Faculty of Sciences

Syllabus for

Bachelor of Science (Honours) Physics

(Under Continuous Evaluation System)

(SEMESTER: I&II)

Session – (2020-21)

Kanya Maha Vidyalaya, Jalandhar
(Autonomous)
The Heritage Institution

Kanya Maha Vidyalaya, Jalandhar (Autonomous)

SCHEME AND CURRICULUM OF EXAMINATIONS OF THREE YEAR DEGREE PROGRAMME

Bachelor of Science (Honours) Physics

Session-2020-21

Semester-I

Sr. No.	Course Code	Course Type	Course Title	Max Marks				Examination time in Hours)
				Total	Ext		CA	
					L	P		
1.	BOPL-1421 BOPL-1031 BOPL-1431	C	Punjabi(Compulsory [1]Basic Punjabi [2]Punjab History and Culture	50	40	-	10	3
2.	BOPL-1102	C	Communication skills in English	50	40	-	10	3
3.	BOPL-1393	C	Mechanics-I	75	60	-	15	3
4.	BOPL-1394	C	Electricity &Magnetism-I	75	60	-	15	3
5.	BOPL-1335	C	Mathematics-I	50	40	-	10	3
6.	BOPL-1086	C	Chemistry-I	50	40	-	10	3
7.	BOPP-1397	C	Physics Lab-I	50	-	40	10	3
8.	BOPP-1088	C	Chemistry Lab-I	50	-	40	10	3
9.	AECD-1161	AC	*Drug Abuse: Problem Management & Prevention (Compulsory)	50	40	-	10	3
10.	SECF-1492	AC	*Foundation Program	25	20		5	1

***Marks of these papers will not be added in total marks**

1 In Lieu of Punjabi (Compulsory) for students from Punjab

2. In Lieu of Punjabi (Compulsory) for students outside Punjab (Other States)

SCHEME AND CURRICULUM OF EXAMINATIONS OF THREE YEAR DEGREE PROGRAMME

Bachelor of Science (Honours) Physics

Session-2020-21

Semester II

Sr. No.	Course Code	Course Type	Course Title	Max Marks				Examination time in Hours)
				Total	Ext		CA	
					L	P		
1	BOPL-2421 BOPL-2031 BOPL-2431	C	Punjabi(Compulsory [1]Basic Punjabi [2]Punjab History and Culture	50	40	-	10	3
2	BOPL-2102	C	Communication Skills in English	50	40	-	10	3
3	BOPL-2393	C	Electricity & Magnetism-II	75	60	-	15	3
4	BOPL-2394	C	Vibrations and Waves	75	60	-	15	3
5	BOPL- 2335	C	Mathematics-II	50	40	-	10	3
6	BOPL-2086	C	Chemistry-II	50	40	-	10	3
7	BOPP-2397	C	Physics Lab-II	50	-	40	10	3
8	BOPP-2088	C	Chemistry Lab-II	50	-	40	10	3
9	AECD-2161	AC	*Drug Abuse: Problem, Management and Prevention (Compulsory)	50	40	-	10	3
10	SECM-2502	AC	* Moral Education Programme	25	20		5	1

****Marks of these papers will not be added in total marks**

1 In Lieu of Punjabi (Compulsory) for students from Punjab

2. In Lieu of Punjabi (Compulsory) for students outside Punjab (Other States)

PROGRAM SPECIFIC OUTCOMES (PSOs)

1. Students will demonstrate proficiency in mathematics and the mathematical concepts needed for a proper understanding of physics.

2. Students will demonstrate knowledge of classical mechanics, electromagnetism, quantum mechanics, Electronics, Nuclear and thermal physics, and be able to apply this knowledge to analyse a variety of physical phenomena.

3. Students will demonstrate knowledge of organic, Physical and inorganic chemistry and are able to recognize and apply the principles of atomic and molecular structure to predict chemical properties and chemical reactivity.

4. Students will show that they have learned laboratory skills, enabling them to take measurements in a physics and chemistry laboratory and analyse the measurements to draw valid conclusions.

5. Upon completion of this degree, students will be able to understand theoretical concepts of instruments that are commonly used in most physics and chemistry fields as well as interpret and use data generated in instrumental analysers.

6. Students will be capable of oral and written scientific communication, and will prove that they can think critically and work independently.

SESSION 2020-21
Punjabi (Compulsory)

BACHELOR OF SCIENCE (HONOURS) PHYSICS
SEMESTER–I

COURSE CODE- BOPL-1421

COURSE OUTCOMES

Co1:‘ਸਾਹਿਤ ਦੇ ਰੰਗ’ ਪੁਸਤਕ ਦੇ ਕਵਿਤਾ ਭਾਗ ਨੂੰ ਪੜ੍ਹਾਉਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਕਵਿਤਾ ਪ੍ਰਤੀ ਦਿਲਚਸਪੀ, ਸੂਝ ਨੂੰ ਪੈਦਾ ਕਰਨਾ ਹੈ ਤਾਂ ਕਿ ਉਹ ਆਧੁਨਿਕ ਦੌਰ ਵਿਚ ਚਲ ਰਹੀਆਂ ਕਾਵਿ ਧਾਰਾਵਾਂ ਅਤੇ ਕਵੀਆਂ ਬਾਰੇ ਗਿਆਨ ਹਾਸਲ ਕਰ ਸਕਣ। 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।

Co2:‘ਸਾਹਿਤ ਦੇ ਰੰਗ’ ਪੁਸਤਕ ਦੇ ਕਹਾਣੀ ਭਾਗ ਨੂੰ ਸਿਲੇਬਸ ਵਿਚ ਸ਼ਾਮਿਲ ਕਰ ਕੇ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਕਹਾਣੀ ਪੜ੍ਹਣ ਦੀ ਰੁਚੀ ਨੂੰ ਪੈਦਾ ਕਰਨਾ ਹੈ ਅਤੇ ਕਹਾਣੀ ਜਗਤ ਨਾਲ ਜੋੜਣਾ ਹੈ।

Co3: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।

Co4: ਧੁਨੀ ਵਿਉਂਤ ਪੜ੍ਹਣ ਨਾਲ ਵਿਦਿਆਰਥੀ ਧੁਨੀਆਂ ਦੀ ਉਚਾਰਨ ਪ੍ਰਣਾਲੀ ਤੋਂ ਵਾਕਫ਼ ਹੋਣਗੇ।

SESSION 2020-21
Punjabi (Compulsory)

BACHELOR OF SCIENCE (HONOURS) PHYSICS
SEMESTER–I

COURSE CODE- BOPL-1421

ਸਮਾਂ : 3 ਘੰਟੇ **Maximum Marks: 50**
Theory : 40
CA :10

ਪਾਠ ਕ੍ਰਮ ਅਤੇ ਪਾਠ ਪੁਸਤਕਾਂ
ਯੂਨਿਟ-I

ਸਾਹਿਤ ਦੇ ਰੰਗ (ਸੰਪਾ.ਡਾ ਮਹਿਲ ਸਿੰਘ),ਭਾਗ ਪਹਿਲਾ(ਕਵਿਤਾ),
ਚਵੀ ਸਾਹਿਤ ਪ੍ਰਕਾਸ਼ਨ,ਅੰਮ੍ਰਿਤਸਰ।
(ਸਾਰ,ਵਿਸ਼ਾ ਵਸਤੂ)
(ਡਾ. ਹਰਿਭਜਨ ਸਿੰਘ,ਪਾਸ਼,ਸੁਰਜੀਤ ਪਾਤਰ ਕਵੀ ਪਾਠਕ੍ਰਮ ਦਾ ਹਿੱਸਾ ਨਹੀਂ ਹਨ) ੪ ਅੰਕ

ਯੂਨਿਟ-II

ਸਾਹਿਤ ਦੇ ਰੰਗ (ਸੰਪਾ.ਡਾ ਮਹਿਲ ਸਿੰਘ),ਭਾਗ ਪਹਿਲਾ(ਕਹਾਣੀ),
ਚਵੀ ਸਾਹਿਤ ਪ੍ਰਕਾਸ਼ਨ,ਅੰਮ੍ਰਿਤਸਰ।
(ਸਾਰ,ਵਿਸ਼ਾ ਵਸਤੂ)
(ਕੋਈ ਇਕ ਸਵਾਰ,ਘੋਟਣਾ, ਆਪਣਾ ਆਪਣਾ ਹਿੱਸਾ ਕਹਾਣੀਆਂ ਪਾਠਕ੍ਰਮ ਦਾ ਹਿੱਸਾ ਨਹੀਂ ਹਨ) ੪ ਅੰਕ

ਯੂਨਿਟ-III

ਪੈਰ੍ਹਾ ਰਚਨਾ

ਪੈਰ੍ਹਾ ਪੜ੍ਹ ਕੇ ਪਸ਼੍ਨਾਂ ਦੇ ਉਤਰ। ੪ ਅੰਕ

ਯੂਨਿਟ-IV

(ੳ) ਪੰਜਾਬੀ ਧੁਨੀ ਵਿਉਂਤ : ਪਰਿਭਾਸ਼ਾ ਤੇ ਉਚਾਰਨ ਅੰਗ

(ਅ) ਸਵਰ, ਵਿਅੰਜਨ ੪ ਅੰਕ

ਅੰਕ ਵੰਡ ਅਤੇ ਪਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

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

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

3. ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 08 ਅੰਕ ਹਨ।

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

ਵਿਚ ਕਰ ਸਕਦਾ ਹੈ।

BACHELOR OF SCIENCE (HONOURS) PHYSICS
SEMESTER–I

BASIC PUNJABI

In lieu of Punjabi (Compulsory)

COURSE CODE -BOPL-1031

Course outcomes

CO1:ਮੁੱਢਲੀ ਪੰਜਾਬੀ ਪੜ੍ਹਾਉਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਨੂੰ ਸਿਖਾਉਣ ਦੀ ਪ੍ਰਕਿਰਿਆ ਵਿਚ ਪਾ ਕੇ ਇਕ ਹੋਰ ਭਾਸ਼ਾ ਸਿੱਖਣ ਦਾ ਮੌਕਾ 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 ਸੱਤ ਦਿਨਾਂ ਦੇ ਨਾਂ, ਬਾਰ੍ਹਾਂ ਮਹੀਨਿਆਂ ਦੇ ਨਾਂ, ਰੁੱਤਾਂ ਦੇ ਨਾਂ, ਇਕ ਤੋਂ ਸੌ ਤੱਕ ਗਿਣਤੀ ਸ਼ਬਦਾਂ ਵਿਚ ਸਿਖਾਉਣਾ ਹੈ।

BACHELOR OF SCIENCE (HONOURS) PHYSICS
SEMESTER–I

SESSION 2020-21
BASIC PUNJABI

In lieu of Punjabi (Compulsory)

COURSE CODE - BOPL-1031

ਸਮਾਂ : 3 ਘੰਟੇ **Maximum Marks: 50**

Theory : 40

CA : 10

ਪਾਠ ਕ੍ਰਮ

ਯੂਨਿਟ-I

ਪੈਂਤੀ ਅੱਖਰੀ, ਅੱਖਰ ਕ੍ਰਮ, ਪੈਰ ਬਿੰਦੀ ਵਾਲੇ ਵਰਣ ਅਤੇ ਪੈਰ ਵਿਚ ਪੈਣ ਵਾਲੇ ਵਰਣ ਅਤੇ ਮਾਤ੍ਰਵਾਂ (ਮੁੱਢਲੀ ਜਾਣ ਪਛਾਣ) ਲਗਾਖਰ (ਬਿੰਦੀ, ਟਿੱਪੀ, ਅੱਧਕ) : ਪਛਾਣ ਅਤੇ ਵਰਤੋਂ ।

08ਅੰਕ

ਯੂਨਿਟ-II

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

ਯੂਨਿਟ-III

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

ਯੂਨਿਟ-IV

ਹਫ਼ਤੇ ਦੇ ਸੱਤ ਦਿਨਾਂ ਦੇ ਨਾਂ, ਬਾਰ੍ਹਾਂ ਮਹੀਨਿਆਂ ਦੇ ਨਾਂ, ਰੁੱਤਾਂ ਦੇ ਨਾਂ, ਇਕ ਤੋਂ ਸੌ ਤਕ ਗਿਣਤੀ ਸ਼ਬਦਾਂ ਵਿਚ ।

ਅੰਕ ਵੰਡ ਅਤੇ ਪਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

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

2. ਵਿਦਿਆਰਥੀ ਨੇ ਕੁੱਲ ਪੰਜ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹਨ। ਹਰ ਸੈਕਸ਼ਨ ਵਿਚੋਂ ਇਕ ਪ੍ਰਸ਼ਨ ਲਾਜ਼ਮੀ ਹੈ। ਪੰਜਵਾਂ ਪ੍ਰਸ਼ਨ ਕਿਸੇ ਵੀ ਸੈਕਸ਼ਨ 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।

BACHELOR OF SCIENCE (HONOURS) PHYSICS
SEMESTER–I

Session 2020-21

Course Title: Punjab History and Culture (From Earliest Times to C 320) (Special paper in lieu of Punjabi Compulsory)

(For those students who are not domicile of Punjab)

Course Code: BOPL-1431

COURSE OUTCOMES

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

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

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

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

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

BACHELOR OF SCIENCE (HONOURS) PHYSICS
SEMESTER–I

Session 2020-21

Course Title: Punjab History and Culture (From Earliest Times to C 320) (Special paper in lieu of Punjabi Compulsory)

(For those students who are not domicile of Punjab)

Course Code: BOPL-1431

Examination Time: 3 Hours **Max. Marks: 50**
Theory: 40
C A: 10

Instructions for the Paper Setters

1. Question paper shall consist of four Units
2. Examiner shall set 8 questions in all by selecting **Two Questions** of equal marks from each Unit.
3. Candidates shall attempt **5 questions** in **600 words,** by at least selecting **One Question** from each Unit and the **5th question** may be attempted from any of the **four Units**.

4.Each question will carry 8 marks.

Unit-I

1. Physical features of the Punjab
2. Sources of the ancient history of Punjab

Unit-II

3. Harappan Civilization: social, economic and religious life of the Indus Valley People.
4. The Indo-Aryans: Original home

Unit-III

5. Social, Religious and Economic life during Early Vedic Age.
6. Social, Religious and Economic life during Later Vedic Age.

UNIT-IV

7. Teachings of Buddhism
8. Teachings of Jainism

Suggested Readings

- L. M Joshi (ed.), *History and Culture of the Punjab*, Art-I, Patiala, 1989 (3rd edition)
- L.M. Joshi and Fauja Singh (ed.), *History of Punjab*, Vol.I, Patiala 1977.
- Budha Parkash, *Glimpses of Ancient Punjab*, Patiala, 1983.
- B.N. Sharma, *Life in Northern India*, Delhi. 1966.
- Chopra, P.N., Puri, B.N., & Das, M.N.(1974). *A Social, Cultural & Economic History of India*, Vol. I, New Delhi: Macmillan India.

BACHELOR OF SCIENCE (HONOURS) PHYSICS
SEMESTER–I

Session 2020-21
COMMUNICATION SKILLS IN ENGLISH
(Theory)
Course Code: BOPL -1102

COURSE OUTCOMES

At the end of this course, the students will develop the following Skills:

CO 1: Reading skills that will facilitate them to become an efficient reader

CO 2: The ability to realise not only language productivity but also the pleasure of being able to articulate well

CO 3: The power to analyse, interpret and infer the ideas in the text

CO 4: The ability to have a comprehensive understanding of the ideas in the text and enhance their critical thinking

CO 5: Writing skills of students which will make them proficient enough to express ideas in clear and grammatically correct English

CO 6: Ability to plan, organise and present ideas coherently on a given topic

CO 7: The skill to use an appropriate style and format in writing letters (formal and informal)

BACHELOR OF SCIENCE (HONOURS) PHYSICS
SEMESTER–I
Session 2020-21
COMMUNICATION SKILLS IN ENGLISH
(Theory)
Course Code: BOPL -1102
Time: 3 Hours
Max. Marks: 50
Theory: 40
Continuous Assessment: 10

Instructions for the paper setter and distribution of marks:
The question paper will consist of four sections. The candidate will have to attempt five questions in all selecting one from each section and the fifth question from any of the four sections. Each question will carry 8 marks.
Section-A: Two questions of theoretical nature will be set from Unit I.
Section-B: Two comprehension passages will be given to the students based on Unit II.
Section-C: Two questions will be given from Unit III.
Section-D: Two questions will be set from Unit IV.

(8 x 5 = 40)

The syllabus is divided in four units as mentioned below:

Unit I

Reading Skills: Reading Tactics and strategies; Reading purposes–kinds of purposes and associated comprehension. Reading for direct meanings.

Unit II

Reading for understanding concepts, details, coherence, logical progression and meanings of phrases/ expressions.

Activities:

- Comprehension questions in multiple choice format
- Short comprehension questions based on content and development of ideas

Unit III

Writing Skills: Guidelines for effective writing; writing styles for application, personal letter, official/ business letter.

Activities

- Formatting personal and business letters.
- Organising the details in a sequential order

Unit IV

Resume, memo, notices etc.; outline and revision.

Activities:

- Converting a biographical note into a sequenced resume or vice-versa
- Ordering and sub-dividing the contents while making notes.
- Writing notices for circulation/ boards

Recommended Books:

1. *Oxford Guide to Effective Writing and Speaking* by John Seely.

2. *Business Communication,* by Sinha, K.K. Galgotia Publishers, 2003.

3. *Business Communication* by Sethi, A and Adhikari, B., McGraw Hill Education 2009.

4. *Communication Skills* by Raman, M. & S. Sharma, OUP, New Delhi, India (2011).

5. *English Grammar in Use: A Self Study Reference and Practice Book Intermediate Learners Book* by Raymond Murphy, Cambridge University Press.

BACHELOR OF SCIENCE (HONOURS) PHYSICS
SEMESTER–I

MECHANICS-I

Course Code: BOPL-1393

Course Outcomes: Mechanics -I

After passing this course, students will be able to:

CO1: Understand the various coordinate systems and its applications. Students will be able to know the conservations laws and the symmetries of space & time.

CO2: Know the fundamental forces of nature, concept of center mass, central forces and the motion of particle under central force and to determine the turning points of orbit.

CO3: Understand the frames of reference, coriolis forces and its applications and effect of rotation of earth on g.

CO4: understand the elastic collision in different systems, cross section of elastic scattering as well as Rutherford scattering and know the motion of rigid body.

BACHELOR OF SCIENCE (HONURS) PHYSICS (SESSION 2020-21)
SEMESTER-I

COURSE CODE: BOPL-1393

MECHANICS-I

Maximum Marks: 75 (External 60 + Internal 15) **Examination Time: 3 Hours**
Pass Marks: 21 **Total Teaching hours: 60**

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

Co-ordinate system and Motion of a Particle: Cartesian and Spherical polar co-ordinate systems; area, volume, displacement, velocity and acceleration in these systems. Solid angle, Newton's laws of motion. Relationship of conservation laws and symmetries of space and time.

Unit- II

Conservation of Momentum and Collisions: Internal forces and momentum conservation, Centre of mass, Elastic collisions in laboratory and centre of mass systems; velocities, angles, energies in these systems and their relationships. Conservation of angular momentum and examples-shape of the galaxy, angular momentum of solar system. Torques due to internal forces, angular momentum about center of mass. Cross-section elastic scattering and impact parameter, Rutherford scattering.

Unit- III

Inverse-Square-Law Force: Forces in nature (qualitative). Central forces, Potential energy and force between a point mass and spherical shell, a point mass and solid sphere, gravitational and electrostatic self-energy. Two body problem and concept of reduced mass. Motion of a body under central force, equation of orbit in inverse-square force field. Kepler's laws and their derivation.

Unit- IV

Dynamics of Rigid Bodies: Equation of motion of a rigid body, rotational motion of a rigid body in general and that of plane lamina. Rotation of angular momentum vector about a fixed axis. Angular momentum and kinetic energy of a rigid body about principal axis, Euler's equations. Precession and elementary gyroscope, Spinning top.

Reference Books:

1. Mechanics-Berkeley Physics Course, Vol-I by C. Kittel, W. D. Knight, M. A. Ruderman, C. A Helmholtz and R. J. Moyer-Tata McGraw Hill Publishing Company Ltd., New Delhi.
2. Fundamentals of Physics by D. Halliday, R. Resnick and J. Walker -Wiley India Pvt. Ltd., New Delhi.

3. Introduction to Classical Mechanics by R. G. Takwale & P.S. Puranik. Tata McGraw Hill Publishing Company Ltd., New Delhi
4. An introduction to Mechanics by D. Kleppne r& R. Kolenkow. Tata McGraw Hill Publishing Company Ltd., New Delhi.
5. Mechanics by H.S. Hans & S.P Puri, Tata McGraw Hill Publishing Company Ltd. New Delhi.
6. Analytical Mechanics by S. K. Gupta, Modern Publishers.

BACHELOR OF SCIENCE (HONOURS) PHYSICS
SEMESTER–I

ELECTRICITY & MAGNETISM-I

Course No. BOPL-1394

Course Outcomes: Electricity and Magnetism-I

After passing this course the students will be able to:

CO1: 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.

CO2: understand the applications of scalar potential for the calculation of electric field and electric potential due to an arbitrary charge distribution.

CO3: solve the problems with the help of method of images and understand the conduction of electric current and fundamental laws of electricity and relate the electric and magnetic fields in two inertial frames of reference.

CO4: able to understand electric field, potential and polarization of different media and related quantities.

BACHELOR OF SCIENCE (HONURS) PHYSICS (SESSION 2020-21)

SEMESTER-I

COURSE CODE: BOPL-1394

ELECTRICITY AND MAGNETISM-I

Maximum Marks: 75 (External 60 + Internal 15) **Examination Time: 3 Hours**

Pass Marks: 21 **Total Teaching hours: 60**

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

Calculus of Vectors : Introduction to gradient, divergence & curl; their physical significance. Rules for vector derivatives, useful relations involving gradient, divergence &curl. Fundamental theorem for gradients, Gauss's and Stoke's theorems.

Unit- II

Electrostatics and Electric Current: Electric charge and its properties, Coulomb's law. The electric field due to a point charge and continuous charge distributions, Field due to electric dipole, Field lines, flux, Gauss's law and its applications. Curl of electric field. Relation between potential and electric field. Poisson's and Laplace's equations. Electric potential due to different charge distribution: Wire, Ring, Disc, Spherical Shell, Sphere, dipole etc. The potential energy for a point and continuous charge distribution.

Unit- III

Field of Moving Charges:- Conductors in the electrostatic field, Capacitors, Current and current density, drift velocity, expression for current density vector, equation of continuity. Ohm's Law and expression for electrical conductivity, limitations of Ohm's law. Equipotential surface method of electrical images, Measurement of charge in motion, Transformation of electric and magnetic fields in different frames of references, Electric field due to moving charges, electric force in two inertial frames, Interaction between moving charges.

Unit- IV

Electric Fields in Matter: Moments of charge distribution, Potential and field of a dipole, torque and force on a dipole in an external electric field, polarizability tensor, Electric field caused by polarized matter, Electric field of Polarized Sphere, Dielectric sphere in a uniform electric field, Field of a charge in a dielectric medium, Electric susceptibility and atomic polarizability tensor, Polarization in alternating fields.

Text and Reference Books:

1. Introduction to Electrodynamics by D.J. Griffiths, Perason Prentice Hall of India, New Delhi
2. Electricity & Magnetism by E.M. Purcell, Berkeley Physics Course Vol. 2, McGraw Hill, New York
3. Fundamental of Physics by D. Halliday, R. Resnick and J. Walker (6th edition)-John Wiley India Pvt Ltd.,.

4. Electricity and Magnetism by A. S. Mahajan & A. A. Rang Wala, Tata –McGraw Hill Publication Pvt. Ltd.

BACHELOR OF SCIENCE (HONOURS) PHYSICS
SEMESTER–I

Course Title: Mathematics-I

Course Code: BOPL-1335

Course outcomes

After the completion of this course, students should be able to :

CO 1:Give argument related to limits, continuity and derivative of a function.

CO 2: Understand the concept of maxima and minima of a function of a single variable.

CO 3: Explain the significance of Roll's theorem, Mean Value theorem, and Taylor's and Maclaurin's theorem to find the expansions of functions.

CO 4: Demonstrate the geometrical meaning of integral calculus as an area and their uses in the determination of C.G & moments of inertia.

CO 5: Understand how to solve linear differential equations with constant coefficients and linear homogeneous and inhomogeneous differential equations of second order.

BACHELOR OF SCIENCE (HONURS) PHYSICS (SESSION 2020-21)

SEMESTER-I

COURSE CODE: BOPL-1335

MATHEMATICS-I

Maximum Marks: 50 (External 40 + Internal 10) **Examination Time: 3 Hours**

Pass Marks: 18 **Total Teaching hours: 60**

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

Functions and Derivatives: Limits, continuity and derivative of function. Differentiation of standard functions, Successive differentiation. Geometrical significance of derivative. Maxima and Minima of a function of single variable. Partial differentiation. Chain rule of differentiation. 15 Lectures

UNIT –II

Differential Calculus: Statement of Rolle's theorem and Mean value theorem, Taylor's and Maclaurins theorems and their applications to formal expansion of functions. Tangents and normals. Basic idea about asymptotes.

15 Lectures

UNIT –III

Integral Calculus: Integration as inverse of differentiation. Indefinite integrals of standard forms. Method of substitution. Integration using partial fractions. Integration by parts. Reduction formulae. Definite integrals. Definite integral as limit of a sum and geometrical interpretation as an area.

15 Lectures

UNIT –IV

Differential Equations: Definition & formation of differential equations. Linear differential equation of first order and first degree. Linear homogenous and inhomogeneous differential equation of second order. Linear differential equations with constant coefficients.

15 Lectures

Text Book:

Higher Engineering Mathematics: B.S. Grewal, Delhi, Khanna

Reference Books:

1. Differential Calculus: Shanti Narayan, New Delhi, Shyam Lal
2. Integral Calculus: Shanti Narayan, Delhi, S. Chand
3. Mathematical Hand Book: M. Vygodsky, Mir, Moscow

Bachelor of Science (Honours) Physics Semester–I
Session: 2020-21
Course Title: Chemistry I
Course Code: BOPL-1086

Course outcomes:

Students will be able to

CO1: differentiate between chiral and achiral compounds, configuration and conformation.

CO2: understand the concept of isomerism

CO3: understand the resolution of enantiomers and differentiate between dextrorotatory and laevorotatory compounds.

CO4: do conformational analysis of ethane, butane, cyclohexane, monosubstituted and disubstituted cyclohexane.

CO5: explain the various methods of formation and chemical reactions of alkanes, alkenes and alkynes.

CO6: understand functional group transformation by nucleophilic substitution.

CO7: describe the mechanism and stereochemistry of nucleophilic substitution reactions.

CO8: understand the principles of nucleophilic addition to carbonyl groups.

Bachelor of Science (Honours) Physics Semester–I
Session: 2020-21
Course Title: Chemistry I
Course Code: BOPL-1086

Examination Time: 3 Hours **Max. Marks: 50**
Theory: 40, CA: 10

Instructions for the Paper Setters:
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). 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

Stereochemistry: General introduction to stereochemistry and molecular chirality, properties of chiral molecules-optical activity, enantiomerism, introduction to absolute and relative configuration, the Cahn-Ingold Prelog R-S notional system physical properties of enantiomers. Stereochemistry of alkenes, naming stereo isometric alkenes by the E-Z system.
Conformational analysis. Conformational analysis of ethane, butane, cyclohexane, mono substituted and disubstituted cyclohexane

UNIT II

Chemistry of alkanes and alkenes: General chemistry of alkanes and alkenes, preparation of alkanes by decarboxylation. Wurtz reaction and Corey House reaction with mechanisms. Dehydration of alcohols and regioselectivity of these reactions. Acid catalysed dehydration of alcohols with complete mechanistic discussion, Mechanism of dehydrohalogenation of alkyl halides (Elimination mechanism), stereoselective and anti-elimination in elimination reactions.
Mechanism of hydrogenation of alkenes, stereochemistry of hydrogenation of cyclo alkenes, electrophilic addition of hydrogen halides to alkenes its regioselectivity explained on the basis of mechanism, free radical addition of hydrogen bromide to alkenes, acid catalysed hydration of alkene with mechanism, stereochemistry of halogen addition to alkenes and its mechanistic explanation, Hypohalous acid addition to alkenes, epoxidation of alkenes.
Alkynes: General chemistry of alkynes, preparation of alkynes, acidity of acetylene and terminal alkenes, metal ammonia reduction of alkyne, addition of hydrogen halides and water to alkynes, with detailed discussion of mechanism of these reactions.

UNIT-III

Nucleophilic substitution reactions: Functional group transformation by nucleophilic substitution, the biomolecular (S_N2), mechanism of nucleophilic substitution, stereochemistry of S_N2 reactions, steric effect in S_N2 reactions, nucleophiles and nucleophilicity. The unimolecular (S_N1) mechanism of nucleophilicsubstitution, carbocation stability and the rate of substitution, stereochemistry of S_N1 reactions, carbocation arrangements in S_N1 reactions, solvent effects, substitution and elimination as competing reactions.

UNIT-IV

Chemistry of carbonyl compounds. Principles of nucleophillic addition to carbonyl groups: Hydration, acetal formation, cyanohydrin formation; reactions with primary and secondary amines, Wittig reaction, mechanism of halogenation, acid and base catalysed enolization, haloform reaction, aldol condensation, conjugate nucleophillic addition to unsaturated carbonyl compounds

Text and Reference Books:

1. Advanced Organic Chemistry, Reactions Mechanisms and Structure by J. March.
2. Organic Chemistry by F. A Carey
3. Schaum's Outlines Series Theory and Problems of Organic Chemistry by Herbert Meislick and Jacob Sharefkin
4. Problems and their solution in Organic chemistry by I.L. Finar,
5. Organic Chemistry by D.J. Cram and G.S. Hammond.
6. J.E. Banks, Naming Organic Compounds – Programmed Introduction to Organic Chemistry.
7. E.L. Eliel, Stereochemistry of carbon compounds.

Bachelor of Science (Honours) Physics Semester–I

Course Outcomes: Physics Lab-I Sem I

Course No. BOPP-1397

CO1: Students will be able to find the value of acceleration due to gravity using pendulums.

CO2: It will give understanding of collisions in 1-Dimension.

CO3: It helps to study the moment of inertia of a body & on what factors it depends.

BACHELOR OF SCIENCE (HONURS) PHYSICS (SESSION 2020-21)

SEMESTER-I

COURSE CODE: BOPL-1397

PHYSICS LAB-I

Maximum Marks: 50 (External 40 + Internal 10) Examination Time: 3 Hours

Total Teaching hours: 90

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:

i) One experiment 20 Marks

ii) Brief Theory 6 Marks

iii) Viva–Voce 7 Marks

iv) Record (Practical file) 7Marks

II. There will be one sessions of 3 hours duration. The paper will have one session and 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 20.

IV. In a single group no experiment be allotted to more than three examinee in any group.

List of experiments-

1. To measure the time periods of oscillation for the objects of various geometrical shapes but of same mass.
2. To study rotational motion using a flywheel and hence show that torque is proportional to angular acceleration.
3. To find the moment of inertia of an irregular body about an axis through its centre of gravity with a torsion pendulum.
4. To determine the moment of inertia of a flywheel.
5. To determine the Young's modulus by bending.
6. Determination of Poisson's ratio for rubber.
7. To verify laws of conservation of (a) linear momentum, (b) kinetic energy in elastic collisions using one dimensional collisions of hanging spheres. (c) Also determine energy transfer and coefficient of restitution.
8. To determine modulus of rigidity of copper wire by Maxwell needle experiment.
9. To determine the coefficient of viscosity of glycerine by Stoke's method.
10. To find the unknown capacitance of a capacitor by flashing and quenching
11. of a neon lamp.
12. Measurement of capacitance, determination of permittivity of a medium air and relative permittivity by de–Sauty's bridge.
13. To study the variation in resistance of filament of a bulb with temperature.

Reference Books:

1. Practical Physics, C.L. Arora, S. Chand & Co.

Bachelor of Science (Honours) Physics Semester–I
Session: 2020-21
Course Title: Chemistry Lab-I
Course Code: BOPL-1088

Course outcomes

Students will be able to

CO1: develop skills required for the qualitative analysis of organic compounds,

CO2: detect elements (N, S and halogens)

CO3: detect functional groups (phenolic, carboxylic, carbonyl, esters, carbohydrates, amines, amides, nitro) in simple organic compounds

CO4: determine the physical constants of organic compounds.

CO5: prepare the derivatives of organic compounds.

Bachelor of Science (Honours) Physics Semester–I
Session: 2020-21
Course Title: Chemistry Lab-I
Course Code: BOPL-1088

Examination Time: 3 Hours Max. Marks: 50
Practical: 40, CA: 10

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

General Guidelines for Practical Examination

The preliminary examination of physical and chemical characteristics (physical state, colour, odor and ignition tests), elemental analysis (nitrogen, sulphur, chlorine, bromine, iodine), solubility tests including acid-base reactions, classification tests involving functional reactivity other than acid-base test preparation of derivatives for given pure organic compounds.

The following categories of compounds should be analysed:

-Phenols
- Carboxylic acids
-Carbonyl compounds (ketones, aldehydes)
-Carbohydrates
-Aromatic amines
-Amides and Nitro compounds

Suggested Book:

1. Practical Organic Chemistry by F.G. Mann and B.C. Saunders
2. Practical Organic Chemistry by Vogel

Bachelor of Science (Honours) Physics Semester–I

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.

Bachelor of Science (Honours) Physics Semester–I

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.

Bachelor of Science (Honours) Physics Semester–I

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

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

SESSION 2020-21
Punjabi (Compulsory)

BACHELOR OF SCIENCE (HONOURS) PHYSICS
SEMESTER–II

COURSE CODE- BOPL-2421

COURSE OUTCOMES

CO1: 'ਸਾਹਿਤ ਦੇ ਰੰਗ' ਪੁਸਤਕ ਦੇ ਵਾਰਤਕ ਭਾਗ ਨੂੰ ਪੜ੍ਹਾਉਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਵਾਰਤਕ ਪ੍ਰਤੀ ਦਿਲਚਸਪੀ, ਸੂਝ ਨੂੰ ਪੈਦਾ ਕਰਨਾ ਹੈ।

CO2:ਇਸ ਦਾ ਹੋਰ ਮਨੋਰਥ ਭਾਸ਼ਣ ਕਲਾ ਤੇ ਲਿਖਣ ਕਲਾ ਦੀ ਨਿਪੁੰਨਤਾ ਪੈਦਾ ਕਰਨਾ ਹੈ।

CO3:'ਸਾਹਿਤ ਦੇ ਰੰਗ' ਪੁਸਤਕ ਦੇ ਰੇਖਾ ਚਿੱਤਰ ਭਾਗ ਨੂੰ ਸਿਲੇਬਸ ਵਿਚ ਸ਼ਾਮਿਲ ਕਰ ਕੇ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਰੇਖਾ ਚਿੱਤਰ ਨੂੰ ਪੜ੍ਹਣ ਦੀ ਰੁਚੀ ਨੂੰ ਪੈਦਾ ਕਰਨਾ ਹੈ ਤੇ ਇਹਨਾਂ ਮਹਾਨ ਸ਼ਖ਼ਸੀਅਤਾਂ ਦੀ ਸਫ਼ਲਤਾ ਪਿੱਛੇ ਘਾਲੀਆਂ ਘਾਲਣਾਵਾਂ ਤੋ ਵਾਕਫ਼ ਕਰਵਾਉਂਦਿਆਂ ਜੀਵਨ ਸੇਧ ਪ੍ਰਦਾਨ ਕਰਨਾ ਹੈ।

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

CO5:ਸ਼ਬਦ ਬਣਤਰ ਅਤੇ ਸ਼ਬਦ ਰਚਨਾ ਪੜ੍ਹਣ ਨਾਲ ਵਿਦਿਆਰਥੀ ਇਸਦੇ ਮੁੱਢਲੇ ਸੰਕਲਪਾਂ ਨੂੰ ਆਧਾਰ ਬਣਾ ਕੇ ਇਹਨਾਂ ਸੰਕਲਪਾਂ ਤੋਂ ਜਾਣੂ ਹੋਣਗੇ ।

CO6: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।

CO7:ਅਖਾਣ ਅਤੇ ਮੁਹਾਵਰਿਆਂ ਦੀ ਵਰਤੋਂ ਨਾਲ ਗੱਲਬਾਤ ਵਿਚ ਪਰਪੱਕਤਾ ਆਉਂਦੀ ਹੈ।ਇਹ ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਗੱਲਬਾਤ ਵਿਚ ਨਿਖਾਰ ਲਿਆਉਣ ਦਾ ਕੰਮ ਕਰਨਗੇ।

SESSION 2020-21
Punjabi (Compulsory)

BACHELOR OF SCIENCE (HONOURS) PHYSICS
SEMESTER–II

COURSE CODE- BOPL-2421

ਸਮਾਂ : 3 ਘੰਟੇ **Maximum Marks: 50**
Theory : 40
CA :10

ਪਾਠ ਕ੍ਰਮ ਅਤੇ ਪਾਠ ਪੁਸਤਕਾਂ

ਯੂਨਿਟ-I

ਸਾਹਿਤ ਦੇ ਰੰਗ (ਸੰਪਾ.ਡਾ ਮਹਿਲ ਸਿੰਘ),ਭਾਗ ਦੂਜ਼ਾ(ਵਾਰਤਕ),ਰਵੀ ਸਾਹਿਤ ਪ੍ਰਕਾਸ਼ਨ,ਅੰਮ੍ਰਿਤਸਰ।
(ਲਾਲ ਬਾਦਸ਼ਾਹ,ਹਾਰ ਸ਼ਿੰਗਾਰ,ਡੂੰਘੀਆਂ ਸਿਖਰਾਂ ਲੇਖ ਪਾਠਕ੍ਰਮ ਦਾ ਹਿੱਸਾ ਨਹੀਂ ਹਨ)
(ਸਾਰ,ਵਿਸ਼ਾ ਵਸਤੂ)

08 ਅੰਕ

ਯੂਨਿਟ-II

ਸਾਹਿਤ ਦੇ ਰੰਗ (ਸੰਪਾ.ਡਾ ਮਹਿਲ ਸਿੰਘ),ਭਾਗ ਦੂਜਾ (ਰੇਖਾ ਚਿੱਤਰ),ਰਵੀ ਸਾਹਿਤ ਪ੍ਰਕਾਸ਼ਨ,ਅੰਮ੍ਰਿਤਸਰ।
(ਬਾਤਾਂ ਮੋਹਨ ਸਿੰਘ ਕੀਆਂ, ਗੁਲਾਬੀ ਕਾਗਜ਼ ਉਤੇ ਲਿਖੀ ਕਵੀਤਾ :ਸੰਤੋਖ ਸਿੰਘ ਧੀਰ,ਸਤਿੰਦਰ ਸਿੰਘ ਨੂਰ :ਸਾਹਿਤ ਦਾ ਜਥੇਦਾਰ ਰੇਖਾ ਚਿੱਤਰ ਪਾਠਕ੍ਰਮ ਦਾ ਹਿੱਸਾ ਨਹੀਂ ਹਨ)
(ਸਾਰ,ਵਿਸ਼ਾ ਵਸਤੂ)

08 ਅੰਕ

ਯੂਨਿਟ-III

(ੳ) ਮੁਹਾਵਰੇ
(ਅ) ਪੈਰ੍ਹਾ ਪੜ੍ਹ ਕੇ ਪਸ਼੍ਨਾਂ ਦੇ ਉਤਰ। 08 ਅੰਕ

ਯੂਨਿਟ-IV

(ੳ) ਸ਼ਬਦ ਸ਼੍ਰੇਣੀਆਂ : ਨਾਂਵ,ਪੜਨਾਂਵ,ਕਿਰਿਆ,ਵਿਸ਼ੇਸ਼ਣ
(ਅ) ਸ਼ਬਦ ਸ਼੍ਰੇਣੀਆਂ : ਕਿਰਿਆ ਵਿਸ਼ੇਸ਼ਣ,ਸੰਬੰਧਕ,ਯੋਜਕ,ਵਿਸਮਿਕ 08 ਅੰਕ

ਅੰਕ ਵੰਡ ਅਤੇ ਪਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

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

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

3. ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 08 ਅੰਕ ਹਨ।

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

SESSION 2020-21

BACHELOR OF SCIENCE (HONOURS) PHYSICS

SEMESTER–II

BASIC PUNJABI
In lieu of Punjabi (Compulsory)
COURSE CODE - BOPL-2031

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

SESSION 2020-21

BACHELOR OF SCIENCE (HONOURS) PHYSICS SEMESTER–II

BASIC PUNJABI

In lieu of Punjabi (Compulsory)

COURSE CODE - BOPL-2031

smW: 3 GMty **Maximum Marks: 50**

Theory : 40

CA : 10

ਪਾਠ ਕ੍ਰਮ

ਯੂਨਿਟ-I

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

08 ਅੰਕ

ਯੂਨਿਟ-II

ਪੰਜਾਬੀ ਵਾਕ ਬਣਤਰ : ਮੁੱਢਲੀ ਜਾਣ ਪਛਾਣ

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

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

08 ਅੰਕ

ਯੂਨਿਟ-III

ਪੈਰ੍ਹਾ ਰਚਨਾ

ਸੰਖੇਪ ਰਚਨਾ 08 ਅੰਕ

ਯੂਨਿਟ-IV

ਚਿੱਠੀ ਪੱਤਰ (ਘਰੇਲੂ ਅਤੇ ਦਫ਼ਤਰੀ)

ਮੁਹਾਵਰੇ 08 ਅੰਕ

ਅੰਕ ਵੰਡ ਅਤੇ ਪਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

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

2. ਵਿਦਿਆਰਥੀ ਨੇ ਕੁਲ ਪੰਜ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹਨ। ਹਰ ਸੈਕਸ਼ਨ ਵਿਚੋਂ ਇਕ ਪ੍ਰਸ਼ਨ ਲਾਜ਼ਮੀ ਹੈ। ਪੰਜਵਾਂ ਪ੍ਰਸ਼ਨ ਕਿਸੇ ਵੀ ਸੈਕਸ਼ਨ 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।

Bachelor of Science (Honours) Physics
(Semester-II)
Session 2020-21
Course Title: Punjab History and Culture (C. 320 to 1000 B.C.)
(Special paper in lieu of Punjabi Compulsory)
(For those students who are not domicile of Punjab)

Course Code: BOPL-2431

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

Bachelor of Science (Honours) Physics

(Semester-II)
Session 2020-21
Course Title: Punjab History and Culture (C. 320 to 1000 B.C.)
(Special paper in lieu of Punjabi Compulsory)
(For those students who are not domicile of Punjab)

Course Code- BOPL-2431

Examination Time: 3 Hours **Max. Marks: 50**
Theory: 40

CA: 10

Instructions for the Paper Setter:

4. **Question paper shall consist of four Units**
5. **Examiner shall set 8 questions in all by selecting Two Questions of equal marks from each Unit.**
6. **Candidates shall attempt 5 questions in 600 words, by at least selecting One Question from each Unit and the 5th question may be attempted from any of the four Units.**
7. **Each question will carry 8 marks**

Unit-I

1. Alexander's Invasion's and Impact
2. Administration of Chandragupta Maurya and Ashoka.

Unit-II

3. The Kushans: Gandhar School of Art .
4. Gupta Empire: Golden period (Science , Art and Literature)

Unit-III

5. The Punjab under the Harshvardhana
6. Socio-cultural History of Punjab from 7th to 1000 A.D.

UNIT IV

7. Development of Languages and Education with Special reference to Taxila
8. Development to Art and Architecture

Suggested Readings

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

BACHELOR OF SCIENCE (HONURS) PHYSICS (SESSION 2020-21)

Session 2020-21

COMMUNICATION SKILLS IN ENGLISH

Course Code: BOPL-2102

COURSE OUTCOMES

At the end of this course, the students will develop the following skills:

CO 1: Enhancement of listening skills with the help of listening exercises based on conversation, news and TV reports

CO 2: Improvement of speaking skills enabling them to converse in a specific situation

CO 3: Acquisition of knowledge of phonetics which will help them in learning about correct pronunciation as well as effective speaking

CO 4: The capability to present themselves well in a job interview

CO 5: The ability of Note-Taking to be able to distinguish the main points from the supporting details and the irrelevant information from the relevant one

CO 6: Speaking skills of the students enabling them to take active part in group discussion and present their own ideas

CO 7: The capability of narrating events and incidents in a logical sequence

BACHELOR OF SCIENCE (HONURS) PHYSICS (SESSION 2020-21)

Session 2020-21

COMMUNICATION SKILLS IN ENGLISH

Course Code: BOPL-2102

Time: 3 hours (Theory) Max. Marks: 50

3 hours (Practical) Theory: 25

Practical: 15

Continuous Assessment: 10

Instructions for the paper setters and distribution of marks:

The question paper will consist of four sections and distribution of marks will be as under:

Section-A: Two questions of theoretical nature will be set from Unit I of the syllabus and the candidates will have to attempt one carrying 5 marks.

Section-B: Two questions will be set from Unit II of the syllabus. Candidates will have to attempt one carrying 5 marks.

Section-C: Two questions will be set from Unit III of the syllabus. Candidates will have to attempt one carrying 5 marks.

Section-D: Two questions will be set from Unit IV of the syllabus. Candidates will have to attempt one carrying 5 marks.

Important Note:

The candidate will have to attempt five questions in all selecting one from each section of the question paper and the fifth question from any of the four sections.

(5 x 5 = 25)

Course Contents:

Unit I

Listening Skills: Barriers to listening; effective listening skills; feedback skills.

Activities: Listening exercises – Listening to conversation, News and TV reports

Unit II

Attending telephone calls; note taking and note making

Activities: Taking notes on a speech/lecture

Unit III

Speaking and Conversational Skills: Components of a meaningful and easy conversation, understanding the cue and making appropriate responses, forms of polite speech, asking and providing information on general topics

Activities: 1) Making conversation and taking turns

2) Oral description or explanation of a common object, situation or concept

Unit IV

The study of sounds of English, stress Situation based

Conversation in English Essentials of Spoken English

Activities: Giving Interviews

Recommended Books:

1. Oxford Guide to Effective Writing and Speaking by John Seely.

2. Business Communication by Sethi, A and Adhikari, B., McGraw Hill Education 2009.

3. Communication Skills by Raman, M. & S. Sharma, OUP, New Delhi, India (2011).

4. A Course in Phonetics and Spoken English by J. Sethi and P.V. Dhamija, Phi Learning.

PRACTICAL / ORAL TESTING

Time: 3 hours Marks: 15

Course Contents:

1. Oral Presentation with/without audio visual aids

2. Group Discussion

3. Listening to any recorded or live material and asking oral questions for listening comprehension

Questions:

1. Oral Presentation will be of 5 to 7 minutes duration. (Topic can be given in advance or it can be of student's own choice). Use of audio-visual aids is desirable.

2. Group discussion comprising 8 to 10 students on a familiar topic. Time for each group will be 15 to 20 minutes.

BACHELOR OF SCIENCE (HONURS) PHYSICS (SESSION 2020-21)
Semester II

Course Outcome of ELECTRICITY & MAGNETISM-II

Course No. BOPL-2393

After passing this course, students will be able to:

CO1: understand source of magnetic field and application of BiotSavart's Law and Ampere's circuital law in different situations.

CO2: understand different type of magnetic materials and their characteristics.

CO3: understand the Faraday's Law of electromagnetic induction and LCR circuits.

CO4: derive Maxwell equations and their applications in propagation of e.m. waves in conductors and insulators.

BACHELOR OF SCIENCE (HONURS) PHYSICS (SESSION 2020-21)
SEMESTER-II

COURSE CODE: BOPL-2393

ELECTRICITY AND MAGNETISM-II

Maximum Marks: 75 (External 60 + Internal 15) **Examination Time: 3 Hours**
Pass Marks: 21 **Total Teaching hours: 60**

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

Magnetostatic : Magnetic fields, magnetic forces, magnetic force on a current carrying wire. Torque on a current loop, Biot-Savart law. Magnetic Field due to infinite wire carrying steady current, field of rings and coils. Magnetic field due to a solenoid, Force on parallel current carrying wires. Ampere's circuital law and its applications to infinite hollow cylinder, solenoid and toroid. The divergence and curl of magnetic induction, Comparison of magneto statics and electrostatics. Magnetic vector potential and its expression. Surface current density and Change in magnetic field at a current sheet. Hall Effect.

Unit-II

Magnetic Fields in Matter: some important terms associated with magnetic materials, Field of a current loop, force on magnetic dipole in a an external field, torque on current loop, potential energy of magnetic dipole, Electric currents in atoms, electron spin and magnetic moment, free and bound currents, magnetization and magnetic susceptibility, Magnetic field caused by magnetized matter,. Basics about diamagnetism paramagnetism and ferromagnetism, hysteresis curve.

Unit-III

Faraday's law and Maxwell's equations: Electromagnetic Induction, Faraday's Induction Experiments, Faraday's Laws of Electromagnetic Induction (Integral And Differential Forms),Lenz's law, Self-Induction, Expression for Self Induction : Neumann's Formula, . Self-Inductance of a Solenoid and a Toroidal, Energy Stored in an Inductor, Mutual Induction, Expression for Coefficient of Mutual Induction and Reciprocity theorem, Mutual Inductance of two Solenoids, Inductive Coupling of Electrical Circuits, Modification of Ampere's Law and the Displacement Current, Maxwell's Equation of Electromagnetism, Series and Parallel LCR Circuits, Average Power Associated with LCR Circuit

Unit-IV

Plane Electromagnetic Waves: Production of em waves, EM wave spectrum, EM wave equation for a medium having finite μ and ε but $\sigma = 0$, Nature of em waves, Wave equation for polarized em waves and their solutions, Relation between electric and magnetic field vectors an em wave, Impedance of a dielectric to em waves, The Poynting vector and flow of energy in an em wave, Equation of continuity, EM waves for a medium having finite values of μ and ε but $\sigma \neq 0$, Solution of

wave equation for a conducting medium, Skin depth, EM wave velocity and wave dispersion in a conductor, Behaviour of a medium as a conductor or dielectric, Characteristic impedance of a conducting medium to em waves, magnetic and electric energy densities, Poynting vector and Equation of Continuity for a Conducting medium, Reflection and transmission of em waves at the boundary (Normal and Oblique incidence).

Text and Reference Books:

1. Introduction to Electrodynamics by David J. Griffiths, Pearson Prentice Hall of India

2. Electricity & Magnetism, Berkeley Physics Course Vol. 2 by E.M. Purcell, McGraw Hill, New York

3. Physics of Waves and Vibrations- H. J. Pain, John Wiley and Sons Ltd.

BACHELOR OF SCIENCE (HONURS) PHYSICS (SESSION 2020-21)
Semester II

Course Outcomes: Vibrations and Waves

Course No. BOPL-2394

After passing this course the student will be able to:

CO1: demonstrate Lissajous figures by mechanical and analytical method with different cases.

CO2: understand Free, damped and resonance oscillations, both mechanical and electric using differential equations.

CO3: solve differential equation of forced oscillations & to obtain related quantities.

CO4: understand concept of coupled oscillators and wave motion. Student will also be able to apply the concept of waves and oscillations to any type of waves like e. m. waves, mechanical waves.

BACHELOR OF SCIENCE (HONURS) PHYSICS (SESSION 2020-21)
SEMESTER-II

COURSE CODE: BOPL-2394

VIBRATIONS AND WAVES

Maximum Marks: 75 (External 60 + Internal 15) **Examination Time: 3 Hours**
Pass Marks: 21 **Total Teaching hours: 60**

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

Simple and Damped Oscillations: Simple Harmonic Motion, energy of SHO, Compound pendulum, Torsional pendulum, Equation of SHM, Superposition of two perpendicular SHM, Lissajous figures–superposition of many SHM's, complex number notation and use of exponential series. Damped motion of mechanical and electrical oscillator, heavy damping, critical damping. Energy dissipation and energy of damped oscillator, amplitude decay, logarithmic decrement, relaxation time, Q value, comparison between Free and Damped oscillations

Unit-II

Forced Oscillations: Differential equation of forced mechanical oscillator**,** Transient and steady state behaviour of a forced oscillator, Variation of displacement and velocity with frequency of driving force, frequency dependence of phase angle between force and (a)displacement, (b) velocity, Power supplied to oscillator by driving force and its variation with driving force frequency, Resonance absorption and Q-value as a measure of power absorption bandwidth, Q-value as amplification factor, Forced electrical oscillator, Variation of current with frequency, Variation of power supplied with frequency of applied voltage, Q factor as amplification factor.

Unit-III

Coupled Oscillations: Stiffness coupled oscillators, In phase and Out phase modes, normal co-ordinates and normal modes of vibration, solutions for differential equations for normal modes and exchange of energy, inductance coupling of electrical oscillators, loose, intermediate and strong coupling, energy exchange between two electrically coupled oscillators.

Unit-IV

Wave Motion: Types of wave motion**,** The wave equation, transverse waves on a string, the string as a forced oscillator, characteristic impedance of a string, reflection and transmission

of transverse waves on a string at a boundary, Energy of a progressive wave, impedance matching, standing waves on a string of fixed length, Energy of a vibrating string, normal modes and eigen frequencies. Energy in a normal mode of oscillation, wave groups, group velocity, dispersive and non-dispersive media, longitudinal waves.

Reference Books:

1. The Physics of Vibrations and Waves by H.J. Pain, John Wiley, Chichester

2. Vibrations and Waves in Physics by I.G. Main-Cambridge University, Cambridge

BACHELOR OF SCIENCE (HONURS) PHYSICS (SESSION 2020-21)

Semester–II

Course Title: Mathematics-II

Course Code: BOPL-2335

Course outcomes

After the completion of this course, students should be able to

CO 1: Manage to solve problems related to series solution of Bessel, Legendre and Hermite functions.

CO 2: Understand the concept of Partial differential equations& its applications to find the solution of Laplace, Wave & Diffusions equations.

CO 3: Apply Laplace transforms on periodic functions and differential equations with constant coefficients.

CO 4: Differentiate between Fourier Sine & Cosine series and Fourier Sine & Cosine transforms.

CO 5: Classify the difference between Laplace transforms and Fourier transforms.

BACHELOR OF SCIENCE (HONURS) PHYSICS (SESSION 2020-21)
SEMESTER-II
COURSE CODE: BOPL-2335
MATHEMATICS-II

Maximum Marks: 50 (External 40 + Internal 10) **Examination Time: 3 Hours**
Pass Marks: 18 **Total Teaching hours: 60**

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

Second order Differential Equations: Linear differential equations with variable coefficients. Series Solution of Bessel, Legendre, Hermite, Laguerre and Hypergeometric differential equations by Frobenius method. Recurrence relations and orthogonality properties.

15 Lectures

UNIT –II

Partial Differential Equations: Definition and formation of first and second order partial differential equations, Laplace, Wave and diffusion equation in one and two dimensions, Solutions of these equations by separation of variables.

15 Lectures

UNIT –III

Laplace Transforms: Definition, elementary Laplace transforms, transforms of derivatives, integration of transforms, Laplace transform of periodic functions, solution of differential equations with constant coefficients using Laplace transforms.

15 Lectures

UNIT –IV

Fourier series and Transforms: Periodic functions, Drichlet's conditions, Fourier coefficients, Sine and Cosine series, half range expansions, exponential series, differentiation and integration of Fourier transform, Fourier Sine and Cosine transforms, Inversion formulae, Fourier transforms of derivatives.

15 Lectures

Text Book:

1. Mathematical Methods for Physicists by George Arfken, New York, Academic Press

Reference Books:

1. Mathematics Hand book by M. Vygodsky, Mir, Moscow
2. Higher Engineering Mathematics by B.S. Grewal, Delhi, Khanna
3. Applied Mathematics for Engineers and Physicists by Pipes &Harvill, London, McGraw Hill
4. Mathematics of Physics and Modern Engineering by Sokolnikoff & Recheffer

BACHELOR OF SCIENCE (HONURS) PHYSICS (SESSION 2020-21)

(Semester-II)

COURSE CODE: BOPL-2086

Chemistry-II

(Theory)

Course outcomes:

Students will be able to

CO1: understand the key features of coordination compounds viz. variety of structures, oxidation numbers and electronic configurations, coordination numbers and explain the bonding and stability of complexes.

CO2: describe the shapes and structures of coordination complexes with coordination numbers ranging from 4 to 12.

CO3: describe the stability of metal complexes by the use of formation constants.

CO4: understand the splitting of d-orbitals in octahedral, tetrahedral, cubic and square planar fields of ligands.

CO5: calculate C.F.S.E. of high spin and low spin octahedral and high spin tetrahedral complexes.

CO6: explain thermodynamic effects of crystal field splitting and determine microstate and ground state terms.

CO7: draw MOEL diagram for octahedral and tetrahedral complexes.

CO8: explain bonding in polynuclear metal carbonyls and counting of electrons in carbonyl clusters.

CO9: describe the effect of macrocyclic ligands on anion and cation complex structure.

BACHELOR OF SCIENCE (HONURS) PHYSICS (SESSION 2020-21)
SEMESTER-II

COURSE CODE: BOPL-2086

CHEMISTRY-II

Maximum Marks: 50 (External 40 + Internal 10) **Examination Time: 3 Hours**
Pass Marks: 18 **Total Teaching hours: 60**

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 Co-ordination Chemistry: Introduction, Werner's coordination theory, naming of co-ordinate complexes. Co-ordination numbers 1-12 and their stereo-chemistries. Factors affecting co-ordination numbers and stereo-chemistry
(a) Configurational Isomers (b) Conformational isomerism, VSPER theory, molecular orbital theory applied to homoneuclear diatomic molecules and heteronuclear Diatomic molecules.

Bonding in metal complexes: Valence bond theory for co-ordinate complexes, inner and outer orbital complexes, Electro-neutrality and back bonding, limitations of V.B. theory. **Stability of coordination compounds:** Introduction, Stability constant, stepwise stability constant, overall stability constant. Factors affecting the stability of metal ion complexes with general ligands, HSAB principle.

UNIT-II Crystal field theory: Splitting of d-orbitals in octahedral, tetrahedral, cubic and square planer fields of ligands. Calculation of C.F.S.E. in high spin and low spin octahedral and High spin tetrahedral complexes, factors affecting the 10 Dq Value. Structural effects of crystal field splitting (Jahn-Teller distortion, variation of Ionic radii with increase in atomic number). Thermodynamics effects of C.F. splitting, variation in lattice energies, Hydration energies, Dissociation energies, Formation constants of hexammines. Site selection in spinels, Paramagnetism, diamagnetism, ferro and anti-ferromagnetism. Microstates and spectroscopic terms, a calculation of spectroscopic terms for d1 electronic configurations, L S coupling, Hund‟s rule for finding the ground state terms, Electronic spectral properties of Ist transition series, limitations of C.F.T.

UNIT-III Molecular Orbital Theory: Evidence for covalent character in Bonding, MOEL diagram for octahedral and tetrahedral complexes involving bonding, charge transfer transitions.
πAcid Ligands: Definition Carbon monoxide complexes, bonding in linear MCO groups, polynuclear metal carbonyls, carbonyl hydrides and halides. Metal-metal bonding metal-metal multiple bonding , isolable analogies, Structure of high nuclearity carbonyl clusters, counting of electrons in carbonyl clusters.

UNIT-IV Alkali metal and alkaline earth metal chelators: Macrocyclic ligands, macrocyclic effect, crown ethers and podands, coronands, cryptands, structure of 18 crown-6

complex with KNCS, ion cavity complex, effect of anion and cation type on complex structure, simultaneous complexation of metal ion and water or of two metal ions, sandwich formation, cryptands and their cation complexes, podands with aromatic donors and groups.

Text and Reference Books:

1. Inorganic Chemistry, 3rd Ed. By J.E. Huheey
2 Advanced Inorganic Chemistry by . F.A. Cotton and G. Wilkinson
3. Concepts and Models of Inorganic Chemistry by B.E. Douglas and D.H. McDaniel
4. Topics in current chemistry Vol-II by R. Hilgenfeld and W. Saengar

BACHELOR OF SCIENCE (HONURS) PHYSICS (SESSION 2020-21)

PHYSICS LAB-II

Course No. BOPP-2397

COURSE OUTCOMES

CO1: Students will be able to study resonance in series & parallel LCR circuit.

CO2: At the end of this course, students will be able to find the value of capacitor, coefficient of self-inductance, permeability & permittivity of air.

CO3: 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.

CO4: Students will be able to verify various concepts related to oscillations of various pendulums and laws of vibrations of strings.

BACHELOR OF SCIENCE (HONURS) PHYSICS (SESSION 2020-21)
SEMESTER-II

COURSE CODE: BOPL-2397

PHYSICS LAB-II

Maximum Marks: 50 (External 40 + Internal 10) **Examination Time: 3 Hours**
Pass Marks: 18 **Total Teaching hours: 90**

General Guidelines for Practical Examination

I. The distribution of marks is as follows:

i) One experiment 20 Marks **ii) Brief Theory 6 Marks**

iii) Viva–Voce 7 Marks **iv) Record (Practical file) 7 Marks**

II. There will be one sessions of 3 hours duration. The paper will have one session and 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 be allotted to more than three examinee in any group.

1. To study the magnetic field produced by a current carrying solenoid using a search coil and calculate permeability of air.
2. To study the induced e.m.f. as a function of the velocity of the magnet.
3. To study the phase relationships using impedance triangle for LCR circuit and calculate impedance.
4. Resonance in a series and parallel LCR circuits for different R–value and calculate Q–value.
5. To determine low resistance with Carey-Foster's Bridge.
6. To measure the self-inductance L of a given coil by Anderson Bridge method.
7. To find the value of BH, the horizontal component of ear using a deflection & vibration magnetometer.
8. To study the variation of magnetic field with distance along the axis of coil carrying current by plotting a graph.
9. To plot a graph between the distance of the knife edge from the centre of gravity and the time period of a compound pendulum from graph find (a) acceleration due to gravity, (b) the radius of gyration and moment of inertia about an axis passing through centre of gravity.
10. To determine the acceleration due to gravity by Kater's Pendulum.
11. To verify the laws of vibrating string by using Meldes apparatus and to show that /2 λ is constant.
12. To measure logarithmic decrement, coefficient of damping, relaxation time and quality factor of a damped simple pendulum.

Reference Books:

1. Practical Physics by C.L. Arora, S. Chand & Co.

BACHELOR OF SCIENCE (HONURS) PHYSICS (SESSION 2020-21)

(Semester-II)

COURSE CODE: BOPP-2088

Chemistry Lab-II

(Practical)

Course outcomes:

Students will be able to

CO1: separate and identify the various ions present in the mixture.

CO2: detect and remove interfering radicals present in the mixture.

CO3: understand the principle of inorganic qualitative analysis.

BACHELOR OF SCIENCE (HONURS) PHYSICS (SESSION 2020-21)
SEMESTER-II

COURSE CODE: BOPL-2088

CHEMISTRY LAB-II

Maximum Marks: 50 (External 40 + Internal 10) **Examination Time: 3 Hours**
Pass Marks: 18 **Total Teaching hours: 60**

Qualitative Analysis

Identification of cations and anions in a mixture which may contain combinations of acid ions. These must contain interfering acid anions and one, the insoluble.

a) Special Tests for Mixture of anions

I. Carbonate in the presence of sulphate.
II. Nitrate in the presence of nitrite
III. Nitrate in the presence of bromide and iodide.
IV. Chloride in the presence of bromide and iodide.
V. Chloride in the presence of bromide.
VI. Chloride in the presence of iodide.
VII. Bromide and iodide in the presence of each other and of chloride.
VIII. Sulphide, sulphite, thiosulphate and sulphate in the presence of each other.
IX. Borate in the presence of copper and barium salts.

b) Separation and identification of cations in mixtures

i) Separation of cations in groups.
ii) Separation and identification of Group I, Group II ,Group III, Group IV, Group V and Group VI cations.

Reference Books:

1. Vogel's Qualitative Inorganic Analysis (revised) by G. Svehla, and B. Sivasankar, Pearson
2. Vogel's Textbook of Quantitative Inorganic Analysis (revised) by R. C. Bassett, G. H. Denney,and J. Jeffery, Mendham
3. Vogel's book on Inorganic Qualitative Analysis

BACHELOR OF SCIENCE (HONURS) PHYSICS (SESSION 2020-21)
SEMESTER-II

Course title: Moral Education Programme

Course duration: 30 hours

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