic Geometry.

B.Sc. Computer Science (Session 2019-20)

(Session 2019-20)

COURSE CODE:BARM-3134
BCSM-3134
BECM-3134

COMPUTER ORIENTED NUMERICAL AND STATISTICAL METHODS (THEORY)

Course Outcomes:

After passing this course the student will be able to:

CO1: Understand numerical methods, non linear equations, interpolation methods and Simultaneous Solution of Equations.

CO2: Learn about Interpolation and Curve Fitting and Numerical differentiation.

CO3: LearnCorrelation, Regression, Bivariate & Multivariate distribution and Interpretation of Trend Analysis.

B.Sc. Computer Science (Session 2019-20)

BA/BSc. (COMPUTER SCIENCE) - SEMESTER–III

(Session 2019-20)

COURSE CODE:BARM-3134
BCSM-3134
BECM-3134

COMPUTER ORIENTED NUMERICAL AND STATISTICAL METHODS (THEORY)

Time: 3+3 Hrs

Max Marks : 100
Theory : 50
Practical : 30
CA : 20

Instructions for Paper Setter -

Eight questions of equal marks are to 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 divided 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

Introduction:

1 Numerical methods, Numerical methods versus numerical analysis, Errors and Measures ofErrors.

2 Non-linear Equations, Iterative Solutions, Multiple roots and other difficulties, Interpolationmethods, Methods of bisection, False position Method, Newton Raphson-method.

3 Simultaneous Solution of Equations, Gauss Elimination Method Gauss Jordan method. GaussSiedel Method, Matrix Inversion Method.

UNIT–II

4 Interpolation and Curve Fitting, Lagrangian Polynomials, Newton’s Methods: ForwardDifference Method, Backward Difference Method Divided Difference Method.

5 Numerical Integration and Different Tryaperzoidal Rule, Simpson's 1/3 Rule Simpson's 3/8Rule.Numerical differentiation by Polynomial Fit Statistical Techniques

UNIT-III

1 Measure of Central Tendency, Preparing frequency distribution table, Mean Arithmetic,Mean geometric, Mean harmonic, Mean median Mode.

2 Measure of dispersion, Skewness and Kurtosis Range, Mean deviation, Standard deviation,co-efficient of variation, Moments Skewness Kurtosis.

B.Sc. Computer Science (Session 2019-20)

UNIT–IV

1. Correlation Bivariate Distribution Multivariate distribution.

2. Regression B.C., Linear Regression, Multiple Regression.

3. Trend Analysis least square fit linear trend, Non-linear trend

Y=axb

Y=abx

Y=acx

Polynomial fit: Y=a+alX+ea^2x2+a^nxn+n

References

1 B.S. Grewal: Numerical Methods for Engineering, Sultan Chand Publications.
2 V. Rajaraman: Computer Oriented Numerical Methods, Prentice Hall of India Private Ltd.,New Delhi.

B.Sc. Computer Science (Session 2019-20)

BA/BSc. (COMPUTER SCIENCE) - SEMESTER–III

(Session 2019-20)

COURSE CODE:BARM-3134
BCSM-3134
BECM-3134

COMPUTER ORIENTED NUMERICAL AND STATISTICAL METHODSLAB (PRACTICAL)

Practical based on Computer Oriented Numerical and Statistical Methods

B.Sc. Computer Science (Session 2019-20)

Course Outcomes: PHY-Statistical Physics and Thermodynamics

Course code: BCSM-3395 (I)

After passing this programme the students will be able to:

CO1: Understand the basic ideas and scope of probability as well as distribution of n particles in different compartments.

CO2: Concept of different types of Statistics and the need for Quantum Statistics.

CO3: Understand the concept of entropy, Laws of Thermodynamics and applications to thermoelectric effect.

CO4: Understand the Maxwell Thermodynamics relations, Change of state and Claypron equation.

B.Sc. Computer Science (Session 2019-20)

SEMESTER-III PHYSICS

Course code: BCSM-3395 (I)

PAPER-A

STATISTICAL PHYSICS & THERMODYNAMICS

(THEORY)

Time: 3 Hours **Marks: 30**

Pass Marks: 11

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.

Note: Students can use Non-Scientific calculators or logarithmic tables.

UNIT–I

Basic ideas of Statistical Physics, Scope of Statistical Physics, Basic ideas about probability, Distribution of four distinguishable particles into compartments of equal size. Concept of macro states, microstates, Thermodynamic Probability, Effects of constraints on the system. Distribution of n particles in two compartments, Deviation from the state of maximum probability. Equilibrium state of dynamic system, Distribution of distinguishable n particles in k compartments of unequal sizes.

UNIT–II

Phase space and division into elementary cells. Three kinds of statistics. The basic approach in three statistics. Maxwell Boltzman (MB) statistics applied to an ideal gas in equilibrium. Experimental verification of law of distribution of molecular speeds. Need for Quantum Statistics – B.E. Statement of Planck's law of Radiation Wien's Displacement and Stefan's law. Fermi Dirac (FD) statistics.Comparison of M.B, B.E and F.D statistics.

UNIT–III

Statistical definition of entropy, Change of entropy of system, additive nature of entropy, Law of increase of entropy, Reversible and irreversible processes, and their examples, work done inreversible process, examples of increase in entropy in natural processes, entropy and disorder, Brief review of Terms, Laws of Thermodynamics, Carnot Cycle, Entropy changes in Carnot cycle, *Absolute thermodynamics or Kelvin Scale of Temperature,* Applications of thermodynamics to thermoelectric effect, *Peltier Effect, Thomson Effect,* change of entropy along reversible path in P-V diagram. Heat death of universe.

UNIT–IV

Derivation of Maxwell Thermodynamics relations, Cooling produced by adiabatic stretching, A diabetic Compression, change of internal energy with volume, Specific heat and constant pressure and constant volume. Expression for C_P-C_V, Change of state and Claypron equation, *Joule-Thomson effect*.

Text Reference Books:

1. Statistical Physics and Thermodynamics, V.S. Bhatia (Sohan Lal Nagin Chand), Jalandhar.
2. A Treatise on Heat, M.N. Saha & B.N. Srivastava (The Indian Press Pvt. Ltd., Allahabad), 1965.
3. Statistical Mechanics: An Introductory Text, Bhattacharjee, J.K. (Allied Pub., Delhi), 2000.
4. Statistical Physics, Bhattacharjee, J.K. (Allied Pub., Delhi) 2000.
5. Statistical Mechanics, B.B. Laud, (Macmillan India Ltd.) 1981.

B.Sc. Computer Science (Session 2019-20)

Course Outcomes: PHY-OPTICS

Course code: BCSM-3395 (II)

After passing this programme the students will be able to:

CO1: understand the concept of interference of waves by division of wave front and its different methods and concept of coherence.

CO2: understand the interference of waves by division of Amplitude and its methods and will have knowledge of interferometers

CO3: understand the Huygen's Fresnel theory and diffraction, Fraunh offer diffraction due to single slit, double slit and n slits, the concept of resolving power.

CO4: understand the concept the polarization of light and types of polarizers.

B.Sc. Computer Science (Session 2019-20)

SEMESTER–III
PHYSICS
Course Code: BCSM-3395 (II)
PAPER–B: OPTICS
(THEORY)

Time: 3 Hours **Marks: 30**
Pass Marks: 11

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.

Note: Students can use Non-Scientific calculators or logarithmic tables.

UNIT–I

Interference of Light:
Superposition of light waves and interference, Young's double slit experiment, Distribution of intensity in Young's double slit experiment, Conditions for sustained interference pattern,
Coherent sources of light, Temporal and spatial coherence, Mathematical analysis of temporal coherence, Interference pattern by division of wave front, Fresnel Biprism, Fresnel double mirror, Llyod's single mirror, *Achromatic fringes*. Displacement of fringes,

UNIT–II

Interference by Division of Amplitude:
Change of phase on reflection, Interference in thin films due to reflected and transmitted light, *Interference in parallel and wedge shaped films, Colour of thin films.* Need for extended source for interference by division of amplitude, non-reflecting films, Newton's Rings. Michelson Interferometer, Fabry Perot interferometer and etalon. Distribution of intensity in Fabry Perot fringes.

UNIT–III

Diffraction:
Huygen'sfresnel theory, half-period zones, Zone plate, Distinction between fresnel and
Fraunh offer diffraction. *Fraunh offer diffraction due to single slit, rectangular and circular aperture, double slits and plane transmission grating,* Effect of diffraction in optical imaging, its use as a spectroscopic element and its resolving power, Resolving power of telescope, of diffraction grating, of microscope and of Fabry-Perot interferometer.

UNIT–IV

Polarization:
Plane Polarized light, Elliptically polarized light, wire grid polarizer, Sheet polarizer, Maul's Law, Brewester Law, Polarization by reflection and scattering, Double refraction, Nicol prism, Retardation plates, Production and Analysis of plane, circularly and elliptically polarized light, Quarter and half wave plates, *Optical activity*

Text Reference Books:
1. Fundamentals of Optics, F.A. Jenkins and Harvey E White, (Mcgraw Hill) 4th Edition, 2001.
2. Optics, Ajoy Ghatak, (McMillan Indian) 2nd Edition, 7th Reprint, 1997.
3. Optics, Born and Wolf, (Pergamon Press) 3rd Edition, 1965.

4. Physical Optics: B. K. Mathur and T. P. Pandya.
5. A textbook of Optics: N. Subrahmanyam, Brijlal and M. N. Avadhanulu.
6. Geometrical and Physical Optics: Longhurst.
7. Introduction to Modern Optics: G. R. Fowels.
8. Optics: P. K. Srivastav.

B.Sc. Computer Science (Session 2019-20)

Course Outcomes: SEMESTER–III PHYSICS (PRACTICAL)

Course code: BCSM-3395 (P)

After passing this programme the students will be able to:

CO1: use spectrometer to determine the refractive index of different transparent materials will dispersive power and resolving power of different transparent prisms and liquids using spectrometer.

CO2: use diffraction grating and apply it to determine dispersive power, resolving power, the wavelengths of Hg source and the Cauchy's constants.

CO3: to measure an accessible (Horizontal and vertical) and inaccessible heights using sextant.

CO4: set up of Newton's rings to determine wavelength of sodium light.

CO5: demonstrate the verification of laws of probability distribution.

B.Sc. Computer Science (Session 2019-20)

SEMESTER–III
PHYSICS
Course Code: BCSM-3395 (P)
(PRACTICAL)

Instructions to Practical Examiner

Question paper is to be set on the spot jointly by the external and internal examiners. Two copies of the same to be submitted for the record to COE office, Kanya Maha Vidyalaya, Jalandhar

General Guidelines for Practical Examination

I. The distribution of marks is as follows: **Marks: 20**
i) One experiment **7 Marks**
ii) Brief Theory **3 Marks**
iii) Viva–Voce **5 Marks**
iv) Record (Practical file) **5 Marks**
II. There will be one sessions of 3 hours duration. The paper will have one session.
Paper will consist of 8 experiments out of which an examinee will mark 6 experiments and one of these is to be allotted by the external examiner.
III. Number of candidates in a group for practical examination should not exceed 12.
IV. In a single group no experiment is to be allotted to more than three examinees in any group.

List of Experiments

1. To determine refractive index of glass and liquid using spectrometer.
2. To determine the Cauchy's constants.
3. To study the refractive index of a doubly refracting prism.
4. To set up Newton's rings to determine wavelength of sodium light.
5. To determine the wavelength by using plane diffraction grating (Use Hg source)
6. To determine dispersive power of plane diffraction grating.
7. To determine resolving power of a telescope.
8. To measure an accessible (Horizontal and vertical) height using sextant.
9. To measure inaccessible height by using sextant.
10. Verify laws of probability distribution by throwing of similar coins.
11. *To determine the wavelength of given laser source using Young's double slit experiment*

B.Sc. Computer Science (Session 2019-20)

PERSONALITY DEVELOPMENT PROGRAMME

Course Title: Personality Development Programme
Nature of course: Audit Course (Skill Based)
Course duration: 30 hours
Course intended for: Sem. III students of all streams (UG Only)
Course credits: 2
Course Code: SECP-3512

PURPOSE

To enhance holistic development of students and improve their employability skills.

INSTRUCTIONAL OBJECTIVES

- To re-engineer attitude and understand its influence on behaviour.
- To develop inter-personal skills and be an effective goal-oriented team player.
- To develop communication and problem solving skills.
- To develop professionals with idealistic, practical and moral values.

CURRICULUM

Course credits-2 **Total Contact Hours-30**

MODULE	TITLE	HOURS
1.	Positive Thinking & Attitude	2
2.	Self Analysis & Self Confidence	2
3.	Communication Skills • Basic Communication Skills • Body Language • Interview Skills • Résumé Writing • Group Discussion • Telephone and E-mail etiquette • Public Speaking	10
4.	Time Management	2
5.	Stress and Conflict Management	2
6.	Physical Fitness and Personal Grooming	2
7.	Appropriateness of Apparel	2
8.	Social Etiquette	2
9.	Decision Making process & Problem Solving Skills • Leadership Skills • Goal Setting • Motivation	5
10.	Closure	1

B.Sc. Computer Science (Session 2019-20)

SYLLABUS

MODULE 1: Positive Thinking & Attitude

- Factors Influencing Attitude
- Essentials to develop Positive Attitude
- Challenges & Lessons from Attitude

MODULE 2: Self Analysis & Self Confidence

- Who am I
- Importance of Self Confidence
- SWOT Analysis

MODULE 3: Communication Skills

(i) Basic Communication Skills

- Speaking Skills
- Listening Skills
- Presentation Skills

(ii) Body Language

- Forms of Non-Verbal Communication
- Interpreting Body Language clues
- Effective use of Body Language

(iii) Interview Skills

- Type of Interviews
- Ensuring success in job interviews
- Appropriate use of Non-verbal Communication

(iv) Résumé Writing

- Features
- Different types of Résumés for Different Posts

(v) Group Discussion

- Differences between Group Discussion and Debate
- Importance of Group Discussion
- Group Decision
- Ensuring Success in Group Discussions

(vi) Telephone & E-mail Etiquette

- Telephone etiquette
- E-mail etiquette

(vii) Public Speaking

- Introductory Speech
- Informative Speech
- Persuasive Speech

- Extempore Session

MODULE 4: Time Management

- Importance of Time Management
- Values & Beliefs
- Goals and Benchmarks – The Ladders of Success
- Managing Projects and Commitments
- Prioritizing your To-do's
- Getting the results you need

MODULE 5: Stress & Conflict Management

- Introduction to Stress
- Types of Stressors
- Small Changes and Large Rewards
- Stress Prevention
- Overcoming Unhealthy Worry
- Stress at Home and Workplace
- Dealing with Frustration and Anger
- Stress reducing Exercises
- Understanding Conflicts
- Violent and Non-violent Conflicts
- Source of Conflict
- Structural and Cultural Violence

MODULE 6: Physical Fitness and Personal Grooming

- Fitness and Exercise
- Balanced & Healthy Diet
- Skin Care & Hair Care
- Make-up Skills

MODULE 7: Appropriateness of Apparel

- Apparel & Personality
- Psycho-social aspects of Apparel
- Style-tips for smart dressing & effective use of design elements

MODULE 8: Social Etiquette

- Civic Sense
- Workplace Skills
- Meeting and greeting people
- Table Setting and Table Manners

MODULE 9: Decision Making Process and Problem Solving Skills

- Anatomy of a Decision
- How to use Problem solving steps and Problem solving tools
- How to distinguish root causes from symptoms to identify right solution for right problems
- How to improve Problem solving and Decision making by identifying individual problem solving styles

- The Creative process for making decisions
- Tools to improve creativity
- Implementing the Decision – Wrap up

(i) Leadership Skills

- Handling Peer Pressure and Bullies
- Team Work
- Decision Making
- Taking initiatives

(ii) Goal Setting

- Wish List
- SMART Goals
- Blueprint for Success
- Short-term, Long-term, Life-term Goals

(iii) Motivation

- Factors of motivation
- Self Talk
- Intrinsic & Extrinsic Motivators

Books Recommended

1. Everyday Etiquette: How to navigate 101 common and uncommon social situations by Patrica Rossi.
2. Building career success skills by Theodore Pietrzak, Mike Fraum.
3. Creative problem solving: An Introduction by Donald J Treffinger, Scott G.Isaksen, K. Brian.
4. Positive Psychology: The science of happiness and human strengths by Alan Carr
5. Speech craft: An Introduction to public speaking by Brent C Oberg.
6. Effective communication skills: The foundations for change by John Nielsen.
7. Conflict Resolution smarts: How to communicate, negotiate promise and more by Matt Doeden.
8. What you wear can change your life by Trinnywoodall, Susannah Constantine.
9. World Famous Personalities by Dr. B.R. Kishore.
10. Personality Development by John Aurther.
11. World Famous Leaders who reshaped the World! by Dr. Gagan Jain, D.Litt.
12. Personality Development by Elizabeth B. Hurlock
13. Personality Plus by Divya Chopra

Examination

1. Total marks of the course will be 25 (Final Examination: 20 Marks; Internal Assessment: 5Marks)
2. The pattern of the final examination will be multiple choice questions. 20 multiple choice type questions will be set. Each question will carry 1 mark (20 X 1 = 20). The student will have to attempt all the questions. Total time allotted will be 1 hour.
3. Internal Assessment will consist of Attendance: 2 Marks, Viva: 3 Marks.(Total:5 Marks)
4. Internal Assessment will be based on the student's level of participation, interaction and communication during the classes.
5. Viva will be conducted by the resource persons of the programme.
6. The syllabus of the programme will be duly signed and provided to the COE office by the co-ordinator.

7. The co-ordinator will convey about the completion of the programme to the COE office to facilitate conduct of examination.
8. The list of paper setters will be provided to the COE office out of which any one can be appointed by it.
9. Final examination will be conducted by COE office as per norms of the college.

Marks secured by the student will not be added in total marks and only grades will be provided. Letter grade would be awarded on a 10 point scale as per university/UGC rgulations.

B.Sc. Computer Science (Session 2019-20)

SEMESTER IV

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’ (ਸਵੈਜੀਵਨੀ)** ਨੂੰ ਪੜ੍ਹਾਉਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ **ਸਵੈਜੀਵਨੀ ਇਸ ਸਾਹਿਤ ਰੂਪ** ਪ੍ਰਤੀਦਿਲਚਸਪੀ, ਸੂਝ ਨੂੰ ਪੈਦਾ ਕਰਨਾ ਹੈ।

CO2: ‘**ਫ਼ਾਸਲੇ ’ (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 ਵਿਚ ਨਿਪੁੰਨ ਕਰਨਾ ਹੈ।

CO4:**ਸ਼ਬਦ ਜੋੜਾਂ ਦੇ ਨਿਯਮ** ਨੂੰ ਸਿਲੇਬਸ ਵਿਚ ਸ਼ਾਮਿਲ ਕਰਨ ਦਾ ਮਕਸਦ ਵਿਦਿਆਰਥੀਆਂ 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 ਸਮਝਣ ਲਈ ਵੱਖਰੇ - ਵੱਖਰੇ ਸਿਧਾਂਤਾਂ ਦਾ ਵਿਕਾਸ ਕਰਨਾ ਹੈ।

B.Sc. Computer Science (Session 2019-20)

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 (ਸਵੈਜੀਵਨੀ) :ਡਾ .ਬਚਿੰਤ ਕੌਰ

ਨਾਇਕ ਬਿੰਬ /ਸਾਰ /ਵਿਸ਼ਾ ਵਸਤੂ੪ ਅੰਕ

ਯੂਨਿਟ-II

2. ਫ਼ਾਸਲੇ (ਨਾਟਕ) :ਜਤਿੰਦਰ ਬਰਾੜ,

ਵਿਸ਼ਾ ਵਸਤੂ/ਸਾਰ (ਦੋ ਵਿਚੋਂ ਇੱਕ) ਜਾਂ ਚਾਰ ਵਿਚੋਂ ਦੋ ਪਾਤਰਾਂ ਦੀ ਪਾਤਰ ਉਸਾਰੀ ੪ ਅੰਕ

ਯੂਨਿਟ-III

3. ਦਫ਼ਤਰੀ ਚਿੱਠੀ ਪੱਤਰ (ਦੋ ਵਿਚੋਂ ਇੱਕ) ੪ ਅੰਕ

ਯੂਨਿਟ-IV

4. ਵਿਆਕਰਣ

(ੳ) ਸ਼ਬਦ ਜੋੜਾਂ ਦੇ ਨਿਯਮ

(ਅ) ਗੁਰਮੁਖੀ ਲਿਪੀ ਦੀਆਂ ਵਿਸ਼ੇਸ਼ਤਾਵਾਂ ੪ ਅੰਕ

ਅੰਕ ਵੰਡ ਅਤੇ ਪਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

B.Sc. Computer Science (Session 2019-20)

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਚਾਰ ਯੂਨਿਟ ਹੋਣਗੇ।ਸੈਕਸ਼ਨ A-D ਤੱਕ ਦੇ ਪ੍ਰਸ਼ਨ ਯੂਨਿਟ I-IV ਵਿਚੋਂ ਪੁੱਛੇ ਜਾਣਗੇ। ਹਰ ਯੂਨਿਟ ਵਿਚੋਂ ਦੋ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ।

2. ਵਿਦਿਆਰਥੀ ਨੇ ਕੁੱਲ 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 ਅੱਗੋਂ ਵੱਧ ਤੋਂ ਵੱਧ ਚਾਰ ਉਪ ਪ੍ਰਸ਼ਨਾਂ ਵਿਚ ਕਰ

ਸਕਦਾ ਹੈ।

B.Sc. Computer Science (Session 2019-20)

Session 2019-20
Punjab History & Culture (From Earliest Times to C 320)
(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 HarGobind

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.Sc. Computer Science (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.Sc. Computer Science (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 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-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) 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-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. Computer Science (Session 2019-20)

B.A./B.Sc. Semester–IV
Session 2019-20
Course Title: Statics and Vector Calculus
Course Code: BARM/BECM/ BCSM/BSNM-4333(I)

Course Outcomes

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

CO 1: To apply parallelogram law of forces, triangle law of forces, Lami's theorem to real life problems.

CO 2: To understand that how one can resolve number of coplanar forces, parallel forces and concurrent forces acting at a body.

CO 3: To find the moments of number of coplanar forces acting at a particle

CO 4: To find the resultant of a force and couple acting on a body.

CO 5: To find the applications of CG of a rod, triangular lamina, solid hemisphere, hollow hemisphere, solid cone and hollow cone.

CO 6: To find the values of gradient, divergence and curl operator of given vectors.

CO 7: To find the application of Gauss theorem, Green's theorem and Stokes's theorem in real life problems.

B.Sc. Computer Science (Session 2019-20)

B.A./B.Sc. Semester–IV
Session 2019-20
Course Title: Statics and Vector Calculus
Course Code: BARM/BECM/ BCSM/BSNM-4333(I)

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.

Section–A

Composition and resolution of forces(parallelogram law, triangle law, polygon law,Lami's Theorem,(ɜ-µ) theorem).Resultant of a number of coplanar forces, parallel forces. Moments , Varignon's Theorem of moments, Couples , Resultant of two Coplanar Couples, Equilibrium of two coplanar couples, Resultant of a force and a couple, Equilibrium of coplanar forces.

Section–B

Friction, Laws of friction, Equilibrium of a particle on a rough plane. Centre of Gravity: Centre of gravity of a rod, triangular lamina, solid hemisphere, hollow hemisphere, solid cone and hollow cone.

Section–C

Vector differentiation, Gradient, divergence and curl operators, line integrals, Vector identity, and Vector integration.

Section–D

Theorems of Gauss, Green, Stokes and problems based on these.

Books Recommended:

1. S.L. Loney: Statics, Macmillan and Company, London.
2. R.S. Verma: A Text Book on Statics, Optical Pvt. Ltd., Allahabad.
3. Spiegal, M.R.: Introduction to Vector Calculus and Tensor
4. Spiegal,M.R.: Vector Analysis

B.Sc. Computer Science (Session 2019-20)

B.A./B.Sc. Semester–IV
Session 2019-20
Course Title: Solid Geometry
Course Code: BARM/BECM/ BCSM/BSNM-4333(II)

Course Outcomes

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

CO 1: Demonstrate the concept of cone, classification of cone, intersection of line and cone, reciprocal cone.

CO 2: Understand the concept of cylinder, enveloping cylinder and its limiting form.

CO 3: Describe the concept of conicoids or quadratic surface, its classification, trace different types of conicoids.

CO 4: Manage to find surface of revolution and concept of tangent and normal to the conicoid

CO 5: Identify the conicoids and representing it in the form of hyperboloid, ellipsoid, paraboloid.

B.Sc. Computer Science (Session 2019-20)

B.A./B.Sc. Semester–IV
Session 2019-20
Course Title: Solid Geometry
Course Code: BARM/BECM/ BCSM/BSNM-4333(II)

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.

Section-A

Cylinder as surface generated by a line moving parallel to a fixed line and through fixed curve.
Different kinds of cylinders such as right circular, elliptic, hyperbolic and parabolic in standard forms

Section-B

Cone with a vertex at the origin as the graph of homogeneous equation of second degree in x, y, z . Cone as a surface generated by a line passing through a fixed curve and fixed point outside the plane of the curve. Right circular and elliptic cones.

Section –C

Equation of surface of revolution obtained by rotating the curve f(x,y)=0 about the z-axis in the form of $f(x^2+y^2, z) = 0$.Equation of ellipsoid, hyperboloid and Paraboloid in standard forms.

Section-D

Surfaces represented by general equation of 2nd degree S = 0. Tangent lines, tangent planes and Normal Plane.

Books Recommended:

1. Narayan, S &P.K.Mittal : Analytical Solid Geometry, Sultan Chand & Sons(2005)

2. Kreyszig, E : Advanced Engineering Mathematics.

B.Sc. Computer Science (Session 2019-20)

(Session 2019-20)

COURSE CODE:BARM-4134
BCSM-4134
BECM-4134

DATA STRUCTURES & PROGRAMMING LANGUAGE USING C++ (THEORY)

Course Outcomes:

After passing this course the student will be able to:

CO1: Get familiarize with basic data structures and Analyze algorithms to determine their efficiency.

CO2: Handle operations on various data structures.

CO3: Choose appropriate data structures according to real world problems.

CO4: Learn basicsof Object oriented Programming Paradigm.

B.Sc. Computer Science (Session 2019-20)

BA/BSc. (COMPUTER SCIENCE) - SEMESTER–IV

(Session 2019-20)

COURSE CODE:BARM-4134
BCSM-4134
BECM-4134

DATA STRUCTURES & PROGRAMMING LANGUAGE USING C++ (THEORY)

Time: 3+3 Hrs

Max Marks : 100
Theory : 50
Practical : 30
CA : 20

Instructions for Paper Setter -

Eight questions of equal marks are to 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 divided 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

Data Structure: Introduction to elementary Data Organization, Common Operation on DataStructures, Algorithm Complexity, Big O Notation, Time-Space Trade off between Algorithm.

Arrays: Array Defined, Representing Arrays in memory, various operations on linear arrays,Multi Dimensional arrays.

Linked Lists: Types of Linked Lists, representing linked list in memory, advantages of usinglinked lists over arrays, various operations of linked lists.

UNIT–II

Stacks: Description of STACK structure, Implementation of stack, using arrays and linked lists,application of stack-converting Arithmetic expression from infix notational to polish and theirsubsequent evaluation, quicksort technique to sort an array.

Queues: Description of queue structure, Implementation of queue using arrays and linked lists,description or priorities of queues, deques.

Sorting and Searching: Sorting Algorithms, bubble sort, selection sort, insertion sort, quicksort, merge sort, heap sort, searching Algorithms, linear search and binary search.

UNIT–III

Object Oriented Programming: Objects & Classes, Constructor & Destructor, Operator Overloading, Overloading unary operators, Overloading binary operators, Data conversion,Pitfalls of operator overloading and conversion.

B.Sc. Computer Science (Session 2019-20)

UNIT-IV

Inheritance, Derived class and base class, Derivedclass constructor. Overloading member functions, Inheritance in the English distance class, classhierarchies, Public & Private inheritance, Level of inheritance, Polymorphism, problems withsingle inheritance, multiple inheritance

References:

1. Seymour Lischutz, Theory and Problems of Data Structures.
2. Schaum's Outline Series, McGraw Hill Company.
3. Tanenbaum, Data Structure Using C++

B.Sc. Computer Science (Session 2019-20)

BA/BSc. (COMPUTER SCIENCE) - SEMESTER–IV

(Session 2019-20)

COURSE CODE:BARM-4134
BCSM-4134
BECM-4134

DATA STRUCTURES & PROGRAMMING LANGUAGE USING C++ LAB(PRACTICAL)

Practical based onData Structures & Programming Language Using C++

B.Sc. Computer Science (Session 2019-20)

Course Outcomes: Quantum Mechanics (Paper A)

Course code: BCSM-4395 (I)

After completing this course

CO1: Students will be familiar with the main aspects of the historical development of quantum mechanics

CO2: Students will understand the central concepts and principles in quantum mechanics

CO3: Students will be able to find the solution of Schrödinger wave equation for simple systems in one dimension and for Hydrogen atom.

CO4: Students will understand concept of X rays spectra and molecular spectra.

B.Sc. Computer Science (Session 2019-20)

SEM**ESTER–IV**

PHYSICS
Course code: BCSM-4395 (I)
PAPER–A
QUANTUM MECHANICS
(THEORY)

Time: 3 Hours **Marks: 30**
Pass Marks: 11

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.

Note: Students can use Non-Scientific calculators or logarithmic tables.

UNIT–I

Formalism of Wave Mechanics:
Brief introduction to need and development of quantum mechanics, photoelectric effect, Compton effect, Wave particle duality, De Broglie hypothesis, *Wave packet, Group velocity*, Uncertainty principle and its applications. *Fundamental postulates of wave mechanics, Time dependent and time independent Schrodinger wave equation for a free particle and equation of a particle subject to forces. Stationary states, Superposition principle.*

UNIT–II

Normalization and probability interpretation of wave function, Gaussian wave packet. Admissibility conditions of wave function, Eigen function and eigen value, Expectation value, *Operator and commutator formalism*, Hermitian operator, orthogonal system, Probability current and conservation of probability, Ehrenfest theorem,.

UNIT–III

Problem in One and Three Dimensions:
Application of Schrodinger Equation for solving one dimensional Particle in a box, one dimensional potential step, Potential Barrier and Linear harmonic oscillator. Schrodinger equation for spherically symmetric potential for hydrogen atom. Spherical harmonics and their solution. Physical significance of quantum number, Degeneracy.

UNIT–IV

Production of X Rays and its properties, X-ray spectra, Moseley law, Absorption of X Rays, Auger effect, Molecular bonding of hydrogen molecule ion and hydrogen molecule, Molecular spectra, selection rules, Raman Effect.

Text Reference Books:

1. A Text book of Quantum Mechanics, P.M. Mathews and K. Venkatesan,
2. (Tata McGraw Hill Pub., Co., Delhi) 2002.
3. Quantum Mechanics J.L. Powell and B. Craseman (Narosa Pub. House, New Delhi) 1997.
4. Concepts of Modern Physics, Arthur Beiser (McGraw Hill Pub. Co., New Delhi, 9th Ed.)
5. 1995.
6. Elements of Modern Physics, S.H. Patil (McGraw Hill), 1998.
7. Quantum Mechanics, E. Merzbacher (John Wiley, 2nd Edition)
8. Fundamentals of Molecular Spectroscopy, C.N. Banwell (Tata McGraw Hill Pub. Co.,
9. Delhi), 2001.
10. Atomic Spectra, H.G. Kuhn (Longmans), 2nd Ed., 1969.
11. Introduction to Quantum Mechanics, L. Pauling and E.B. Wilson (Tata McGraw Hill Pub. Co., Delhi), 2002.
12. Quantum Mechanics, W. Greiner (Springer Verlag), 1994.
13. Fundamentals of Molecular Spectroscopy: C.B. Banwell-Tata McGraw Hill, 1986.
14. Molecular Spectroscopy: Jeanne L McHale.

B.Sc. Computer Science (Session 2019-20)

Course Outcomes: PHY- ATOMIC SPECTRA & LASERS
Course Code: BCSM-4395 (II)

After passing this programme the students will be able to:

CO1: understand fine and hyperfine spectrum of hydrogen atom and the concept of spin of an electron

CO2: demonstrate understanding of exchange symmetry of wave function, different coupling schemes and spectra of atoms with more than one electron.

CO3: understand the fundamentals of lasers and its processes

CO4: have the knowledge of different components and types of lasers and its applications

B.Sc. Computer Science (Session 2019-20)

SEMESTER–IV
PHYSICS
Course code: BCSM-4395 (II)
PAPER–B
ATOMIC SPECTRA & LASERS
(THEORY)

Time: 3 Hours **Marks: 30**
Pass Marks: 11

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.

Note: Students can use Non-Scientific calculators or logarithmic tables.

UNIT–I

One Electron Atomic Spectra:
Brief review of Bohr and Rutherford model of atom. Idea of vector model of atom and quantum numbers, Spectrum of Hydrogen atom, Line structure, electron spin, Stern Gerlach experiment, spin orbit coupling, electron magnetic moment, total angular momentum, fine and Hyperfine structure of hydrogen atom, Lande g factor, Normal Zeeman effect, anomalous Zeeman effect.

UNIT–II

Many Electron System Spectra:
Exchange symmetry of wave function, Pauli's Exclusion principle, *Electronic configuration and atomic states, shells, subshells in atoms, Two valence electron atoms: LS and JJ coupling schemes and resulting spectral terms, optical spectra for one and many electron system(Helium), spectra of alkaline earth atoms.*

UNIT–III

Laser Fundamentals:
Derivation of Einstein relations, Concept of stimulated emission and population inversion, Fauchber Ledenberg formula, Threshold and Schawlow Tonnes condition, *Components of laser devices and its types*, three level and fourlevel laser schemes, elementary theory of optical cavity.

UNIT–IV

Laser Systems:
Construction, mode of creating population inversion and output characteristics of Ruby laser, He-Ne laser, CO_2laser and Nd: YAG laser, applications of lasers–a general outline, Q-switching, Basics of holography.

Text Reference Books:

1. Introduction to Atomic Spectra: H.E. White-Auckland McGraw Hill, 1934.
2. Spectroscopy Vol. I, II & III: Walker & Straughen
3. Introduction to Molecular Spectroscopy: G.M. Barrow-Tokyo McGraw Hill, 1962.
4. Spectra of Diatomic Molecules: Herzberg-New York, 1944
5. Introduction to Atomic Spectra, H.E. White (Mcgraw Hill, Book Co., Inc., New York)
6. Laser Fundamentals, W.T. Silfvast (Foundation Books), New Delhi, 1996
7. Laser and Non-Liner Optics, B.B. Laud (New Age Pub.) 2002
8. Laser, Svelto, (Plenum Pres) 3rd edition, New York

B.Sc. Computer Science (Session 2019-20)

Course Outcomes: PHY Lab Sem IV

Course code: BCSM-4395 (P)

CO1: The exercises included in this laboratory course are aimed at training the students to handle different type of equipment for verification of some of the laws and concepts studied in theory like concepts of thermodynamics, photoelectric effect and for carrying out precise measurements so that they develop confidence to use later the sophisticated instruments in their respective fields.

CO2: After the completion of this course students will be able to use spectrometer and hence will be able to study absorption spectra of iodine.

CO3: At the end of this course students will be able to prepare cane sugar solution and hence will be able to find its specific rotation by using polarimeter.

B.Sc. Computer Science (Session 2019-20)

SEMESTER–IV
PHYSICS
(PRACTICAL)
Course code: BCSM-4395 (P)

Instructions to Practical Examiner
Question paper is to be set on the spot jointly by the external and internal examiners. Two copies of the same to be submitted for the record to COE office, Kanya Maha Vidyalaya, Jalandhar

General Guidelines for Practical Examination
I. The distribution of marks is as follows: **Marks: 20**
i) One experiment **7 Marks**
ii) Brief Theory **3 Marks**
iii) Viva–Voce **5 Marks**
iv) Record (Practical file) **5 Marks**
II. There will be one sessions of 3 hours duration. The paper will have one session.
Paper will consist of 8 experiments out of which an examinee will mark 6 experiments and one of these is to be allotted by the external examiner.
III. Number of candidates in a group for practical examination should not exceed 12.
IV. In a single group no experiment is to be allotted to more than three examinees in any group.

List of Experiments
1. To study adiabatic expansion of gas and hence to calculate value of V.
2. To find the coefficient of Thermal Conductivity of a bad conductor by Lee's method.
3. To plot a calibration curve of a given thermocouple (copper constantan).
4. To study the photoelectric effect and determine the value of planck's constant.
5. To determine the ionization potential of mercury.
6. Study of variation of light intensity with distance using photovoltaic cell
(Inverse Square Law)
7. To determine the heating efficiency of an electric kettle with varying voltage.
8. To study the absorption spectra of iodine vapours.
9. To study the rotation of plane of polarization by using polarimeter.
10. To determine the specific rotation of sugar using Laurent's half shade polarimeter
11. To study the characterizations of Photovoltaic cell.