FACULTY OF LIFE SCIENCES

Syllabus for

Bachelor of Science (Honours) (Medical Laboratory Technology)

Semester: I-IV

(Under Credit Based Continuous Evaluation Grading System)

(Session: 2025-26)

Kanya Maha Vidyalaya, Jalandhar (Autonomous)

The Heritage Institution

KANYA MAHAVIDYALAYA, JALANDHAR (AUTONOMOUS)

SCHEME AND CURRICULUM OF EXAMINATIONS OF FOUR-YEAR DEGREE PROGRAMME

(Session: 2025-26)

Bachelor of Science (Honours) (Medical Laboratory Technology) Semester -I											
Course Code	**Course Title**	**Course Type**	**Total Credits**	**Credit Hours**			**Total Marks**	**Marks**			**Exam Time in Hrs**
				L	**T**	**P**		**L**	**P**	**CA**	
BMLL-1421 BMLL-1031 BMLL-1431	Punjabi (Compulsory) [1]Basic Punjabi [2]Punjab History and Culture	C	4-0-0	4	-	-	100	70	-	30	3
BMLM-1102	Communication Skills in English-I	AEC	3-0-1	3	-	2	100	50	20	30	3
BMLL-1483	Basics of Human Physiology-I	DSC	3-0-0	3	-	-	100	70	-	30	3
BMLP-1483	Basics of Human Physiology-I Lab	DSC	0-0-2	-	-	4	50	-	35	15	3
BMLL-1484	Basics of Human Anatomy -I	DSC	3-0-0	3	-	-	100	70	-	30	3
BMLP-1484	Basics of Human Anatomy –I Lab	DSC	0-0-2	-	-	4	50	-	35	15	3
BMLL-1485	Principles of Biochemistry	DSC	3-0-0	3	-	-	100	70	-	30	3
BMLP-1485	Principles of Biochemistry Lab	DSC	0-0-2	-	-	4	50	-	35	15	3
VACF-1491	*Foundation Course	VAC	2-0-0	2	-	-	50	35	-	15	1
Total Credits			25	Total marks			700				

1 Special paper in lieu of Punjabi (Compulsory).
2 Special paper in lieu of Punjabi (Compulsory) for those students who are not domicile of Punjab.
***Credits of these papers will not be added in SGPA/CGPA and only grades will be provided.**
C- Compulsory
VAC- Value Added Course
DSC- Discipline Specific Course
AEC- Ability Enhancement Course

KANYA MAHAVIDYALAYA, JALANDHAR (AUTONOMOUS)

SCHEME AND CURRICULUM OF EXAMINATIONS OF FOUR-YEAR DEGREE PROGRAMME

(Session: 2025-26)

Bachelor of Science (Honours) (Medical Laboratory Technology) Semester -II											
Course Code	**Course Title**	**Course Type**	**Total Credits**	**Credit Hours**			**Total Marks**	**Marks**			**Exam Time in Hrs**
				L	**T**	**P**		**L**	**P**	**CA**	
BMLL-2421 BMLL-2031 BMLL-2431	Punjabi (Compulsory) [1]Basic Punjabi [2]Punjab History and Culture	C	4-0-0	4	-	-	100	70	-	30	3
BMLM-2102	Communication Skills in English-II	MDC	3-0-1	3	-	2	100	50	20	30	3
BMLL-2483	Hematology-I	DSC	3-0-0	3	-	-	100	70	-	30	3
BMLP-2483	Hematology-I Lab	DSC	0-0-2	-	-	4	50	-	35	15	3
BMLL-2484	Basics of Human Physiology-II	DSC	3-0-0	3	-	-	100	70	-	30	3
BMLP-2484	Basics of Human Physiology-II Lab	DSC	0-0-2	-	-	4	50	-	35	15	3
BMLL-2485	Basics of Human Anatomy-II	DSC	3-0-0	3	-	-	100	70	-	30	3
BMLP-2485	Basics of Human Anatomy-II Lab	DSC	0-0-2	-	-	4	50	-	35	15	3
BMLM-2130	Fundamentals of Data Analytics	SEC	2-0-1	2	-	2	100	40	30	30	3+3
VACD-2161	*Drug Abuse and Ethical Education	VAC	4-0-0	4	-	-	100	70	-	30	3
Total Credits			30	Total marks			850				

1 Special paper in lieu of Punjabi (Compulsory).
2 Special paper in lieu of Punjabi (Compulsory) for those students who are not domicile of Punjab.
***Credits of these papers will not be added in SGPA/CGPA and only grades will be provided.**
C-Compulsory
VAC- Value Added Course
DSC- Discipline Specific Course
SEC- Skill Enhancement Course
MDC- Multi Disciplinary Course

KANYA MAHAVIDYALAYA, JALANDHAR (AUTONOMOUS)

SCHEME AND CURRICULUM OF EXAMINATIONS OF FOUR-YEAR DEGREE PROGRAMME

(Session: 2025-26)

Bachelor of Science (Honours) (Medical Laboratory Technology) Semester -III											
Course Code	**Course Title**	**Course Type**	**Total Credits**	**Credit Hours**			**Total Marks**	**Marks**			**Exam Time in Hrs**
				L	**T**	**P**		**L**	**P**	**CA**	
BMLL-3481	Hematology- II	DSC	3-0-0	3	-	-	100	70	-	30	3
BMLP-3481	Hematology- II Lab	DSC	0-0-2	-	-	4	50	-	35	15	3
BMLL- 3482	Pathology- I	DSC	3-0-0	3	-	-	100	70	-	30	3
BMLP-3482	Pathology-I Lab	DSC	0-0-2	-	-	4	50	-	35	15	3
BMLL-3483	Clinical Biochemistry-I	DSC	3-0-0	3	-	-	100	70	-	30	3
BMLP-3483	Clinical Biochemistry-I Lab	DSC	0-0-2		-	4	50	-	35	15	3
BMLL-3064	Introduction to Bacteriology and Virology	DSC	3-0-0	3	-	-	100	70	-	30	3
BMLP-3064	Introduction to Bacteriology and Virology Lab	DSC	0-0-1	-	-	2	50	-	35	15	3
BMLL-3065	Basics of Microbiology-I	DSC	3-0-0	3	-	-	100	70	-	30	3
BMLP-3065	Basics of Microbiology-I Lab	DSC	0-0-1	-	-	2	50	-	35	15	3
VACE- 3221	*Environmental Studies (Compulsory)	VAC	2-0-0	2	-	-	50	35	-	15	3
VACG-3532	*Gender Sensitization	VAC	2-0-0	2	-	-	50	35	-	15	1
	Total Credits		27	Total marks			850				

***Credits of these papers will not be added in SGPA/CGPA and only grades will be provided.**
DSC- Discipline Specific Course
VAC- Value Added Course

KANYA MAHAVIDYALAYA, JALANDHAR (AUTONOMOUS)

SCHEME AND CURRICULUM OF EXAMINATIONS OF FOUR-YEAR DEGREE PROGRAMME

(Session: 2025-26)

Bachelor of Science (Honours) (Medical Laboratory Technology) Semester -IV											
Course Code	**Course Title**	**Course Type**	**Total Credits**	**Credit Hours**			**Total Marks**	**Marks**			**Exam Time in Hrs**
				L	**T**	**P**		**L**	**P**	**CA**	
BMLL-4481	Hematology-III	DSC	3-0-0	3	-	-	100	70	-	30	3
BMLP-4481	Hematology-III Lab	DSC	0-0-2	-	-	4	50	-	35	15	3
BMLL-4482	Pathology-II	DSC	3-0-0	3	-	-	100	70	-	30	3
BMLP-4482	Pathology-II Lab	DSC	0-0-2	-	-	4	50	-	35	15	3
BMLL-4483	Clinical Biochemistry-II	DSC	3-0-0	3	-	-	100	70	-	30	3
BMLP-4483	Clinical Biochemistry-II Lab	DSC	0-0-2	-	-	4	50	-	35	15	3
BMLL-4064	Basics of Microbiology-II	DSC	3-0-0	3	-	-	100	70	-	30	3
BMLP-4064	Basics of Microbiology-II Lab	DSC	0-0-1	-	-	2	50	-	35	15	3
BMLL-4485	Immunology-I	MDC	3-0-0	3	-	-	100	70	-	30	3
BMLP-4485	Immunology-I Lab	MDC	0-0-1	-	-	2	50	-	35	15	3
BMLL-4320	Entrepreneurship and Small Business	SEC	3-0-0	3	-	-	100	70	-	30	3
VACM-4502	*Moral Education	VAC	2-0-0	2	-	-	50	35	-	15	1
Total Credits			28	Total marks			900				

***Credits of these papers will not be added in SGPA/CGPA and only grades will be provided.**
DSC- Discipline Specific Course
VAC- Value Added Course
MDC- Multi Disciplinary Course
SEC- Skill Enhancement Course

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–I
(Session: 2025-26)
Course Title: Punjabi (Compulsory)
Course Code-BMLL-1421

COURSE OUTCOMES

CO1: ਸਰਵੋਤਮ ਪੰਜਾਬੀ ਕਵਿਤਾ ਤੇ ਕਹਾਣੀ ਪੁਸਤਕ ਦੇ 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।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: ਮੰਚ ਘਰ ਪੁਸਤਕ ਨੂੰ ਸਿਲੇਬਸ ਵਿਚ ਸ਼ਾਮਿਲ ਕਰ ਕੇ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਪੜ੍ਹਣ ਦੀ ਰੁਚੀ ਨੂੰ ਪੈਦਾ ਕਰਨਾ ਹੈ ਅਤੇ ਮੁੱਲਵਾਨ ਗਿਆਨ ਦੇਣਾ ਹੈ।

CO3: ਪੈਰ੍ਹਾ ਰਚਨਾ ਅਤੇ ਪੈਰ੍ਹਾ ਪੜ੍ਹ ਕੇ ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਉਤਰ ਦੇਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਬੁੱਧੀ ਨੂੰ ਤੀਖਣ ਕਰਦਿਆਂ ਉਨਾਂ ਦੀ ਲਿਖਣ ਪ੍ਰਤਿਭਾ ਨੂੰ ਉਜਾਗਰ ਕਰਨਾ ਹੈ।

CO4: ਭਾਸ਼ਾ ਵੰਨਗੀਆਂ:ਭਾਸ਼ਾ ਦਾ ਟਕਸਾਲੀ ਰੂਪ, ਭਾਸ਼ਾ ਅਤੇ ਉਪਭਾਸ਼ਾ ਵਿਚਲਾ ਅੰਤਰ, ਪੰਜਾਬੀ ਉਪਭਾਸ਼ਾਵਾਂ ਦੇ ਪਛਾਣ ਚਿੰਨ੍ਹ, ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਨਿਕਾਸ ਤੇ ਵਿਕਾਸ ਪੜ੍ਹਣ ਨਾਲ ਵਿਦਿਆਰਥੀ ਧੁਨੀਆਂ ਦੀ ਉਚਾਰਨ ਪ੍ਰਣਾਲੀ ਤੋਂ ਵਾਕਫ਼ ਹੋਣਗੇ।

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–I
(Session: 2025-26)
Course Title: Punjabi (Compulsory)
Course Code-BMLL-1421

Time : 3 Hours | **Maximum Marks: 100**
Credits: 4-0-0 | **Theory: 70**
CA: 30

ਅੰਕ ਵੰਡ ਅਤੇ ਪਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

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

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

3. ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 14 ਅੰਕ ਹਨ।

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

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪਾਠ ਪੁਸਤਕਾਂ

ਯੂਨਿਟ-I

ਸਰਵੋਤਮ ਪੰਜਾਬੀ ਕਵਿਤਾ ਤੇ ਕਹਾਣੀ (ਸੰਪਾ. ਡਾ. ਰਮਿੰਦਰ ਕੌਰ, ਡਾ. ਮੇਘਾ ਸਲਵਾਨ) ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ, ਅੰਮ੍ਰਿਤਸਰ। (ਕਵਿਤਾ ਭਾਗ)

(ਕਵਿਤਾ ਦੀ ਪ੍ਰਸੰਗ ਸਹਿਤ ਵਿਆਖਿਆ/ਵਿਸ਼ੇਵਸਤੂ/ਸਾਰ)

ਯੂਨਿਟ-II

ਮੰਚ ਘਰ

ਡਾ. ਕੁਲਦੀਪ ਸਿੰਘ ਧੀਰ, ਡਾ. ਹਿਰਦੇਜੀਤ ਸਿੰਘ ਭੋਗਲ (ਸੰਪਾ.), ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ,ਅੰਮ੍ਰਿਤਸਰ।

(ਵਿਸ਼ਾ ਵਸਤੂ,ਸਾਰ, ਪਾਤਰ ਚਿਤਰਨ)

ਯੂਨਿਟ-III

(ਓ) ਪੈਰ੍ਹਾ ਰਚਨਾ

(ਅ) ਪੈਰ੍ਹਾ ਪੜ੍ਹ ਕੇ ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਉਤਰ।

ਯੂਨਿਟ-IV

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

(ਅ) ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਨਿਕਾਸ ਤੇ ਵਿਕਾਸ

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–I
(Session: 2025-26)
Course Title: Basic Punjabi
In lieu of Punjabi(Compulsory)
Course Code - BMLL -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। ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੈਂਤੀ ਅੱਖਰੀ, ਅੱਖਰ ਕ੍ਰਮ, ਪੈਰ ਬਿੰਦੀ ਵਾਲੇ ਵਰਣ ਅਤੇ ਪੈਰ ਵਿਚ ਪੈਣ ਵਾਲੇ ਵਰਣ ਅਤੇ ਮਾਤਰਾਵਾਂ (ਮੁੱਢਲੀ ਜਾਣ ਪਛਾਣ) ਲਗਾਖ਼ਰ (ਬਿੰਦੀ, ਟਿੱਪੀ, ਅੱਧਕ) ਦੀ ਪਛਾਣ ਅਤੇ ਵਰਤੋਂ ਤੋਂ ਜਾਣੂ ਕਰਵਾਇਆ ਜਾਵੇਗਾ।

CO2: ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਸ਼ਬਦ ਬਣਤਰ ਦੀ ਮੁੱਢਲੀ ਜਾਣ ਪਛਾਣ (ਸਾਧਾਰਨ ਸ਼ਬਦ, ਸੰਯੁਕਤ ਸ਼ਬਦ, ਮਿਸ਼ਰਤ ਸ਼ਬਦ,ਮੂਲ ਸ਼ਬਦ,ਅਗੇਤਰ ਅਤੇ ਪਿਛੇਤਰ) ਤੋਂ ਜਾਣੂ ਕਰਵਾਇਆ ਜਾਵੇਗਾ।

CO3: ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਨਿੱਤ ਵਰਤੋਂ ਦੀ ਪੰਜਾਬੀ ਸ਼ਬਦਾਵਲੀ : ਬਾਜ਼ਾਰ, ਵਪਾਰ, ਰਿਸ਼ਤੇਨਾਤੇ, ਖੇਤੀ ਅਤੇ ਹੋਰ ਧੰਦਿਆਂ ਆਦਿ ਤੋਂ ਜਾਣੂ ਕਰਵਾਇਆ ਜਾਵੇਗਾ।

CO4: 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।

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–I
(Session: 2025-26)
Course Title: BASIC PUNJABI
In lieu of Punjabi (Compulsory)
Course Code: BMLL -1031

Time : 3 Hours **Maximum Marks: 100**
Credits: 4-0-0 **Theory: 70**
CA: 30

ਅੰਕ ਵੰਡ ਅਤੇ ਪਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

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

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

3. ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 14 ਅੰਕ ਹਨ।

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

ਪਾਠਕ੍ਰਮ

ਯੂਨਿਟ-I

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

ਯੂਨਿਟ-II

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

ਯੂਨਿਟ-III

ਨਿੱਤ ਵਰਤੋਂ ਦੀ ਪੰਜਾਬੀ ਸ਼ਬਦਾਵਲੀ : ਬਾਜ਼ਾਰ, ਵਪਾਰ, ਰਿਸ਼ਤੇ ਨਾਤੇ, ਖੇਤੀ ਅਤੇ ਹੋਰ ਧੰਦਿਆਂ ਆਦਿ ਨਾਲ ਸੰਬੰਧਤ।

ਯੂਨਿਟ-IV

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

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–I
(Session: 2025-26)
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: BMLL-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 understand the sources and physical features of Punjab

CO 2: To study the earliest civilisation (Indus Valley Civilization) and original home of Aryans

CO 3: To examine the Social, Religious and Economic life during Early and Later Vedic Age

CO 4: To comprehend the Buddhist, Jain and Hindu faith and their relevance in the modern times

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–I
(Session: 2025-26)
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: BMLL-1431

Time: 3 Hours
Credits: 4-0-0
Contact Hours: 4 Hours/Week

Total Marks: 100
Theory: 70
CA: 30

Instructions for the Paper Setter:

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 800 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 14 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

- B.N. Sharma, Life in Northern India, Delhi. 1966.
- Budha Parkash, Glimpses of Ancient Punjab, Patiala, 1983.
- Chopra, P.N., Puri, B.N., & Das,M.N.(1974). A Social, Cultural & Economic History of India, Vol. I, New Delhi: Macmillan India.
- 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.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–I
(Session: 2025-26)
Course Code: Communication Skills in English - I
Course Code: BMLM-1102
(Theory)

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: Through reading skills, the students will have an ability to have a comprehensive understanding of the ideas in the text and enhance their critical thinking

CO 3: Writing skills of students which will make them proficient enough to express ideas in clear and grammatically correct English

CO 4: The skill to use an appropriate style and format in writing letters (formal and informal) and resume, memo, notices, agenda, minutes

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–I
(Session: 2025-26)
Course Code: Communication Skills in English - I
Course Code: BMLM-1102
(Theory)

Time: 3 Hours

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

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 10 marks. Each question can be sub divided into two parts.

(10 x 5 = 50)

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.
- Organizing the details in a sequential order

Unit IV

Resume, memo, notices, agenda, minutes, Tips for effective blog writing

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
- Writing blogs

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 Education2009.
4) *Communication Skills* by Raman, M. & S. Sharma, OUP, New Delhi, India (2011).

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–I
(Session: 2025-26)
Course Code: Communication Skills in English - I
Course Code: BMLM-1102
(Practical / Oral Testing)

Time: 3 hours **Marks: 20**

Course Contents:

1. Oral Presentation with/without audio visual aids (10 Marks)

2. Group Discussion (05 Marks)

3. Practical File form Syllabi (05 Marks)

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.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–I
(Session: 2025-26))
Course Title: Basics of Human Physiology - I
Course Code: BMLL-1483
(THEORY)

Course Outcomes

After passing this course the student will be able to:

CO1: Understand various parts of brain and their transmission signals.

CO2: Understand autonomous nervous system

CO3: Know about physiology of muscle function

CO4: Know about circulatory system

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–I
(Session: 2025-26))
Course Title: Basics of Human Physiology - I
Course Code: BMLL-1483
(THEORY)

Time: 3 Hours **Total Marks: 100**

Credits: 3-0-0 **Theory: 70**

CA: 30

Instructions for paper setter:

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D).Questions of section A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section. Each question carries 14 marks.

Unit-I

Functions of Principal Parts of the Brain (brain stem, cerebellum, diencephalon, cerebrum),
Action potential, resting membrane potential, Transmission of signal in nervous system, Neurotransmitters, neurotransmitter receptors

Unit -II

Autonomic nervous system, Sympathetic and Parasympathetic Divisions of the ANS, Physiology of Reflex action, Special senses – Hearing, vision, pain, touch, taste

Unit -III

Physiology of muscular system, Sliding filament mechanism of muscle contraction, The contraction cycle, The Neuromuscular Junction

Unit -IV

Physiology of circulatory system, Cardiac cycle, Heart and circulation, Blood pressure, Role of hemoglobin in regulation of respiration, Functions of blood and lymphatic system, Blood clotting.

Books Recommended

1. Guyton, A.C. and Hall, J.E. (2016). Textbook of Medical Physiology. Elsevier Publications, New York

2. Ross and Willson (2010) Anatomy and Physiology. ELBS publication

3. Tortora, G.J. and Grabowski, S.R. (2009). Principles of Anatomy and Physiology. Harper Collins College Publishers

4. Tortora, G.J and Henderson S.R. (2012) Principles of Anatomy and Physiology. Harper Collins College Publishers.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–I
(Session: 2025-26)
Course Title: Basics of Human Physiology - I Lab
Course Code: BMLP- 1483
(PRACTICAL)

Course Outcomes

After passing this course the student will be able to:

CO1: Observe joint movements

CO2: Measure blood pressure and pulse rate

CO3: Estimate bleeding time, hemoglobin content and clotting time

CO4: Use and care of micropipette.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–I
(Session: 2025-26))
Course Title: Basics of Human Physiology-I Lab
Course Code: BMLP- 1483
(PRACTICAL)

Time: 3 Hours **Total Marks: 50**

Credits: 0-0-2 **Practical: 35**

CA: 15

1. Movements at joints
2. Blood pressure and pulse rate estimation
3. Study of Bleeding time
4. Study of clotting time
5. Estimation of hemoglobin concentration
6. Use and care of Micropipette

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–I
(Session: 2025-26))
Course Title: Basics of Human Anatomy - I
Course Code: BMLL-1484
(THEORY)

Course Outcomes

After passing this course the student will be able to:

CO1: Understand anatomy of skeleton system

CO2: Understand muscular system

CO3: Know about anatomy of circulatory system

CO4: Know about respiratory system

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–I

(Session: 2025-26))
Course Title: Basics of Human Anatomy - I
Course Code: BMLL-1484
(THEORY)

Time: 3 Hours **Total Marks: 100**

Credits: 3-0-0 **Theory: 70**

CA: 30

Instructions for paper setter:

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions of section A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section. Each question carries 14 marks.

Unit- I

Brief anatomy of Skeletal system, Types of bones, Ossification and growth of bone, Histology of bone, Fracture and repair, Classification of joints

Unit- II

Muscular system –Types of muscular tissue, properties of muscular tissue, Anatomy of smooth, cardiac, skeletal muscle, Microscopic Anatomy of a Skeletal Muscle Fiber, neuromuscular junction.

Unit- III

Brief anatomy of Circulatory system — Blood Composition, Anatomy of heart and blood vessels, Classification of blood vessels, Overview of arterial, venous system and lymphatic system.

Unit- IV

Brief anatomy of Respiratory system — Brief description of constituent parts, Microscopic anatomy of a lobule of the lungs, Structural components of an alveolus, olfactory receptors.

Books Recommended

1. Drake, R., Vogl, W. and Mitchell, A. (2015). Gray's Anatomy for Students. Churchill Livingstone, USA.

2. Marieb, E.N. (2004). Human Anatomy and Physiology. Dorling Kindersley (India) Pvt.Ltd., 6th ed.

3. Ross and Willson (2010). Anatomy and Physiology. ELBS Publication.

4. Standring, S. (2008). Gray's Anatomy. Churchill Livingstone, USA. 40th ed.

5. Tortora, G.J. and Grabowski, S.R. (2002). Principles of Anatomy and Physiology. Harper Collins College Publishers.

6. Tortora, G.J. and Henderson, S.R. (2012). Principles of Anatomy and Physiology. Harper Collins College Publishers.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–I
(Session: 2025-26))
Course Title: Basics of Human Anatomy-I Lab
Course Code: BMLP- 1484
(PRACTICAL)

Course Outcomes

After passing this course the student will be able to:

CO1: Observe positions of various parts of human body

CO2: Know about various bones

CO3: Understand bone surface markings

CO4: Understand division of skeleton system

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–I
(Session: 2025-26))
Course Title: Basics of Human Anatomy-I Lab
Course Code: BMLP- 1484
(PRACTICAL)

Time: 3 Hours **Total Marks: 50**

Credits: 0-0-2 **Practical: 35**

CA: 15

1. Anatomical positions and terminology — Superior, Inferior, Anterior, Medial, Posterior, Lateral, Proximal, Distal, External, Internal, Parietal, Visceral, Cavities and Planes of human body
2. Parts of a bones
3. Bone surface markings
4. Division of Skeletal system

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–I
(Session: 2025-26))
Course Title: Principles of Biochemistry
Course Code: BMLL-1485
(THEORY)

Course Outcomes

After passing this course the student will be able to:

CO1: Understand basic structure and function of Carbohydrates

CO2: Understand role of lipids and nucleic acids in human body

CO3: Learn about classification, structure and function of proteins

CO4: know about role and importance of vitamins and enzymes

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–I
(Session: 2025-26)
Course Title: Principles of Biochemistry
Course Code: BMLL-1485
(THEORY)

Time: 3 Hours **Total Marks: 100**

Credits: 3-0-0 **Theory: 70**

CA: 30

Instructions for paper setter:

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions of section A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section. Each question carries 14 marks.

Unit- I

Introduction: Principles of living organisms; Elements of living organisms; Fitness of Biomolecules.

Carbohydrates: Definition; Classification of carbohydrates; Structure and functions of various classes of carbohydrates; Monosaccharides, Disaccharides, Polysaccharides

Unit- II

Lipids: Definition; Classification of lipids; structure and functions of various classes of lipids; Triglycerides; Phosphoglycerides; Sphingolipids; Terpenes; Steroids; Eicosanoids; fatty acids and essential fatty acids.

Nucleic acids: Nitrogen bases: Purines and Pyrimidines; Nucleosides and Nucleotides, DNA Structure and its forms; RNA and its types; Differences between DNA and RNA; Biologically important nucleotides.

Unit- III

Proteins: Classification and structures of amino acid; Essential and non essential amino acids, unusual and non-protein amino acids; Important peptides and their functions; Organizational levels of protein structure; Functional and structural classification of proteins.

Unit -IV

Vitamins: Definition; chemistry and functions of water and fat edsoluble vitamins.

Enzymology: Enzyme nomenclature; Classification and characteristics of enzymes; Enzyme specificity; Cofactors; Co-enzymes and Prosthetic groups; Types of enzyme inhibition; Factors affecting enzyme activity

Books Recommended:

- Nelson DL and Cox MM. (2013) Lehninger Principles of Biochemistry, 6th Edition. Macmillan Worth Publishers, New Delhi.
- Berg JM, Tymoczko JL, Gatto GJ and Stryer L (2015) Biochemistry,8th Edition, WH Freeman & Co., New York.
- Bender DA, Botham KM, Kennelly PJ, Rodwell VW and Weil PA (2015) Harper's Illustrated Biochemistry, 30thEdition, McGraw-Hill Medical Canada.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–I
(Session: 2025-26)
Course Title: Principles of Biochemistry Lab
Course Code: BMLP- 1485
(PRACTICAL)

Course Outcomes

After passing this course the student will be able to:

CO1: Learn the preparation of solutions and their use

CO2: Understand working and use of various laboratory equipment

CO3: Learn about handling laboratory equipment in clinical labs.

CO4: Perform Volumetric analysis of solutions

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–I
(Session: 2025-26))
Course Title: Principles of Biochemistry Lab
Course Code: BMLP- 1485
(PRACTICAL)

Time: 3 Hours **Total Marks: 50**

Credits: 0-0-2 **Practical: 35**

CA: 15

1. Introduction to Biochemistry Laboratory: General Glassware, Equipment: use of analytical balance and general safety measures.
2. Cleaning of glassware: preparation of chromic acid
3. Calibration of Laboratory equipment
4. Preparation of reagents
   a. Preparation of distilled water
   b. Preparation of 1N NaOH
   c. Preparation of 1N HCl
   d. Preparation of normal saline
5. To demonstrate the phenomenon of Dialysis
6. Use of pH meter and preparation of Buffer.
7. Use of Centrifuge with different types of Rotor
8. Use of spectrophotometer and colorimeter.
9. To find the absorption maxima of a dye.
10. To find the absorption maxima of aromatic amino acids.
11. To demonstrate Beer- Lambert's Law.
12. Volumetric analysis- acid base titration

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–I
(Session: 2025-26)
Course Title: Foundation Course
Course Code: VACF- 1491
(THEORY)

Course Outcomes

After the completion of this Audit course, students will be able to

- Learn how past societies, systems, ideologies, governments, cultures and technologies were built, how they operated, and how they have changed
- Understand how the rich history of the world helps us to paint a detailed picture of where west and to day.
- Understand the Vedic theism, Upanishads Philosophy and doctrines of Jainism, Buddhism and Sikhism
- Acquire knowledge of women rights and courage to face day to day challenges.
- Acknowledge the changes in society, religion and literature in the renaissance period and the importance of empathy and compassion for humanity
- learn about the prominent Indians (Men and Women) who contributed significantly in freedom struggle, education, economic development and in the formation and evolution of our nation
- understand meaning of race and how that concept has been used to justify exclusion, inequality, and violence throughout history and the origin of civil right movements to fight for equality, liberty and fraternity
- Critically evaluate the socio-political and economic issues at global level and its implications in the present
- Upgrade and enhance learning technological skills and striking a balance between technology and their well being
- Take pride in learning the saga of Indian Past Culture and Heritage
- Understand the rich legacy of KMV and its progressive endeavours.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–I
(Session: 2025-26)
Course Title: Foundation Course
Course Code: VACF- 1491
(THEORY)

Time: 2 Hours **Total Marks: 50**
Credits: 2-0-0 **Theory: 35**
CA: 15

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 thinkers and inventors & discoverers who have impacted human life. For a student, the process of transition from school to college is full of apprehension and skepticism regarding adapting themselves to new 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.

INSTRUCTIONALOBJECTIVES

- To enable the students to realise their position in the whole saga of time and space
- To inculcate in the man 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

MODULE	TITLE	CONTACT HOURS
I	**Introduction and Initial Assessment**	2
II	**The Human Story**	3
III	***The Vedas* and the Indian Philosophy**	2.5
IV	**The Journey of Woman The Story and the Dream**	2.5
V	**Changing Paradigms in Society, Religion & Literature**	2.5
VI	**Makers of Modern India**	2.5

VII	**Racism: Story of the West**	**2.5**
VIII	**Modern Worldata Glance: Political & Economic Perspective**	**2.5**
IX	**Technology Visa Vis Human Life**	**2.5**
X	**My Nation My Pride**	**2.5**
XI	**The KMV Experience**	**2.5**
XII	**Final Assessment, Feedback and Closure**	**2.5**

Module 1: 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* and 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: 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 5: 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 work force participation
- Women in politics
- Status of women-our dream

Module 6: 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 7: 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 8: Modern Worldata Glance: Political & Economic Perspective

- Changing world order
- World War I & II
- UNO and The Common wealth
- Nuclear Powers; Terrorism
- Economic Scenario: IMF, World Bank
- International Regional Economic Integration

Module 9: Technology Visa Vis 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
- Harmonizing technology with ethics and humaneness

Module 10: My Nation My Pride

- Indian Past Culture and Heritage
- Major Discoveries (Medicinal and Scientific)
- Vedic Age
- Prominent Achievements
- Art, Architecture and Literature

Module 11: The KMV Experience

- Rich Legacy of KMV

- Pioneering role in women emancipation and empowerment
- KMV Contribution in the Indian FreedomStruggle
- 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

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–II
(Session: 2025-26)
Course Title: Punjabi (Compulsory)
Course Code-BMLL -2421

COURSE OUTCOMES

CO1: ਸਰਵੋਤਮ ਪੰਜਾਬੀ ਕਵਿਤਾ ਤੇ ਕਹਾਣੀ ਪੁਸਤਕ ਦੇ ਕਹਾਣੀ ਭਾਗ ਨੂੰ ਸਿਲੇਬਸ ਵਿਚ ਸ਼ਾਮਿਲ ਕਰ ਕੇ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਕਹਾਣੀ ਨੂੰ ਪੜ੍ਹਣ ਦੀ ਰੁਚੀ ਨੂੰ ਪੈਦਾ ਕਰਨਾ ਹੈ ਅਤੇ ਕਹਾਣੀ ਜਗਤ ਨਾਲ ਜੋੜਣਾ ਹੈ।

CO2: ਗੱਦ ਪ੍ਰਵਾਹ ਪੁਸਤਕ ਨੂੰ ਸਿਲੇਬਸ ਵਿਚ ਸ਼ਾਮਿਲ ਕਰ ਕੇ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਪੜ੍ਹਣ ਦੀ ਰੁਚੀ ਨੂੰ ਪੈਦਾ ਕਰਨਾ ਹੈ ਅਤੇ ਮੁੱਲਵਾਨ ਗਿਆਨ ਦੇਣਾ ਹੈ।

CO3: ਸ਼ਬਦ ਬਣਤਰ ਅਤੇ ਸ਼ਬਦ ਰਚਨਾ, ਪਰਿਭਾਸ਼ਾ, ਮੁੱਢਲੇ ਸੰਕਲਪ, 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।

CO4: ਦਫ਼ਤਰੀ ਚਿੱਠੀ ਪੱਤਰ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਮੇਂ ਅਤੇ ਮਿਹਨਤ ਦੀ ਬੱਚਤ ਕਰਨ ਬਾਰੇ ਦੱਸਣਾ ਹੈ। ਮੁਹਾਵਰੇ / ਅਖਾਣ ਦੀ ਵਰਤੋਂ ਨਾਲ ਗੱਲਬਾਤ ਵਿਚ ਪਰਪੱਕਤਾ ਆਉਂਦੀ ਹੈ।ਇਹ ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਗੱਲਬਾਤ ਵਿਚ ਨਿਖਾਰ ਲਿਆਉਣ ਦਾ ਕੰਮ ਕਰਨਗੇ।

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
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(Session: 2025-26)
Course Title: Punjabi (Compulsory)
Course Code-BMLL -2421

Time: 3 Hours **Maximum Marks: 100**
CREDITS: 4-0-0 **Theory: 70**
CA: 30

ਅੰਕ ਵੰਡ ਅਤੇ ਪਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

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

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

3. ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 14 ਅੰਕ ਹਨ।

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

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪਾਠ ਪੁਸਤਕਾਂ

ਯੂਨਿਟ-I

ਸਰਵੋਤਮ ਪੰਜਾਬੀ ਕਵਿਤਾ ਤੇ ਕਹਾਣੀ (ਸੰਪਾ. ਡਾ. ਰਮਿੰਦਰ ਕੌਰ, ਡਾ. ਮੇਘਾ ਸਲਵਾਨ) ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ, ਅੰਮ੍ਰਿਤਸਰ। (ਕਹਾਣੀ ਭਾਗ)

ਕਹਾਣੀ ਦਾ ਸਾਰ/ਵਿਸ਼ੇਵਸਤੂ

ਯੂਨਿਟ-II

ਗੱਦ ਪ੍ਰਵਾਹ (ਰੇਖਾ ਚਿਤਰ ਤੇ ਹਲਕੇ ਲੇਖ)

(ਸੰਪਾ. ਡਾ. ਬਿਕਰਮ ਸਿੰਘ ਘੁੰਮਣ ਅਤੇ ਜਸਪਾਲ ਸਿੰਘ),

ਗਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ, ਅੰਮ੍ਰਿਤਸਰ।

(ਵਿਸ਼ਾ ਵਸਤੂ/ਸਾਰ)

ਯੂਨਿਟ-III

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

(ਅ) ਸ਼ਬਦ ਸ਼੍ਰੇਣੀਆਂ

ਯੂਨਿਟ-IV

ਦਫ਼ਤਰੀ ਚਿੱਠੀ ਪੱਤਰ

ਮੁਹਾਵਰੇ ਅਤੇ ਅਖਾਣ

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–II
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Course Title: Basic Punjabi
In lieu of Punjabi (Compulsory)
Course Code -BMLL -2031

Course outcomes

CO1: ਸ਼ਬਦ ਸ਼੍ਰੇਣੀਆਂ : ਪਛਾਣ ਅਤੇ ਵਰਤੋਂ (ਨਾਂਵ, ਪੜਨਾਂਵ, ਕਿਰਿਆ, ਵਿਸ਼ੇਸ਼ਣ, ਕਿਰਿਆ ਵਿਸ਼ੇਸ਼ਣ, ਸਬੰਧਕ, ਯੋਜਕ ਅਤੇ ਵਿਸਮਿਕ) ਨੂੰ ਪੜ੍ਹਾਉਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀ ਅਮੀਰੀ ਦਾ ਅਤੇ ਬਾਰੀਕੀਆਂ ਨੂੰ ਸਮਝਣ ਲਈ ਵੱਖਰੇ -ਵੱਖਰੇ ਸਿਧਾਂਤਾਂ ਦਾ ਵਿਕਾਸ ਕਰਨਾ ਹੈ।

CO2: ਵਿਦਿਆਰਥੀ ਪੰਜਾਬੀ ਵਾਕ ਬਣਤਰ (ਸਾਧਾਰਨ ਵਾਕ, ਸੰਯੁਕਤ ਵਾਕ, ਮਿਸ਼ਰਤ ਵਾਕ, ਬਿਆਨੀਆ ਵਾਕ, ਪ੍ਰਸ਼ਨ ਵਾਚਕ ਵਾਕ ਅਤੇ ਹੁਕਮੀ ਵਾਕ) ਦੀ ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਇਸ ਦੀ ਬਣਤਰ ਤੋਂ ਜਾਣੂ ਹੋਣਗੇ ਅਤੇ ਉਨ੍ਹਾਂ ਦੀ ਭਾਸ਼ਾ ਤੇ ਪਕੜ ਮਜਬੂਤ ਹੋਵੇਗੀ।

CO3: ਪੈਰ੍ਹਾ ਰਚਨਾ ਅਤੇ ਸੰਖੇਪ ਰਚਨਾ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਬੁੱਧੀ ਨੂੰ ਤੀਖਣ ਕਰਦਿਆਂ ਉਨਾਂ ਦੀ ਲਿਖਣ ਪ੍ਰਤਿਭਾ ਨੂੰ ਉਜਾਗਰ ਕਰਨਾ ਹੈ।

CO4: ਘਰੇਲੂ ਅਤੇ ਦਫ਼ਤਰੀ ਚਿੱਠੀ ਪੱਤਰ ਲਿਖਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਇਸ ਕਲਾ ਵਿਚ ਨਿਪੁੰਨ ਕਰਨਾ ਹੈ । ਅਖਾਣ ਅਤੇ ਮੁਹਾਵਰੇ ਦੀ ਵਰਤੋਂ ਨਾਲ ਗੱਲਬਾਤ ਵਿਚ ਪਰਪੱਕਤਾ ਆਉਂਦੀ ਹੈ।ਇਹ ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਗੱਲਬਾਤ ਵਿਚ ਨਿਖਾਰ ਲਿਆਉਣ ਦਾ ਕੰਮ ਕਰਨਗੇ।

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–II
(Session: 2025-26)
Course Title: Basic Punjabi
In lieu of Punjabi (Compulsory)
Course Code -BMLL -2031

Time: 3 Hours **Maximum Marks: 100**
Credits: 4-0-0 **Theory: 70**
CA: 30

ਅੰਕ ਵੰਡ ਅਤੇ ਪਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

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

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

3. ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 14 ਅੰਕ ਹਨ।

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

ਪਾਠਕ੍ਰਮ

ਯੂਨਿਟ-I

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

ਯੂਨਿਟ-II

ਪੰਜਾਬੀ ਵਾਕ ਬਣਤਰ : ਮੁੱਢਲੀ ਜਾਣ ਪਛਾਣ

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

(ਅ) ਬਿਆਨੀਆ ਵਾਕ, ਪ੍ਰਸ਼ਨ ਵਾਚਕ ਵਾਕ ਅਤੇ ਹੁਕਮੀ ਵਾਕ (ਪਛਾਣ ਅਤੇ ਵਰਤੋਂ)

ਯੂਨਿਟ-III

ਪੈਰ੍ਹਾ ਰਚਨਾ

ਸੰਖੇਪ ਰਚਨਾ

ਯੂਨਿਟ-IV

ਚਿੱਠੀ ਪੱਤਰ (ਘਰੇਲੂ ਅਤੇ ਦਫ਼ਤਰੀ)

ਅਖਾਣ ਅਤੇ ਮੁਹਾਵਰੇ (ਲਿਸਟ ਨਾਲ ਨੱਥੀ ਹੈ)

ਅਖਾਣ

ਉਠੇ ਤਾ ਉੱਠ ਨਹੀਂ ਰੇਤੇ ਦੀ ਮੁੱਠ ,ਉੱਦਮ ਅੱਗੇ ਲੱਛਮੀ ਪੱਖੇ ਅੱਗੇ ਪੌਣ ,ਉਹ ਦਿਨ ਡੁੱਬਾ ਜਦੋਂ ਘੋੜੀ ਚੜ੍ਹਿਆ ਕੁੱਬਾ ,ਉੱਚੀ ਦੁਕਾਨ ਫਿੱਕਾ ਪਕਵਾਨ ,ਉਲਟੀ ਵਾੜ ਖੇਤ ਨੂੰ ਖਾਏ ,ਉੱਚਾ ਲੰਮਾ ਗੱਭਰੂ ਪੱਲੇ ਠੀਕਰੀਆਂ , **ਅਸ਼ਰਫ਼ੀਆਂ ਦੀ ਲੁੱਟ ਤੇ ਕੋਲਿਆਂ ਤੇ ਮੁਹਰਾਂ, ਅੱਗੇ ਸੱਪ ਪਿੱਛੇ ਸ਼ੀਂਹ, ਆਦਰ ਤੇਰੀ ਚਾਦਰ ਨੂੰ ਬਹਿਣਾ ਤੇਰੇ ਗਹਿਣੇ ਨੂੰ, ਆਪੇ ਫਾਥੜੀਏ ਤੈਨੂੰ ਕੌਣ ਛੁਡਾਏ, ਆਪਣੇ ਹੱਥੀਂ ਆਪਣਾ ਆਪੇ ਹੀ ਕਾਜ ਸਵਾਰੀਐ, ਆਰੀ ਨੂੰ ਇੱਕ ਪਾਸੇ ਦੰਦੇ ਜਹਾਨ ਨੂੰ ਦੋਹੀਂ ਪਾਸੀਂ,**ਅੱਖੀਂ ਵੇਖ ਕੇ ਮੱਖੀ ਨਹੀਂ ਨਿਗਲੀ ਜਾਂਦੀ ,ਅੰਦਰ ਹੋਵੇ ਸੱਚ ਤਾਂ ਕੋਠੇ ਚੜ੍ਹ ਕੇ ਨੱਚ ,ਆਪੇ ਮੈਂ ਰੱਜੀ ਪੁੱਜੀ ਆਪੇ ਮੇਰੇ ਬੱਚੇ ਜਿਉਣ ,ਆਪ ਕੁਚੱਜੀ ਵਿਹੜੇ ਨੂੰ ਦੋਸ਼ ,ਅੰਨ੍ਹਾ ਵੰਡੇ ਰਿਉੜੀਆਂ ਮੁੜ ਮੁੜ ਆਪਣਿਆਂ ਨੂੰ ,ਅਕਲ ਵੱਡੀ ਕੇ ਮੱਝ ,ਅੰਨ੍ਹਿਆਂ ਵਿੱਚ ਕਾਣਾ ਰਾਜਾ ,ਆਪਣੀ ਪੀੜ੍ਹੀ ਹੇਠ ਸੋਟਾ ਫੇਰਨਾ ,ਇਕ ਅਨਾਰ ਸੌ ਬਿਮਾਰ ,ਇਕ ਹੱਥ ਨਾਲ ਤਾੜੀ ਨਹੀਂ ਵੱਜਦੀ ,ਇੱਕ ਚੁੱਪ ਸੌ ਸੁੱਖ ਝੱਟ ਮੰਗਣੀ ਪੱਟ ਵਿਆਹ ,ਸਹਿਜ ਪੱਕੇ ਸੋ ਮੀਠਾ ਹੋਵੇ ,ਦਾਲ ਵਿੱਚ ਕਾਲਾ ਹੋਣਾ , **ਸੰਗ ਤਾਰੇ ਕੁਸੰਗ ਡੋਬ,** ਸੱਦੀ ਨਾ ਬੁਲਾਈ ਮੈਂ ਲਾੜੇ ਦੀ ਤਾਈਂ ,ਸਵੈ ਭਰੋਸਾ ਵੱਡਾ ਤੋਸਾ,ਸੌ ਦਿਨ ਚੋਰ ਦੇ ਇਕ ਦਿਨ ਸਾਧ ਦਾ ,ਸੱਪ ਦਾ ਬੱਚਾ ਸਪੋਲੀਆ ,ਸੱਪ ਮਰ ਜਾਵੇ ਲਾਠੀ ਵੀ ਨਾ ਟੁੱਟੇ ,ਸਾਈਆਂ ਕਿਤੇ ਵਧਾਈਆਂ ਕਿਤੇ ,ਹੰਕਾਰਿਆ ਸੋ ਮਾਰਿਆ , **ਹੱਥ ਨੂੰ ਹੱਥ ਧੋਂਦਾ ਹੈ,** ਹਾਥੀ ਲੰਘ ਗਿਆ ਪੂਛ ਰਹਿ ਗਈ, **ਕੋਹ ਨਾ ਚੱਲੀ ਬਾਬਾ ਤਿਹਾਈ**,ਕੁੱਛੜ ਕੁੜੀ ਸ਼ਹਿਰ ਢੰਡੋਰਾ ,ਕੋਲਿਆਂ ਦੀ ਦਲਾਲੀ ਵਿੱਚ ਮੂੰਹ ਕਾਲਾ ,ਕਰੇ ਕੋਈ ਭਰੇ ਕੋਈ , **ਖਿੱਦੋ ਫ਼ਰੋਲਿਆਂ ਲੀਰਾਂ ਹੀ ਨਿਕਲਦੀਆਂ ਹਨ,** ਖ਼ਵਾਜੇ ਦਾ ਗਵਾਹ ਡੱਡੂ ,ਖੇਤੀ ਖਸਮਾਂ ਸੇਤੀ , **ਖਰਬੂਜ਼ੇ ਨੂੰ ਦੇਖ ਕੇ ਖਰਬੂਜ਼ਾ ਰੰਗ ਬਦਲਦਾ ਹੈ,**ਖੂਹ ਪੁੱਟਦੇ ਨੂੰ ਖਾਤਾ ਤਿਆਰ , **ਘੜੇ ਨੂੰ ਹੱਥ ਲਾਇਆ ਸਾਰਾ ਟੱਬਰ ਤਿਹਾਇਆ**,ਘਰ ਦਾ ਭੇਤੀ ਲੰਕਾ ਢਾਹੇ ,ਘਰ ਦੀ ਕੁੱਕੜੀ ਦਾਲ ਬਰਾਬਰ ,ਚਿੰਤਾ ਚਿਖਾ ਬਰਾਬਰ , ਛੱਜ ਤਾਂ ਬੋਲੇ ਛਾਣਨੀ ਵੀ ਬੋਲੇ,ਛੋਟੀ ਮੂੰਹ ਵੱਡੀ ਗੱਲ **, ਜੋ ਰਾਤੀਂ ਜਾਗਣ ਕਾਲੀਆਂ ਸੋ ਹੀ ਖਾਣ ਸੁਖਾਲੀਆਂ** ,ਜਾਂਦੇ ਚੋਰ ਦੀ ਲੰਗੋਟੀ ਹੀ ਸਹੀ ,ਜਿਸ ਦੀ ਕੋਠੀ ਦਾਣੇ ਉਹਦੇ ਕਮਲੇ ਵੀ ਸਿਆਣੇ ,ਜਿਹੜੇ ਗੱਜਦੇ ਨੇ ਉਹ ਵਰ੍ਹਦੇ ਨਹੀਂ , ਝੱਟ ਮੰਗਣੀ ਪੱਟ ਵਿਆਹ , **ਨਵਾਂ ਨੌ ਦਿਨ ਪੁਰਾਣਾ ਸੌ ਦਿਨ, ਪਾਣੀ ਵਿੱਚ ਸੋਟਾ ਮਾਰਿਆਂ ਪਾਣੀ ਦੋ**

ਨਹੀਂ ਹੋ ਜਾਂਦੇ, ਵਿੱਦਿਆ ਵਿਚਾਰੀ ਤਾਂ ਪਰਉੱਪਕਾਰੀ, ਵੇਲੇ ਦੀ ਨਮਾਜ਼ ਕੁਵੇਲੇ ਦੀਆਂ ਟੱਕਰਾਂ, ਇਕ ਦਰ ਬੰਦ ਸੌ ਦਰ ਖੁੱਲ੍ਹਾ, ਬਿੱਲੀ ਦੇ ਸਿਰ੍ਹਾਣੇ ਦੁੱਧ ਨਹੀਂ ਜੰਮਦਾ,ਰੱਸੀ ਸੜ ਗਈ ਵੱਟ ਨ੍ਹੀਂ ਗਿਆ

ਮੁਹਾਵਰੇ

ਉਸਤਾਦੀ ਕਰਨੀ, ਉਂਗਲ ਕਰਨੀ, ਉੱਲੂ ਬਣਾਉਣਾ ,ਉੱਚਾ ਸਾਹ ਨਾ ਕੱਢਣਾ, ਉੱਡਦੇ ਫਿਰਨਾ ,ਉੱਘ ਸੁੱਘ ਮਿਲਣੀ,ਅੱਖਾਂ ਵਿਚ ਰੜਕਣਾ , **ਉਂਗਲਾਂ ਤੇ ਨਚਾਉਣਾ, ਉਧੜ-ਧੁੰਮੀ ਮਚਾਉਣਾ, ਊਠ ਦੇ ਮੂੰਹ ਵਿੱਚ ਜ਼ੀਰਾ ਦੇਣਾ,** ਅੱਗ ਲਾਉਣਾ ,ਆਵਾ ਊਤ ਜਾਣਾ ,ਅਸਮਾਨ ਨੂੰ ਟਾਕੀਆਂ ਲਾਉਣਾ, ਅੱਖਾਂ ਵਿੱਚ ਲਾਲੀ ਉਤਰਨੀ ,ਅਕਲ ਤੇ ਪਰਦਾ ਪੈਣਾ, **ਅੱਖਾਂ ਅੱਗੇ ਖੋਪੇ ਚਾੜ ਦੇਣੇ, ਅੱਖਾਂ ਉੱਤੇ ਬਿਠਾਉਣਾ, ਅੱਲੇ ਫੱਟਾਂ ਤੇ ਲੂਣ ਛਿੜਕਣਾ, ਆਪਣੇ ਅੱਗੇ ਕੰਡੇ ਬੀਜਣਾ, ਆਪਣੇ ਤਰਕਸ਼ ਵਿੱਚ ਤੀਰ ਹੋਣਾ, ਸਿਰ ਚੜ੍ਹਨਾ,** ਈਨ ਮੰਨਣੀ, ਈਦ ਦਾ ਚੰਨ ਹੋਣਾ, ਇੱਟ ਨਾਲ ਇੱਟ ਖੜਕਾਉਣਾ,ਸਿਰ ਫਿਰਨਾ, ਸਿਰ ਤੇ ਚੜ੍ਹਨਾ ,ਸਬਰ ਦਾ ਘੁੱਟ ਭਰਨਾ, ਸਿਰ ਪੈਰ ਨਾ ਹੋਣਾ, **ਸਿਰ ਖੁਰਕਣ ਦੀ ਵੇਹਲ ਨਾ ਹੋਣਾ, ਸੱਠੀ ਦੇ ਚੌਲ ਖੁਆਣੇ,** ਹੱਥ ਧੋ ਕੇ ਪਿੱਛੇ ਪੈਣਾ, ਹੱਥੀਂ ਛਾਂਵਾਂ ਕਰਨੀਆਂ, ਹੱਡ ਭੰਨਣੇ, ਹੱਥ ਤੰਗ ਹੋਣਾ ,ਹੱਥ ਮਲਣਾ,ਹੱਥ ਪੈਰ ਮਾਰਨਾ, **ਹੱਥ ਉੱਤੇ ਹੱਥ ਧਰ ਕੇ ਬੈਠਣਾ, ਹੱਥ ਵਟਾਉਣਾ, ਹਵਾ ਦੇ ਘੋੜੇ ਸਵਾਰ ਹੋਣਾ,** ਕੰਨੀਂ ਕਤਰਾਉਣਾ, ਕੰਨ ਤੇ ਜੂੰ ਨਾ ਸਰਕਣਾ, ਕੰਨ ਘੇਸਲ ਮਾਰਨੀ, **ਕਣਕ ਨਾਲ ਘੁਣ ਵੀ ਪਿਸਣਾ, ਕੱਖ ਭੰਨ ਕੇ ਦੂਹਰਾਂ ਨਾ ਕਰਨਾ, ਕਲਮ ਦੇ ਧਨੀ ਹੋਣਾ, ਕਿਤਾਬੀ ਕੀੜਾ ਹੋਣਾ,** ਖ਼ਾਨਾ ਖ਼ਰਾਬ ਹੋਣਾ, ਖਾਨਿਓ ਜਾਣਾ, **ਖੂਹ ਨਿਖੁੱਟ ਜਾਣਾ,** ਗੁੱਡੀ ਚੜ੍ਹਨੀ, ਗਲ ਪੈਣਾ ,ਗੰਗਾ ਨਹਾਉਣਾ ,ਚੜ੍ਹ ਮੱਚਣੀ, ਚੰਦ ਚਾੜ੍ਹਨਾ, ਚਾਦਰ ਵੇਖ ਕੇ ਪੈਰ ਪਸਾਰਨਾ ,ਚਕਮਾ ਦੇਣਾ ,ਛੱਕੇ ਛੜਾਉਣਾ ,ਛਾਪਾ ਮਾਰਨਾ, ਛਿੱਲ ਲਾਉਣੀ ,ਛਿੱਕੇ ਟੰਗਣਾ

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–II
(Session: 2025-26)
Course Title: Punjab History and Culture (C. 320 to 1000 A.D.)
(Special paper in lieu of Punjabi Compulsory)
(For those students who are not domicile of Punjab)
Course Code: BMLL-2431

COURSE OUTCOMES

After completing Semester II and course on Ancient History of Punjab students will be able to understand:

CO 1: The reasons and impact of Alexander's invasions and to comprehend various factors leading to rise and fall of empires and emergence of new dynasties and their administration specifically of Maurya rule in general and Ashok in particular

CO 2: art and architecture of Gupta period and the Indo-Greek style of architecture under Gandhara School

CO 3: To have an insight into the socio-cultural history under Harshvardhan and punjab under the stated period

CO 4: To enable students to have thorough insight into the various forms/styles of Architecture and synthesis of Indo - Greek Art and Architecture in Punjab

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–II
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Course Title: Punjab History and Culture (C. 320 to 1000 A.D.)
(Special paper in lieu of Punjabi Compulsory)
(For those students who are not domicile of Punjab)
Course Code: BMLL-2431

Examination Time: 3 Hours — Max. Marks: 100
CREDITS: 4-0-0 — Theory: 70
Contact Hours: 4 Hours/Week — CA: 30

Instructions for the Paper Setter:

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 800 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 14 marks

Unit-I

1. Alexander's Invasion's and Impact
2. Administration of Chandragupta Maurya with special reference to reforms introduced by Ashok

Unit-II

3. The Kushans: Gandhar School of Art
4. Gupta Empire: Golden Period-Social and cultural life, Art and Architecture)

Unit-III

5. The Punjab under Harshvardhana-Society and Religion During the time of 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

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

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–II
(Session: 2025-26)
Course Title: Communication Skills in English-II
Course Code: BMLM-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: 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 3: Improvement of speaking skills enabling them to converse in a specific situation

CO 4: Acquisition of knowledge of phonetics which will help them in learning about correct pronunciation as well as effective speaking

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–II
(Session: 2025-26)
Course Title: Communication Skills in English-II
Course Code: BMLM-2102

Time: 3 hours **Max. Marks: 100**
Theory: 50
CA: 30

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 10 marks. Each question can be sub divided into two parts.
(10 x 5 = 50)

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.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–II
(Session: 2025-26)
Course Title: Communication Skills in English-II
Course Code: BMLM-2102

PRACTICAL / ORAL TESTING

Time: 3 hours **Marks: 20**

Course Contents:

1. Oral Presentation with/without audio visual aids (10 Marks)

2. Group Discussion/ Mock Interview (05 Marks)

3. Listening to any recorded or live material and asking oral questions for listening comprehension (05 Marks)

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.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–II
(Session: 2025-26)
Course Title: Hematology-I
Course Code: BMLL- 2483
(THEORY)

Course Outcomes

After passing this course the student will be able to:

CO1: Perform basic hematological laboratory testing, assess laboratory data and report findings according to laboratory protocol.

CO2: Correlate hematological findings with those generated in other areas of the clinical Laboratory.

CO3: Diagnose patient symptoms and clinical history

CO4: To make appropriate and effective on-the-job professional decisions.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–II
(Session: 2025-26)
Course Title: Hematology-I
Course Code: BMLL- 2483
(THEORY)

Credits: 3-0-0 **Total Marks: 100**

Time: 3 Hours **Theory: 70**

CA: 30

Instructions for paper setter:

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions of section A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section. Each question carries 14 marks.

Unit- I

Introduction to Hematology: Definition and significance of hematology, Blood and its various Components.

Unit- II

Erthropoiesis, Leucopoeisis, Thrombopoeisis, Leucocytes, Development of Blood corpuscles, red blood cells in general blood circulation.

Unit- III

Hemoglobin and its various types of Hemoglobin, Iron metabolism, Hemoglobin derivatives

Unit-IV

Oxygen transport, Carbon dioxide transport, Carbon monodioxide transport, oxygen dissociation curve

Books Recommended:

- Godkar, PB and Godkar, DP (2008) Text Book of Medical Laboratory Technology, 2nd edition Bhalani Publishing House, Mumbai, India.
- Martin R. Howard & Peter J Hamilton (2013)Text Book of Hematology, 4thedition, Churchill Livingstone.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–II
(Session: 2025-26)
Course Title: Hematology-I Lab
Course Code: BMLP- 2483
(PRACTICAL)

Course Outcomes

After passing this course the student will be able to:

CO1: Perform basic hematological laboratory testing, assess laboratory data and report findings according to laboratory protocol.

CO2: Adapt hematology laboratory techniques and procedures when errors and discrepancies in results are obtained to effect resolution in a professional and timely manner.

CO3: Distinguish normal and abnormal hematological laboratory findings to predict the diagnosis of hematological disorders and diseases.

CO4: Recognize laboratory results consistent with leukemia and other white blood cell disorders.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–II
(Session: 2025-26)
Course Title: Hematology-I Lab
Course Code: BMLP- 2483
(PRACTICAL)

Time: 3 Hours **Total Marks: 50**

Credits: 0-0-2 **Practical: 35**

CA: 15

1. Basic requirements for Hematology laboratory
2. Glassware for Hematology
3. Equipments for Hematology
4. Anticoagulant vial preparation
5. Complete Blood Count
6. Differential Leukocyte count

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–II
(Session: 2025-26)
Course Title: Basics in Human Physiology - II
Course Code: BMLL- 2484
(THEORY)

Course Outcomes

After passing this course the student will be able to:

CO1: Understand physiology of respiratory system and olfaction.

CO2: Learn about digestion and various receptors associated with digestion.

CO3: Study male and female reproductive system and their physiology.

CO4: Understand physiology of excretory system and endocrine glands.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–II
(Session: 2025-26)
Course Title: Basics in Human Physiology - II
Course Code: BMLL- 2484
(THEORY)

Time: 3 Hours **Total Marks: 100**

Credits: 3-0-0 **Theory: 70**

CA: 30

Instructions for paper setter:

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions of section A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section. Each question carries 14 marks.

Unit-I

Physiology of respiratory system, external and internal respiration, Transport of oxygen (O2) and carbon dioxide (CO2) in the blood, chemical reactions that occur during gas exchange, Physiology of olfaction.

Unit-II

Physiology of digestive system, Digestive Enzymes, functions of the liver, Absorption of digested nutrients in the small intestine, faeces formation and defecation, Physiology of taste, Gustatory receptor.

Unit-III

Physiology of Male and Female Reproductive System, Hormonal control of spermatogenesis, Hormonal Regulation of the Female Reproductive Cycle, Menstruation.

Unit-IV

Physiology of excretion, functions of kidneys, urine formation, Regulation of body fluids by kidneys, Basics functions of endocrine glands.

Books Recommended:

1. Guyton, A.C. and Hall, J.E. (2016). Textbook of Medical Physiology. Elsevier Publications, New York.
2. Ross and Willson (2010) Anatomy and Physiology. ELBS publication.
3. Tortora, G.J. and Grabowski, S.R. (2009). Principles of Anatomy and Physiology. Harper Collins College Publishers.
4. Tortora, G.J and Henderson S.R. (2012) Principles of Anatomy and Physiology. Harper Collins College Publishers.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–II
(Session: 2025-26)
Course Title: Basics of Human Physiology – II Lab
Course Code: BMLP- 2484
(PRACTICAL)

Course Outcomes

After passing this course the student will be able to:

CO1: Know and use of microscope

CO2: Calculate leukocyte count

CO3: Determine Differential leukocyte

CO4: Learn about osmotic fragility of RBC

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–II
(Session: 2025-26)
Course Title: Basics of Human Physiology – II Lab
Course Code: BMLP- 2484
(PRACTICAL)

Time: 3 Hours **Total Marks: 50**

Credits: 0-0-2 **Practical: 35**

CA: 15

1. Study the parts of Microscope
2. Use and care of Microscope
3. To determine Total leucocyte count
4. To determine Differential leucocyte count using Leishman's stain
5. Osmotic fragility of RBC

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–II
(Session: 2025-26)
Course Title: Basics of Human Anatomy-II
Course Code: BMLL- 2485
(THEORY)

Course Outcomes

After passing this course the student will be able to:

CO1: Understand anatomy of nervous system.

CO2: Learn about Integumentary system.

CO3: Study anatomy of digestive and urinary system.

CO4: Understand anatomy of reproductive.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–II
(Session: 2025-26)
Course Title: Basics of Human Anatomy-II
Course Code: BMLL- 2485
(THEORY)

Time: 3 Hours **Total Marks: 100**

Credits: 3-0-0 **Theory: 70**

CA: 30

Instructions for paper setter:

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions of section A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section. Each question carries 14 marks.

Unit-I

Brief anatomy of Nervous system — Structure of brain and spinal cord, Parts of a Neuron, Neuroglia, Ion channels, Ascending and descending tracts of neurons, Autonomic nervous system, Special senses - Eye, ear.

Unit-II

Integumentary system - Skin, hair, nail, touch receptors, Types of cells in the epidermis, Layers of the epidermis, Endocrine system – Brief anatomy of endocrine glands, Glands and their hormones (Hypothalamus, Pituitary, Thyroid, Parathyroid, Adrenal, Pancreatic Islets, Thymus, Pineal Gland, Ovaries and Testes).

Unit-III

Brief anatomy of Digestive system, Histology of stomach, Liver, Gallbladder, pancreas, small intestine, large intestine, Urinary system — Anatomical and histological description of kidneys, structure of nephrons.

Unit-IV

Brief anatomy of Reproductive system - Brief anatomical description of male and female reproductive organs, Female Reproductive Cycle, Birth Control Methods and Abortion

Books Recommended

1. Drake, R., Vogl, W. and Mitchell, A. (2015). Gray's Anatomy for Students. Churchill Livingstone, USA.

2. Marieb, E.N. (2004). Human Anatomy and Physiology. Dorling Kindersley (India) Pvt.Ltd., 6thed.

3. Ross and Willson (2010). Anatomy and Physiology. ELBS Publication.

4. Standring, S. (2008). Gray's Anatomy. Churchill Livingstone, USA. 40th ed.

5. Tortora, G.J. and Grabowski, S.R. (2002). Principles of Anatomy and Physiology. Harper Collins College Publishers.

6. Tortora, G.J. and Henderson, S.R. (2012). Principles of Anatomy and Physiology. Harper Collins College Publishers.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–II
(Session: 2025-26)
Course Title: Basics of Human Anatomy-II Lab
Course Code: BMLP- 2485
(PRACTICAL)

Course Outcomes

After passing this course the student will be able to:

CO1: To impart basic knowledge about human bones

CO2: Understand Sex differentiation in Skull

CO3: Study different types of vertebrae

CO4: Learn about pectoral and pelvic girdles

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–II
(Session: 2025-26)
Course Title: Basics of Human Anatomy – II Lab
Course Code: BMLP- 2485
(PRACTICAL)

Time: 3 Hours **Total Marks: 50**

Credits: 0-0-2 **Practical: 35**

CA: 15

1. Classification of bones, Skull – different views
2. Sex differentiation in skull
3. Study of different types of Vertebrae, Sternum, Scapula
4. Bones of upper and lower limbs, Pectoral girdle, pelvic girdle, Clavicle, Ribs, sacrum

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–II
(Session: 2025-26)
Course Title: Fundamentals of Data Analytics
Course Code: BMLM - 2130

Course Outcomes:

On Completion of this course, the student will be able to:

CO1: To understand the basic functionality of various parts of computer and terminologies related to computers and peripherals

CO2: To work with Word documents and apply various formatting techniques, page setup, creation of tables and other functions required in day-to-day word processing tasks.

CO3: To be able to make presentations, adding graphics, charts, audio, video and applying various themes and transition effects required for making an effective PowerPoint presentation.

CO4: Calculate Mean and Correlation using statistical techniques.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–II
(Session: 2025-26)
Course Title: Fundamentals of Data Analytics
Course Code: BMLM - 2130

Examination Time **Max. Marks: 100**
Credits: 2-0-1 **Theory: 40**
Practical: 30
CA: 30

Instructions for Paper Setter -

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

Unit-I

Computer Fundamentals: Hardware, Software, Memory, Storage devices, I/O Devices and Output Devices, Introduction to Internet and E-Mail.

Word Processing: Creating, Saving and Printing documents, Page setup, Formatting, Spell check, adding Page numbers, Header and Footer, Macros, Creating Tables, Converting table to text and vice versa.

Unit-II

Spreadsheets: Creating Spreadsheets, using different types of functions and Formulae, Cell referencing, create graphs, various types of charts. Pivot tables, vlookup, hlookup, exporting charts to MS – Word.

Create presentations, Formatting, Adding effects and timings.

Unit-III

Data Collection: Meaning, Primary and secondary sources of Data Collection, Sampling and Methods of Sampling.

Measures of Central Tendency: Mean, Median, Mode.

Correlation: Meaning, types of Correlation, Karl Pearson's method of correlation.

Unit-IV

Data Management: Correlation analysis using Excel, Calculation of Mean, Median and Mode using Excel

Data Visualisation Tools: Google Charts and Data Wrapper.

References / Textbooks:

1. Sinha P.K., "Computer Fundamentals", BPB Publications
2. Norton Peter, "Introduction to Computers", McGraw Hill Education
3. Rajaraman V (Author), Adabala N, "Fundamentals of Computers", Prentice Hall India Learning Private Limited
4. Peter Weverka, "Microsoft Office 2016 All-In-One for Dummies", Wiley
5. Amrinder Pal Singh, Jaspal Singh, Anshuman Sharma, Fundamentals of Numerical Methods And Statistical Techniques, Lakhanpal Publishers, 4th edition.
6. Kandasamy P.& et AI., Numerical Methods, S. Chand & Company (2006), Reprint Edn. 2006 Edition.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester-II
(Session: 2025-26))
Course Title: Drug Abuse and Ethical Education
Course Code: VACD-2161

Value Added Audit Course

Course Duration: 30 hours

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

Course Credits: 4

Course Description:-

Drug Abuse and Ethical Education Programme has been introduced as part of the curriculum of second semester of all streams of undergraduate degree programs. It has been added as a compulsory subject, the awards of which will not be incorporated in the total marks but will earn the student 4 credits.

Expectations:-

This academic input has been taken up to sensitize the students to the need of a morally upright character in the present times when youth is being mislead into consumption/ abuse of drugs, thereby ruining their present and future.

By studying Drug Abuse the students will have a better understanding of the concept. They will be able to analyze the physical, psychological and social consequences on individuals and develop strategy for prevention and management to promote healthy life style and community well being

EXAMINATION

- **Total Marks: 100 (Final Exam: 70; Internal Assessment: 30)**
- Final Exam: multiple choice Questions Marks-70; Time: 3 hours
- Internal Assessment: 30 (Assessment: 3; Attendance:2)
- Total marks: 100 converted to grade for final result
- Grading system for Audit Course

Letter Grade	Percentage Score
O	90.1-100 %
A+	80.1-90 %
A	70.1-80 %
B+	60.1-70 %
B	50.1- 60 %
C	45-50 %
P	35-44.9 %

F	Below 35
Ab	Absent

Syllabus:

Module I: Challenges before youth:

- Drug Abuse: Meaning; Nature and Types and Extent of Drug Abuse in India and Punjab
- Consequences of Drug Abuse: Individual; Education; Employment; Income Family; Violence; Society; Crime and Social Disorganization

Module II: Solving the problem:

- Prevention of Drug abuse :Role of family and Educational Institutions; Parent child relationship; Family support and Supervision; Counseling and Teacher as role-model.

- Management of Drug Abuse :Medical and Psychiatric management ; Medication and withdrawal effects; Counseling; Behavioral and Cognitive therapy ; Legislation : NDPs act; Statutory warnings and Strict enforcement of laws

Module III: Understanding the Self:

- Character building: Self awareness; Self growth; Self Control; Self Discipline; Character and Destiny
- Generation gap: Relation with peer group; siblings and elder

Module IV: Social Responsibility:

- Opposite Sex Relations

- Globalization and IT Boom- Advantages and Disadvantages

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–III
(Session: 2025-26)
Course Title: Hematology-II
Course Code: BMLL- 3481
(THEORY)

Course Outcomes

After passing this course the student will be able to:

CO1: Understand the mechanism of gaseous transport in blood.

CO2: Gain knowledge about blood staining techniques.

CO3: Understand the blood group system and its transfusion.

CO4: Learn about significance of bone marrow studies.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–III
(Session: 2025-26)
Course Title: Hematology-II
Course Code: BMLL- 3481
(THEORY)

Time: 3 Hours **Total Marks: 100**

Credits: 3-0-0 **Theory: 70**

CA: 30

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 of section A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section. Each question carries 14 marks.

Unit I

Gaseous Transportation in blood: Oxygen transport, Carbon dioxide transport, Carbon monoxide transport, oxygen dissociation curve.

Unit II

Staining techniques in Hematology: Principles, mechanism and applications of staining technique.

Routine and special stains (E.g. Romanowsky's stain, Wright's stain, Sudan Black B, PAS-Periodic Acid Schiff's, Enzyme stain, Reticulocyte stain, Iron stains-Prussian Blue) to identify specific blood cells and cellular components.

Unit III

Blood Transfusion: Donor selection, Blood cross matching, testing for infectious diseases, Principles of blood transfusion, including blood group compatibility, transfusion reactions and blood component therapy

Unit IV

Bone marrow studies: Understanding bone marrow techniques and their clinical significance.

Blood banking: Procedures for blood collection, storage and preparation for transfusion,

Management of blood banks, regulatory aspects.

Books Recommended:

1. Godkar, PB and Godkar, DP (2008) Text Book of Medical Laboratory Technology, 2nd edition Bhalani Publishing House, Mumbai, India.
2. Martin R. Howard and Peter J Hamilton (2013) Text Book of Hematology, 4thedition, Churchill Livingstone.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–III
(Session: 2025-26)
Course Title: Hematology-II Lab
Course Code: BMLP - 3481
(PRACTICAL)

Course Outcomes

After passing this course the student will be able to:

CO1: Learn about the oxygen levels during various activities.

CO2: To study human blood group system.

CO3: To understand blood collection and storage techniques.

CO4: Distinguish between the normal and abnormal bone marrow slides.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–III
(Session: 2025-26)
Course Title: Hematology-II Lab
Course Code: BMLP - 3481
(PRACTICAL)

Time: 3 Hours **Total Marks: 50**

Credits: 0-0-2 **Practical: 35**

CA: 15

1. To measure partial oxygen levels in blood during various activities.
2. To determine blood group compatibility.
3. To study various methods of blood collection and storage in blood banks.
4. To prepare blood smear using different stains.
5. To study permanent slides of bone marrow.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–III
(Session: 2025-26)
Course Title: Pathology - I
Course Code: BMLL- 3482
(THEORY)

Course Outcomes

After passing this course the student will be able to:

CO1: Understand the use of microscopy and staining techniques for disease diagnosis.

CO2: To gain the knowledge about diseases of Alimentary canal.

CO3: Learn about various diseases of Accessary digestive glands and its pathology.

CO4: Understand the diseases of circulatory system.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–III
(Session: 2025-26)
Course Title: Pathology-I
Course Code: BMLL- 3482
(THEORY)

Time: 3 Hours **Total Marks: 100**

Credits: 3-0-0 **Theory: 70**

CA: 30

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 of section A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section. Each question carries 14 marks.

Unit I

Microscopy-Working principle, maintenance, and applications of various types of microscopes, Light microscopy and its types, Fluorescence microscopy, Electron microscopy.

Staining: Metachromasis and metachromatic dyes, hematoxylin stain, MGG, Papanicolaou stain, special stains like PAS, Mucicarmine, Alcain blue, Schmorl, and Acid phosphatase.

Unit II

Alimentary and digestive system: - Disease of mouth and esophagus, gastritis, peptic ulceration, pathology of appendicitis, food poisoning, hernia, intestinal obstructions & malabsorption.

Unit III

Accessory Digestive glands: Diseases of Salivary glands-mumps, Salivary gland tumours, Liver disease– Hepatitis, liver failure, cirrhosis, hepatocellular carcinoma, fatty liver disease.

Pancreatic disease- pancreatitis, Gall bladder diseases: Gall stones, jaundice.

Unit IV

Circulatory System: - Disease of Blood vessels- Atheroma, Atherosclerosis, Disorders of Blood Pressure – Hyper & Hypotension and cardiovascular diseases- coronary artery disease, Heart Failure, Arrhythmia.

Recommended Books:

1. Textbook of Pathology by Harsh Mohan (2015). Jaypee Brothers Medical Publishers (P) Ltd. New Delhi, India.
2. Muir's Textbook of Pathology (2014) edited by C. Simon Herrington. CRC press USA.
3. Textbook of Pathology (2004) by V Krishna. Orient Longman Pvt. Ltd, India.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–III
(Session: 2025-26)
Course Title: Practical in Pathology-I
Course Code: BMLP - 3482
(PRACTICAL)

Course Outcomes

After passing this course the student will be able to:

CO1: To understand the use of microscope and its care.

CO2: Learn mounting and staining techniques

CO3: Learn about bio-medical waste management, record keeping, and universal precautions to keep themselves safe.

CO4: To study the slide preparation of organs of digestive and circulatory system.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–III
(Session: 2025-26)
Course Title: Pathology-I Lab
Course Code: BMLP - 3482
(PRACTICAL)

Time: 3 Hours **Total Marks: 50**

Credits: 0-0-2 **Practical: 35**

CA: 15

1. Study of various types of microscopes, Use & care of Microscope.
2. Mounting and staining techniques.
3. Maintenance of records and slides and Bio-Medical waste management.
4. To study stained slide preparation from organs of the digestive system.
5. To study stained slide preparation from organs of the circulatory system.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–III
(Session: 2025-26)
Course Title: Clinical Biochemistry-I
Course Code: BMLL- 3483
(THEORY)

Course Outcomes

After passing this course the student will be able to:

CO1: Collect specimen, process, and handle clinical laboratory, interpret results etc.

CO2: Know about body fluids and their importance.

CO3: Learn procedure of various assays viz. glucose in blood, serum, plasma, and urine etc.

CO4: Learn to calculate normal Range, Reference Values, principles, and assay procedures of proteins, urea, uric acid, creatinine, bilirubin, and lipids in blood, serum, plasma, and urine.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–III
(Session: 2025-26)
Course Title: Clinical Biochemistry-I
Course Code: BMLL- 3483
(THEORY)

Time: 3 Hours **Total Marks: 100**

Credits: 3-0-0 **Theory: 70**

CA: 30

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 of section A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section. Each question carries 14 marks.

Unit I

Introduction: Definition and scope of clinical biochemistry in diagnosis; Specimen collection, processing, and handling in clinical laboratory; Sources of biological variation; Use of clinical laboratory and interpretation of results; Quality control and quality assurance.

Unit II

Body Fluids and their Importance: Milk, Colostrum, Aqueous humor, Cerebrospinal fluid, Amniotic fluid, Assessment of fetal maturity.

Unit III

Assay Procedures 1: Normal range, reference values, principles, and assay procedures of glucosein blood, serum, plasma, and urine; type of diabetes and its complications; glucose tolerance test.

Unit IV

Assay Procedures 2: Normal Range, Reference Values, principles, and assay procedures of proteins, urea, uric acid, creatinine, bilirubin, and lipids in blood, serum, plasma, and urine.

Books Recommended

1. Vasudevan D, Sreeekumari S and Vaidyanathan K (2016) Textbook of Biochemistry for Medical Students. 8th Edition. Jaypee Brothers Medical Publishers (P) Ltd.

2. Godkar PB and Godkar DP (2014) Textbook of Medical Laboratory Technology (Vol 1 and 2) by P.B. Godkar. Bhalani Publishing House.

3. Chaterjea MN and Shinde R (2012) Text book of Medical Biochemistry. 8th Edition.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–III
(Session: 2025-26)
Course Title: Clinical Biochemistry-I Lab
Course Code: BMLP - 3483
(PRACTICAL)

Course Outcomes

After passing this course the student will be able to:

CO1: Learn how to collect and store blood.

CO2: Gain knowledge about preparation of serum and plasma.

CO3: Learn to detect Hb through various methods.

CO4: Understand detection of glucose in urine.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–III
(Session: 2025-26)
Course Title: Clinical Biochemistry-I Lab
Course Code: BMLP - 3483
(PRACTICAL)

Time: 3 Hours **Total Marks: 50**

Credits: 0-0-2 **Practical: 35**

CA: 15

1. Collection and storage of blood
2. Preparation of serum
3. Preparation of plasma
4. Determination of Hb using a hemoglobinometer
5. Determination of Hb using alkaline hematin method
6. Determination of hematocrit
7. Estimation of blood glucose
8. Detection of glucose in urine by Benedict reagent
9. Detection of glucose in urine by Fehling's reagent

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester-III
(Session: 2025-26)
Course Title: Introduction to Bacteriology and Virology
Course Code: BMLL-3064
(Theory)

COURSE OUTCOMES

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

CO 1: learn the history of microbiology and fundamental microbiology techniques

CO 2: learn the classification, morphology, pathogenicity, and lab diagnosis of clinically important bacteria.

CO 3: learn the structure, replication, and detection methods of viruses.

CO 4: learn the growth, culture, effects, and diagnosis of viral infection.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester-III
(Session: 2025-26)
Course Title: Introduction to Bacteriology and Virology
Course Code: BMLL-3064
(Theory)

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

Credits: 3-0-0 **Theory: 70**

CA: 30

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 of section A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section. Each question carries 14 marks.

Unit I

Brief history of microbiology with special reference to the contributions of Louis Pasteur, Robert Koch and others. Morphology and growth requirements of bacteria. Sterilization and disinfection procedures. Stains – Gram's Stain, ZN Stain and special stain. Cultivation methods, isolation and identification of bacteria. Antibiotic susceptibility testing and antibiotic resistance mechanisms in bacteria.

Unit II

Study (Classification, morphology, cultural characteristics, biochemical reaction, pathogenesis/disease caused and lab diagnosis) of clinically important bacteria- Staphylococcus, Streptococcus, Neisseria, Corynebacterium, Mycobacterium, Clostridium, *E. coli*, Klebsiella, Salmonella, Proteus, Pseudomonas, Vibrio and Spirochaetes (Treponema, Borrelia and Leptospira), Mycoplasma, *Helicobacter pylori*

Unit III

Brief history of virology. Virus: general characteristics, Morphology: envelope, capsid and nucleic acid. Bacteriophages. Lytic and lysogenic cycle. Detection of virus: Complement fixation test, haemagglutination, serological and molecular based methods. Electron microscopic techniques for visualization of virus

Unit IV

One step growth curve for virus. Culture of animal virus. Cytopathogenic effects of virus infection. Symptoms, transmission, pathogenesis, detection and treatment of viral diseases: Influenza, Dengue, Hepatitis and AIDS.

Recommended Books:

1. Pelczar, M.J. Chan, E.C.S. and Krieg, N.R. 1986, Microbiology, 5th Ed. McGraw Hill.
2. Woolverten C. J. and Sherwood L. 1990. Prescott's Microbiology. 10th Ed. WCB Publishers.
3. Cann, Allan J. 1997. Principles of Molecular Virology, Academic Press London.
4. E.K. Wagner and M.J. Hewlet. 2004. Basic virology (2^{nd} Ed) Blackwell publisher.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester-III
(Session: 2025-26)
Course Title: Introduction to Bacteriology and Virology Lab
Course Code: BMLP-3064
(Practical)

COURSE OUTCOMES

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

CO 1: learn the preparation of culture media and apply various cultural and staining techniques for bacterial identification.

CO 2: learn and perform bacterial isolation, enumeration, and cultivation using streaking, spreading, pour plating, and serial dilution methods

CO 3: learn and conduct biochemical tests for bacterial characterization and perform antibiotic susceptibility testing using the Kirby-Bauer method

CO 4: learn the estimation of blood sugar and perform immunological assays like the haemagglutination test.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester-III
(Session: 2025-26)
Course Title: Introduction to Bacteriology and Virology Lab
Course Code: BMLP-3064
(Practical)

Time: 3 Hours. **Total marks: 50**

Credits: 0-0-1 **Practical Marks: 35**

CA:15

Experiments:

1. Composition and preparation of culture media and cultural characterization of bacteria
2. Isolation and enumeration of bacteria using serial dilution method
3. To perform various biochemical tests: IMViC test.
4. Antibiotic susceptibility test by Kirby Bauer Method
5. Estimation of blood sugar.
6. Haemagglutination assay.
7. Quantification of virus in infected plant leaves by protein estimation
8. Detection of purified/semi purified virus preparation by UV spectrophotometer

Recommended Books:

1. Cappuccino J and Sherman N. Microbiology: A laboratory manual. 10thEd. Pearson Learning.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester-III
(Session: 2025-26)
Course Title: Basics of Microbiology-I
Course Code: BMLL-3065
(Theory)

COURSE OUTCOMES

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

CO 1: learn the historical developments in microbiology, classification of microorganisms, and concepts like biogenesis, fermentation, and germ theory of disease

CO 2: learn basic microbiological techniques and media preparation.

CO3: to learn methods for obtaining and maintaining pure cultures, identifying cultural characteristics, and preserving microbial strains.

CO 4: learn the nutritional and physical conditions required for microbial growth and the factors influencing it

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester-III
(Session: 2025-26)
Course Title: Basics of Microbiology-I
Course Code: BMLL-3065
(Theory)

Time: 3 Hours. **Total Marks: 100**

Credits: 3-0-0 **Theory: 70**

CA: 30

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 of section A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section. Each question carries 14 marks.

Unit I

Historical aspects and discovery of microorganisms in the living world (Haeckels kingdom Protista, Prokaryotes and Eukaryotes, Whittaker's five kingdom concept, Koch's postulates) groups of microorganisms, distribution in nature, spontaneous generation verses biogenesis, fermentation, germ theory of disease. Identification of microorganisms

Unit II

Microscopy and staining, microbiological techniques, pour plating, spreading, streaking serial dilution, methods of sterilization, media preparation, types of media (synthetic, natural, enrichment, selective)

Unit III

Pure cultures and cultural characteristics: Mixed culture, selective methods, natural selection of microorganisms, maintenance and preservation of cultures, culture collection and cataloging of pure cultures, colony characteristics and characteristics of broth cultures.

Unit IV

Nutritional requirements for growing microorganisms: Physical conditions required for growth: Temperature, gaseous, pH, miscellaneous, factors affecting growth.

Books Recommended:

1. Stanier, R.Y. Adelberg, A. and Ingraham, J. L.(1984), General Microbiology, IV edn. Mac Millan Press.
2. Pelczar, M.J.Chan, E.C.S. and Krieg, N.R (1986), Microbiology, V Ed. McGraw Hill.
3. Prescott. L.M. Harley J.P.and L.Kreig D.A (1990). Microbiology, WCB Publishers.
4. Rosenberg, E & Cohen I. R. (1983). Microbial Biology. H.S. International Editions.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester-III
(Session: 2025-26)
Course Title: Basics of Microbiology-I Lab
Course Code: BMLP-3065
(Practical)

COURSE OUTCOMES

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

CO 1: learn the use and handling of basic laboratory apparatuses and compound microscope in microbiology.

CO 2: learn various sterilization techniques and preparation of culture media and agar slants/deeps.

CO 3: learn and perform serial dilution techniques for enumeration of microorganisms.

CO 4: learn and apply cultural techniques like pour plating, spreading, and streaking for microbial cultivation.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester-III
(Session: 2025-26)
Course Title: Basics of Microbiology-I Lab
Course Code: BMLP-3065
(Practical)

Time: 3 Hours. **Total marks: 50**

Credits: 0-0-1 **Practical: 35**

CA:15

Experiments:

1. To study different lab apparatuses used in microbiology.
2. To study compound microscope.
3. To study various techniques of sterilization.
4. To prepare media and its sterilization.
5. To prepare agar slants/deeps.
6. Serial dilution for enumeration of microorganisms.
7. To study various cultural techniques like pour plating, spreading and streaking.

Books Recommended:

1. Cappuccino, J.G. and Sherman, N. (2014). Microbiology: A Laboratory Manual 10th Edition, Pearson Education India.
2. Dubey R.C. and Maheshwari (2012). Practical Microbiology 5th edition: S. Chand and company ltd. New Delhi.
3. Leooffee, M.J. and Pierce, B.E. (2015). Microbiology: Laboratory Theory and Application, 3rd Edition, Morton Pub. Co.
4. Sastry, A.S. and Bhat, S. (2018). Essentials of Practical microbiology. Jaypee Brothers Medical Publishers.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester-III
(Session: 2025-26)
Course Title: Environmental Studies
Course Code: VACE-3221
(Theory)

COURSE OUTCOMES:

After passing this course, students will be able to:

CO1: Understand the concept and need of environmental education and role of an individual in conservation of natural resources.

CO2: Learn about role of major Eco system and their conservation and Develop desirable attitude, value and respect for protection of Biodiversity.

CO3: Learn about the control measure of pollution and solid waste management and climate change and global warming.

CO4: Knowledge regarding welfare programmes and Human rights and understand the role of different agencies in the protection of environment

Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–III
(Session: 2025-26))
Course Code: VACE-3221
Course Title: Environmental Studies

(Theory)

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

Credit: 2-0-0 **Theory: 35**

CA: 15

Instructions for the Paper Setter:

Eight questions of equal marks (7 marks) are to be set, two in each out 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.

Unit I

1. **The multidisciplinary nature of environmental studies**
   - Definition, scope and importance, Need for public awareness

2. **Natural resources and associated problems.**

(a) Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people.

(b) Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.

(c) Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.

(d) Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.

(e) Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources, case studies.

(f) Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification.

- Role of an individual in conservation of natural resources.
- Equitable use of resources for sustainable lifestyles.

Unit II

3. Ecosystems

- Concept of an ecosystem
- Structure and function of an ecosystem
- Producers, consumers and decomposers
- Energy flow in the ecosystem
- Ecological succession
- Food chains, food webs and ecological pyramids
- Introduction, types, characteristic features, structure and function of the following ecosystem: Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystems (ponds, streams, lakes, rivers, ocean estuaries)

4. Biodiversity and its conservation

- Introduction – Definition: genetic, species and ecosystem diversity
- Biogeographical classification of India
- Value of biodiversity: consumptive use, productive use, social, ethical aesthetic and option values
- Biodiversity at global, national and local levels
- India as a mega-diversity nation
- Hot-spots of biodiversity
- Threats to biodiversity: habitat loss, poaching of wildlife, man wildlife conflicts
- Endangered and endemic species of India
- Conservation of biodiversity: *In-situ* and *Ex-situ* conservation of biodiversity

Unit III

5. Environmental Pollution

- Definition, causes, effects and control measures of Air pollution, Water pollution, Soil pollution , Marine pollution, Noise pollution, Thermal pollution, Nuclear pollution
- Solid waste management: Causes, effects and control measures of urban and industrial wastes.
- Role of an individual in prevention of pollution
- Pollution case studies
- Disaster management: floods, earthquake, cyclone and landslides

6. Social Issues and the Environment

- From unsustainable to sustainable development
- Urban problems and related to energy
- Water conservation, rain water harvesting, watershed management
- Resettlement and rehabilitation of people; its problems and concerns. Case studies.
- Environmental ethics: Issues and possible solutions
- Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case studies.
- Wasteland reclamation
- Consumerism and waste products
- Public awareness

Unit IV

7. Human Population and the Environment

- Population growth, variation among nations
- Population explosion – Family Welfare Programmes
- Environment and human health
- Human Rights
- Value Education
- HIV / AIDS
- Women and Child Welfare
- Role of Information Technology in Environment and Human Health

8. Introduction to Environmental Laws, Environmental Audit and Impact Assessment

- Constitutional provisions- Article 48A
- Article 51A(g) and other derived environmental rights
- Environmental Protection Act, 1986
- Air (Prevention and Control of Pollution) Act, 1981
- Water (Prevention and control of Pollution) Act, 1974
- Wildlife Protection Act
- Forest Conservation Act
- Issues involved in enforcement of environmental legislation
- Environmental risk assessment Pollution control and management
- Waste Management- Concept of 3R (Reduce, Recycle and Reuse)
- Ecolabeling /Ecomark scheme

References:

1. Bharucha, E. 2005. Textbook of Environmental Studies, Universities Press, Hyderabad.
2. Down to Earth, Centre for Science and Environment, New Delhi.
3. Heywood, V.H. & Waston, R.T. 1995. Global Biodiversity Assessment, Cambridge House, Delhi.
4. Joseph, K. & Nagendran, R. 2004. Essentials of Environmental Studies, Pearson Education (Singapore) Pte. Ltd., Delhi.
5. Kaushik, A. & Kaushik, C.P. 2004. Perspective in Environmental Studies, New Age International (P) Ltd, New Delhi.
6. Rajagopalan, R. 2011. Environmental Studies from Crisis to Cure. Oxford University Press, New Delhi.
7. Sharma, J. P., Sharma. N.K. & Yadav, N.S. 2005. Comprehensive Environmental Studies, Laxmi Publications, New Delhi.
8. Sharma, P. D. 2009. Ecology and Environment, Rastogi Publications, Meerut.
9. State of India's Environment 2018 by Centre for Sciences and Environment, New Delhi
10. Subramanian, V. 2002. A Text Book in Environmental Sciences, Narosa Publishing House, New Delhi.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–IV
(Session: 2025-26)
Course Title: Hematology-III
Course Code: BMLL- 4481
(THEORY)

Course Outcomes

After passing this course the student will be able to:

CO1: Learn about coagulation

CO2: Learn about various laboratory techniques and procedures theoretically

CO3: Theoretical analysis of blood

CO4: Handle samples and learn various techniques like serum separation, CBC, ESR.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–IV
(Session: 2025-26)
Course Title: Hematology-III
Course Code: BMLL- 4481
(THEORY)

Time: 3 Hours **Total Marks: 100**

Credits: 3-0-0 **Theory: 70**

CA: 30

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 of section A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section. Each question carries 14 marks.

Unit I

Coagulation and mechanism of coagulation, Blood coagulation, Anticoagulants, Routine coagulation Tests, Automated coagulation system

Unit II

Characteristics of good technician, Preparation of specimen collection material, lab request form, vein puncture and its complications

Unit III

Specimen rejection criteria for blood specimen, Haemolysis of blood, Blood collection by skin puncture, Arterial puncture

Unit IV

Separation of serum, plasma, changes in blood on keeping, maintenance of specimen, identification & transport of the specimen, Complete blood count (CBC), ESR

Books Recommended:

1. Godkar, PB and Godkar, DP (2008) Text Book of Medical Laboratory Technology, 2nd edition Bhalani Publishing House, Mumbai, India.

2. Martin R. Howard & Peter J Hamilton (2013) Text Book of Hematology, 4th edition, Churchill Livingstone.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–IV
(Session: 2025-26)
Course Title: Hematology-III Lab
Course Code: BMLP- 4481
(Practical)

Course Outcomes

After passing this course the student will be able to:

CO1: Perform basic hematological laboratory testing, assess laboratory data and report findings according to laboratory protocol.

CO2: Adapt hematology laboratory techniques and procedures when errors and discrepancies in results are obtained to effect resolution in a professional and timely manner.

CO3: Distinguish normal and abnormal hematological laboratory findings to predict the diagnosis of hematological disorders and diseases.

CO4: Recognize laboratory results consistent with leukemia and other white blood cell disorders.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–IV
(Session: 2025-26)
Course Title: Hematology-III Lab
Course Code: BMLP- 4481
(Practical)

Time: 3 Hours **Total Marks: 50**

Credits: 0-0-2 **Practical: 35**

CA: 15

1. Determination of Blood group
2. Absolute Eosinophil count
3. Morphology of Red Blood Cells
4. Determination of Malarial Parasite
5. Determination of BleedingTime
6. Determination of clotting time

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–IV
(Session: 2025-26)
Course Title: Pathology-II
Course Code: BMLL- 4482
(THEORY)

Course Outcomes

After passing this course the student will be able to:

CO1: Know about diseases of respiratory system

CO2: Learn about various urinary tract disorders and diseases

CO3: Understand pathology behind sexually transmitted diseases

CO4: Gain knowledge about genital tract diseases.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–IV
(Session: 2025-26)
Course Title: Pathology-II
Course Code: BMLL- 4482
(THEORY)

Time: 3 Hours **Total Marks: 100**

Credits: 3-0-0 **Theory: 70**

CA: 30

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 of section A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section. Each question carries 14 marks.

Unit I

Respiratory System: Upper Respiratory Tract Infections (URTIs), Diseases of Bronchi; Bronchitis and Asthma, Diseases of Lung; Pneumonia, Fungal infections of the lung, Lung abscess, Tuberculosis, and Lung Collapse.

Unit II

Urinary System: Glomerulonephritis, Nephrotic syndrome, Acute Renal failure, Chronic Kidney disease, Renal calculi, Urinary obstruction, Urinary tract infections.

Unit III

Sexually Transmitted Diseases: Common Sexually transmitted diseases (STDs); Chlamydia, Gonorrhoea, Syphilis, Genital herpes, Human papillomavirus (HPV), and HIV/AIDS.

Unit IV

Male and Female Genital Tract: - Prostatitis, erectile dysfunction, testicular disorders, pelvic inflammatory disease, disorder of cervix; cervical intraepithelial neoplasia (CIN), disease of ovaries, ectopic pregnancy, prostatitis, infertility.

Recommended Books:

1. Textbook of Pathology by Harsh Mohan (2015). Jaypee Brothers Medical Publishers (Pvt) Ltd. New Delhi, India

2. Muir's Textbook of Pathology (2014) edited by C. Simon Herrington. CRC Press USA

3. Textbook of Pathology (2004) by V Krishna. Orient Longman Pvt. Ltd, India.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–IV
(Session: 2025-26)
Course Title: Pathology-II Lab
Course Code: BMLP- 4482
(Practical)

Course Outcomes

After passing this course the student will be able to:

CO1: Learn about Pancreas and Liver through permanent slides

CO2: Study gall bladder through permanent slides

CO3: Study the stained slide preparation from organs of the Respiratory system

CO4: Understand stained slide preparation from organs of the Urinary system

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–IV
(Session: 2025-26)
Course Title: Pathology-II Lab
Course Code: BMLP- 4482
(Practical)

Credits: 0-0-2 **Total Marks: 50**

Time: 3 Hours **Practical: 35**

CA: 15

1. To study stained slides of the liver and pancreas
2. To study stained slides of the gall bladder
3. To study stained slide preparation from organs of the Respiratory system
4. To study stained slide preparation from organs of the Urinary system

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–IV
(Session: 2025-26)
Course Title: Clinical Biochemistry-II
Course Code: BMLL- 4483
(THEORY)

Course Outcomes

After passing this course the student will be able to:

CO1: Know about electrolyte and water balance

CO2: Learn about pH and buffers

CO3: Understand Acid-Base Balance and Disorders

CO4: Know about Detoxification and Biotransformation of Xenobiotics

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–IV
(Session: 2025-26)
Course Title: Clinical Biochemistry-II
Course Code: BMLL- 4483
(THEORY)

Time: 3 Hours **Total Marks: 100**

Credits: 3-0-0 **Theory: 70**

CA: 30

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 of section A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section. Each question carries 14 marks.

Unit I

Electrolyte and Water Balance: Electrolyte concentration of body fluid compartments, Regulation of sodium and water balance: Anti-Diuretic Hormone (ADH), Renin-angiotensin system; Donnan membrane equilibrium, Osmolality;Disturbances in Fluid and Electrolyte Balance; Clinical applications of Sodium, Potassium, and Chloride: Hypernatremia, Hyponatremia, Hypokalemia, Hyperkalemia, Hyperchloremia, Hypochloremia

Unit II

pH and buffers: Introduction to pH: definition of pH, the pH scale: acidic, neutral, and basic solutions; Mathematical expression of pH; Relationship between pH and hydrogen ion concentration; Importance of pH in various fields; Concept of buffers and buffer capacity; Buffers of body fluids; Henderson-Hasselbalch equation; Maintenance of body pH; Buffers of body fluids.

Unit III

Acid-Base Balance and Disorders: Acids and bases, Respiratory regulation of pH, Renal regulation of pH, Titra table acid, Disturbances in acid-base balance, Anion gap, Metabolic acidosis, Metabolic alkalosis, Respiratory acidosis, Respiratory alkalosis.

Unit IV

Detoxification and Biotransformation of Xenobiotics: Phase one reactions, Oxidative reactions, Reductive reactions, Hydrolysis, Phase two reactions, Conjugation, Phase three reactions.

Books Recommended:

1. Vasudevan D, Sreeekumari S and Vaidyanathan K (2016) Textbook of Biochemistry for Medical Students.8thEdition. Jaypee Brothers Medical Publishers (P) Ltd.
2. Godkar PB and Godkar DP (2014) Textbook of Medical Laboratory Technology (Vol 1 and 2) Bhalani Publishing House.
3. Chaterjea MN and Shinde R (2012) Textbook of Medical Biochemistry. 8th Edition Jaypee Brother Medical Publisher.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–IV
(Session: 2025-26)
Course Title: Clinical Biochemistry-II Lab
Course Code: BMLP- 4483
(Practical)

Course Outcomes

After passing this course the student will be able to:

CO1: Learn about collection and storage of urine

CO2: Estimate proteins in plasma and calculation of A/G ratios

CO3: Estimate serum urea and creatinine

CO4: Estimate serum uric acid

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–IV
(Session: 2025-26)
Course Title: Clinical Biochemistry-II Lab
Course Code: BMLP- 4483
(Practical)

Time: 3 Hours **Total Marks: 50**

Credits: 0-0-2 **Practical: 35**

CA: 15

1. Collection and storage of urine
2. Estimation of proteins in urine
3. Estimation of proteins in plasma and calculation of A/G ratios
4. Estimation of serum urea
5. Estimation of serum creatinine
6. Estimation of serum uric acid

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester-IV
(Session: 2025-26)
Course Title: Basics of Microbiology-II
Course Code: BMLL-4064
(Theory)

COURSE OUTCOMES

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

CO 1: learn the morphology, fine structure, and growth patterns of bacteria, fungi, protozoa, and viruses

CO 2: learn the physical methods used to control microorganisms and factors affecting microbial death.

CO 3: learn the chemical control of microbes, including types, properties, and evaluation of antimicrobial agents.

CO 4: learn the properties and action of antibiotics, mechanisms of drug resistance, antibiotic sensitivity testing, and normal microbial flora of the human body

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester-IV
(Session: 2025-26)
Course Title: Basics of Microbiology-II
Course Code: BMLL-4064
(Theory)

Time: 3 Hours. **Total Marks: 100**

Credits: 3-0-0 **Theory: 70**

CA: 30

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 of section A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section. Each question carries 14 marks.

Unit I

General account of Bacteria: Morphology and fine structure, Mode of cell division, growth curve of bacteria mathematical expression of growth, quantitative measurement of bacterial growth, Structure of fungi, protozoa, viruses.

Unit II

Fundamentals of control of microorganisms, the rate of death of bacteria, conditions influencing antimicrobial action, Control of microbes by physical agents: temperature, desiccation, osmotic pressure, radiation, filtration

Unit III

Control of microbes by chemical agents: characteristics of ideal chemical agents, major group of antimicrobial agents and mode of action, evaluation of antimicrobial agents.

Unit IV

Antibiotics: properties and mode of action. Drug resistance and its significance. Antibiotic Sensitivity test. Microbial flora of healthy human host.

Books Recommended:

1. Stanier, R.Y. Adelberg, E.A. and Ingraham, J.L. (1984), General Microbiology, IV edn. Mac Millan Press.
2. Pelczar, M.J. Chan, E.C.S and Krieg, N.R. (1986), Microbiology, VEd. McGraw Hill.
3. Prescott. L.M. Harley J.P. and L. Kreig D.A.(1990). Microbiology, WCB Publishers.
4. Rosenberg, E & CohenI. R. (1983). Microbial Biology. H.S. International Editions.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester-IV
(Session: 2025-26)
Course Title: Basics of Microbiology-II Lab
Course Code: BMLP-4064
(Practical)

COURSE OUTCOMES

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

CO 1: learn and perform staining techniques to observe the morphology and cell structure of microorganisms

CO 2: learn to count microorganisms using a hemocytometer and measure bacterial size using a micrometer

CO 3: learn and perform key biochemical tests for microbial identification and characterization.

CO 4: develop practical skills in handling microbial samples and interpreting laboratory results.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester-IV
(Session: 2025-26)
Course Title: Basics of Microbiology-II Lab
Course Code: BMLP-4064
(Practical)

Time: 3 Hours **Total Marks: 50**

Credits: 0-0-1 **Practical: 35**

CA: 15

1. To study the morphology cell structure of microorganisms through staining procedures.
   a. Simple staining
   b. Gram staining
   c. Negative staining
2. To count the number of microorganisms by hemocytometer. Measure size of bacteria using micrometer.
3. To perform various biochemical tests: Acid gas production, nitrate reduction test, gelatin, catalase production, oxidase production.

Books Recommended:

1. Cappuccino, J.G. and Sherman, N. (2014). Microbiology: A Laboratory Manual 10th Edition, Pearson Education India.
2. Dubey R.C. and Maheshwari (2012). Practical Microbiology 5th edition: S. Chand and company ltd. New Delhi.
3. Leooffee, M.J. and Pierce, B.E. (2015). Microbiology: Laboratory Theory and Application, 3rd Edition, Morton Pub. Co.
4. Sastry, A.S. and Bhat, S. (2018). Essentials of Practical microbiology. Jaypee Brothers Medical Publishers.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–IV
(Session: 2025-26)
Course Title: Immunology-I
Course Code: BMLL- 4485
(THEORY)

Course Outcomes

After passing this course the student will be able to:

CO1: Know about Types of immunity and immune response.

CO2: Gain knowledge about Primary and secondary lymphoid organs.

CO3: Understand antibodies and its types.

CO4: Know about Antigen-antibody interactions.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–IV
(Session: 2025-26)
Course Title: Immunology-I
Course Code: BMLL- 4485
(THEORY)

Time: 3 Hours **Total Marks: 100**

Credits: 3-0-0 **Theory: 70**

CA: 30

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 of section A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section. Each question carries 14 marks.

Unit I

Types of immunity: Innate immunity-Physical barriers, cellular components, soluble molecules; Adaptive immunity-T-cell and B-cell mediated responses.

Features of immune response: Primary vs. secondary immune response.

Unit II

Primary lymphoid organs: Thymus-Structure, T-cell development; Bone Marrow- Structure, B-cell development.

Secondary lymphoid organs: Spleen-Structure and functions; Lymph nodes-Structure, functions, and lymphocyte trafficking; Lymphatic system - Role in immunity; Mucosa Associated Lymphoid Tissue (MALT) – Structure and functions.

Cells of Immune system: T-cells-Types, functions, and development; Bcells - Types, functions, and development; NK cells-Role inimmunity; Macrophages- Phagocytosis and antigen presentation.

Unit III

Antibodies: Classes-IgG, IgM, IgA, IgE, IgD; Structure-Heavy and light chains, variable and constant regions.

Antigens and their characteristics: Antigenicity vs. immunogenicity; Types of antigens: complete and haptens.

Unit IV

Affinity and avidity: Definitions and differences; Importance in antigen-antibody interactions. **Antigen-antibody interactions:** Principles of binding; Techniques- Precipitation, agglutination, immunofluorescence.

Books Recommended:

1. Abbas, A.K., Litchman, A.H. (2006-2007). Basic Immunology: Functions and Disorders of the Immune System, 2nd Ed. (updated edition), Philadelphia, Pennsylvania: W.B. Saunders Company Publishers.
2. Benjamini, E.,Coico, R.and Sunshine, G. (2009). Immunology: A Short Course, 6th Ed., New York, Wiley-Blackwell.
3. Roit, I.M., Delves, P. Seamus M. and Burton D. (2006). Essential Immunology, 11th Ed., Willey- Blackwell.
4. Roitt, I., Brostoff, J.and Male, D.(2001).Immunology,7th Ed., Mosby
5. Kanfmann S.H.E., Sher, A., Ahmed, R. (2002). Immunology of Infections Diseases, ASM Press, Washington.
6. Goldsby, R. A., Kindt, T.J.,Osborne, B.A.(2005).Kuby Immunology, 5thEd., W.H. Freeman and Company, New York.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–IV
(Session: 2025-26)
Course Title: Immunology-II Lab
Course Code: BMLP- 4485
(Practical)

Course Outcomes

After passing this course the student will be able to:

CO1: Learn blood group testing

CO2: Separation of serum and plasma from blood

CO3: Examine Peripheral Blood Film (PBF)

CO4: Learn to store serum and plasma

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–IV
(Session: 2025-26)
Course Title: Immunology-II Lab
Course Code: BMLP- 4485
(Practical)

Time: 3 Hours **Total Marks: 50**

Credits: 0-0-1 **Practical: 35**

CA: 15

1. Blood Group testing
2. Separation of serum from blood
3. Separation of plasma from blood
4. Peripheral Blood Film (PBF) examination
5. Storage of serum and plasma

Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–IV
(Session: 2025-26)
Course Title: Moral Education
Course Code: VACM- 4502
AUDIT COURSE (Value Based)

Time: 1 hour **Total Marks: 50**
Credits: 2-0-0 **Theory: 35**
Course Duration: 30 hours **CA: 15**

Course Description:-

The Moral Education Course has been introduced as part of the curriculum of second semester of all streams of undergraduate degree programmes. Moral education has been added as a compulsory subject, the awards of which will not be incorporated in the total marks but will earn the student two credits.

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 students 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 behavior and mutually enriching interaction with nature

Course Methodology:-

- The methodology of this course is aimed at perceptional transformation
- It is free from any dogma or value prescriptions
- It is an initiation into the process of self- investigation and self- exploration
- It aims at encouraging a dialogue between the teacher and the taught, paving the way for a continuous self- evolution
- The self-exploration will enable the students to evaluate their personal beliefs and their pre conceived notions while marching on the path of truth and righteousness.

Curriculum:

MODULE	TITLE	CONTACT HOURS
I	Introduction to Moral Education, need, content and purpose	6
II	The Self and You	6
III	The Family and You	6
IV & V	The Society and You	6
VI	The Nation and You	6

EXAMINATION

- **Total Marks: 50 (Final Exam: 40; Internal Assessment: 10)**
- Final Exam: Multiple choice Questions Marks-40; Time: 1 hour
- Internal Assessment: 10 (Assessment: 6; Attendance: 4)
- Total marks: 50 converted to credits for final result

- Grading system **Letter Grades for Moral Education**

Letter Grade	Percentage Score
O	90.1-100
A+	80.1-90
A	70.1-80
B+	60.1-70
B	50.1-60
C	45-50
P	35-44.9
F	Below 35
Ab	Absent

SYLLABUS

Module I: Introduction

- What is Moral Education
- Need, content and purpose
- Vedic values
- Character building

Module II: 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
- Self Discipline

Module III: The Family and You

- Importance of family - the basic unit of human interaction.

- Generation gap
- Relation with peer group, sibling, elders,

Module IV &V: The Society and You

- Social responsibility
- Civic sense
- Opposite sex relations
- Globalization and IT boom - Cell phone menace
- Drug abuse
- Sex abuse

Module VI: The Nation and You

- International peace and brotherhood
- Saving the environment
- Rights and duties – Human Rights & Fundamental Rights

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–IV
(Session: 2025-26)
Course Title: Entrepreneurship and Small Business
Course Code: BMLL-4320

Course Outcomes:

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

CO1: Understand basic concepts in the area of entrepreneurship, the role and importance of entrepreneurship for economic development,

CO2: Know about the role of Entrepreneurship Development Programmes in Entrepreneurship.

CO3: Understand about the role of Small Scale Business, growth and diversification strategies in Entrepreneurship.

CO4: Understand the contribution of Commercial banks in promoting and servicing small business

Kanya Maha Vidyalaya, Jalandhar (Autonomous)
Bachelor of Science (Honours) (Medical Laboratory Technology) Semester–IV
(Session: 2025-26)
Course Title: Entrepreneurship and Small Business
Course Code: BMLL-4320

Time: 3 Hours **Total Marks: 100**

Credits: 3-0-0 **Theory: 70**

CA: 30

Instructions for the Paper Setter: Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section. Each question will carry 16 marks.

UNIT-I

Concept of Enterpreneurship: The Enterpreneur: Definition, nature, and characteristics of enterpreneurhsip. Emergence of enterpreneurial class including women enterpreneurs. Theories of enterpreneurship ; Socio-economic environment and the enterpreneur.

UNIT-II

Characteristics of Enterpreneur- Leadership risk taking, decision making and business planning. Innovation and enterpreneurship, enterpreneurial behavior and motivation.

Enterpreneurial Development Programmes -Their relevance and achievements, Role of government in organising such programmes.

UNIT-III

Small Business as a Seed Bed of Enterpreneurship: Concept of business venture. The start-up process: Concept, Plan, Implementation, Initial Strategic Planning, Product and Marketing Scope, Legal and tax consideration, risk analysis and financial considerations.

Profit Planning in Small Enterprise: Growth Strategies and diversification.

UNIT-IV

Role of Small Business in the national economy. National Policies for small business development. Government and Non-Governmental assistance.

Contribution of Commercial Banks in Promoting and servicing small business. Small business and modern technology.

Suggested Readings:

1. Hall, B. Pricke; and Royce L. Brahamson, “Small Business Management”.
2. Kenneth R., Van Voorthis, “Enterpreneurship and Small Business Management”.
3. Hans Schollhammer and Arthur H. Kuriloff, “Enterpreneurship and Small Business Management”.
4. Joseph R. Mancuso, “How to Start, Finance and Manage Your Own Small Business”.
5. Sharma, R.A, “Enterpreneurial Change in Indian Industries”.
6. Dhar, P.N. and Lydall H.F.,“The Role of Small Enterprises in Indian Economic Development”.

Note: The latest editions of the books should be followed.