



ARKA JAIN
University
Jharkhand



[18-02-2026]
END SEM EXAMINATION
School of Health and Allied
Science

Program	Bachelor of Science in Medical Laboratory Technology		
Subject Name	Systematic Bacteriology	Session	Odd, 2025-26
Semester	III	Year	Feb, 2026
Time: 3 Hour Max. Marks : 70	<ul style="list-style-type: none"> Start writing from 2nd page onwards; don't write on the 1st Page Backside Answer all Questions of Section A (Compulsory) Answer Any Four out of Six of Section B Answer Any Two out of Four of Section C Possession of Mobile Phones or any kind of Written Material, Arguments with the Invigilator or Discussing with Co-Student will come under <u>Unfair Means</u> and will <u>Result</u> in the <u>Cancellation of the Papers.</u> 		
Knowledge Level (KL)	K1 : Remembering	K3 : Applying	K5 : Evaluating
	K2 : Understanding	K4 : Analysing	K6 : Creating

Section A (Each question Carry 01 Mark from Q1-i to xii) – 12 Marks			
Q.N	QUESTIONS	Marks	COs
1			KL
i	Define seeding of culture media.	01	CO1 K1
ii	Name one loop used for inoculation.	01	CO1 K1
iii	What is negative staining?	01	CO1 K1
iv	Name the primary stain used in Gram staining.	01	CO2 K1
v	What is oxidase test used for?	01	CO1 K1
vi	Name one spirochete pathogenic to humans.	01	CO2 K2
vii	What is the principle of capsule staining?	01	CO1 K1
viii	Name the organism positive for Nagler's reaction.	01	CO3 K2
ix	What is the use of BacT/ALERT 3D system?	01	CO2 K2
x	What is the principle of Fontana stain?	01	CO2 K1

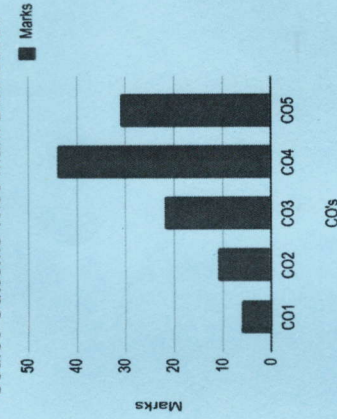
xi	What does positive CAMP test indicate?	01	CO5	K6
xii	State one advantage of VITEK system in bacteriology.	01	CO1	K1
Section B (Answer any FOUR out of SIX) – 28 Marks (Each question Carry 07 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
2	Write the morphological, cultural and biochemical characteristics of Pneumococcus (Streptococcus pneumoniae).	07	CO4	K4
3	Explain the pathogenesis and laboratory diagnosis of Streptococcus pyogenes.	07	CO3	K3
4	Write a short note on culture media used for isolation of pathogenic bacteria.	07	CO3	K4
5	Describe the laboratory diagnosis of Vibrio cholerae.	07	CO3	K3
6	Demonstrate motility of bacteria and explain its diagnostic importance.	07	CO3	K3
7	Carbohydrate fermentation test: principle, procedure and interpretation with suitable examples.	07	CO4	K4
Section C (Answer any TWO out of FOUR) – 30 Marks (Each question Carry 15 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
8	Describe morphology, cultural characteristics, biochemical reactions, pathogenesis and laboratory diagnosis of Neisseria gonorrhoeae.	15	CO4	K4
9	Describe Clostridia causing wound infections with special reference to laboratory diagnosis.	15	CO5	K5
10	Describe Spirochetes – Treponema, Borrelia and Leptospira with laboratory diagnosis.	15	CO5	K4
11	Describe Pseudomonas aeruginosa with emphasis on culture characteristics, biochemical reactions and laboratory identification.	15	CO4	K4

CO- Course Outcomes, KL- Knowledge Level, PO – Program Outcome

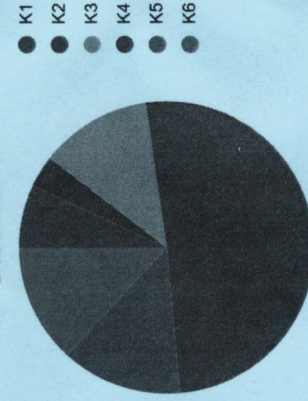
CO1	Remember key concepts, terminology, and classifications of bacteria.
CO2	Understand bacterial identification and classification methods.
CO3	Apply laboratory techniques for bacterial isolation, identification, and culture.
CO4	Analyse bacterial cultures and test results to identify pathogens.
CO5	Evaluate diagnostic methods and treatment options for bacterial infections.

GRAPHICAL REPRESENTATION

Course Outcome Wise Mark Distribution



Bloom's Level Wise Marks Distribution





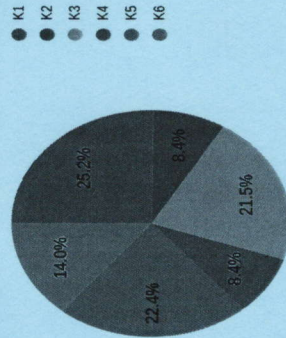
Program	Bachelor of Science in Medical Laboratory Technology	
Subject Name	Clinical Pathology	Session Odd, 2025-26
Semester	III	Year Feb, 2026
Time: 3 Hour Max. Marks : 70	<ul style="list-style-type: none"> Start writing from 2nd page onwards; <u>don't Write on the 1st Page Backside</u> Answer all Questions of Section A (Compulsory) Answer Any Four out of Six of Section B Answer Any Two out of Four of Section C Possession of <u>Mobile Phones</u> or any kind of <u>Written Material, Arguments with the Invigilator or Discussing with Co-Student</u> will come under <u>Unfair Means</u> and will <u>Result</u> in the <u>Cancellation of the Papers.</u> 	
Knowledge Level (KL)	K1 : Remembering	K3 : Applying
	K2 : Understanding	K4 : Analysing
		K5 : Evaluating
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Section A (Each question Carry 01 Mark from Q1-i to xii) – 12 Marks		
Q. N	QUESTIONS	Marks
1		KL
i	Define exudate.	01
ii	Name one method for preservation of urine for laboratory examination.	01
iii	Which test is used for detection of protein in cerebrospinal fluid?	01
iv	Name the stain used for demonstration of acid-fast bacilli in sputum.	01
v	What is the normal specific gravity of urine?	01
vi	What is the ideal container used for collection of Stool sample?	01
vii	Name one physical characteristic examined in stool analysis.	01
viii	What is the normal pH of semen?	01
ix	What magnification is used for microscopic semen examination?	01
x	What is meant by effusion?	01
		CO1
		CO1
		CO5
		CO2
		CO4
		CO5
		CO3
		CO4
		CO1
		CO1
		K1
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		K1
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		K4
		K1
		K5
		K2

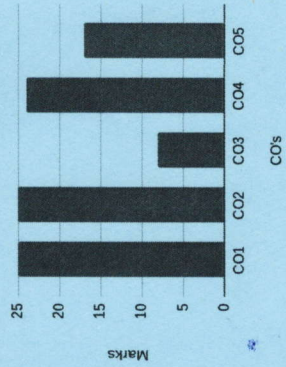
CO1	Apply clinical pathology methods for accurate sample analysis and result interpretation.
CO2	Analyze results to diagnose diseases such as infections and metabolic disorders.
CO3	Evaluate clinical pathology methods for their diagnostic value.
CO4	Understand the principles of clinical pathology tests like urinalysis and body fluids analysis
CO5	Remember key concepts and techniques in clinical pathology, including specimen collection and processing

GRAPHICAL REPRESENTATION

Bloom's Level Wise Marks Distribution



Course Outcome Wise Mark Distribution



Q. No.	QUESTIONS	Marks	COs	KL
xi	What do you mean by paracentesis?	01	CO5	K3
xii	Give an example of clinical manifestation of pleural fluid.	01	CO2	K1
Section B (Answer any FOUR out of SIX) - 28 Marks (Each question Carry 07 Marks)				
2	Give a brief account of the composition, collection and physical, chemical, microscopical examination of urine.	07	CO5	K4
3	Explain the chemical tests for urine including tests for albumin, sugar, blood, bile salts, bile pigments, urobilinogen, and ketone bodies.	07	CO2	K5
4	Enumerate the examination of peritoneal fluids their cell count, cell morphology and detection of malignant cells in peritoneal, pleural, pericardial and synovial fluids.	07	CO4	KL3
5	Describe the differences between transudates and exudates with examples.	07	CO5	K2
6	State and explain the mounting of museum specimens including methods and precautions.	07	CO5	K2
7	Illustrate the autopsy instruments and cold storage plants used in a mortuary.	07	CO1	K6

Section C (Answer any TWO out of FOUR) - 30 Marks
(Each question Carry 15 Marks)

Q. No.	QUESTIONS	Marks	COs	KL
8	Describe the museum techniques with reference to mounting, labeling, cataloguing, and maintenance of specimens.	15	CO5	K6
9	Write in detail the cellular examination of cerebrospinal fluid and body fluids.	15	CO4	K1
10	Explain the laboratory diagnosis and clinical significance of pleural fluid and pericardial fluid.	15	CO1	K3
11	Write down the steps for Sputum sample collection, stain and procedure of A.F.B.	15	CO2	K5



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[19-02-2026]

END SEM EXAMINATION
School of Health and Allied
Science

Program	Bachelor of Science in Medical Laboratory Technology	
Subject Name	Applied Hematology	Session Odd, 2025-26
Semester	III	Year Feb, 2026 *
Time: 3 Hour Max. Marks : 70	<ul style="list-style-type: none"> Start writing from 2nd page onwards; don't Write on the 1st Page Backside Answer all Questions of Section A (Compulsory) Answer Any Four out of Six of Section B Answer Any Two out of Four of Section C Possession of Mobile Phones or any kind of Written Material, <u>Arguments with the Invigilator or Discussing with Co-Student will come under Unfair Means and will Result in the Cancellation of the Papers.</u> 	
Knowledge Level (KL)	K1 : Remembering	K3 : Applying
	K2 : Understanding	K4 : Analysing
		K5 : Evaluating
		K6 : Creating

Section A (Each question Carry 01 Mark from Q1-i to xii) – 12 Marks

Q.N	QUESTIONS	Marks	COs	KL
1				
i	Normal lifespan of RBC.	01	CO1	K1
ii	Name hormone stimulating RBC production.	01	CO1	K1
iii	What is ESR?	01	CO2	K1
iv	Name one platelet function test.	01	CO2	K1
v	What is APTT?	01	CO2	K1
vi	Define clot retraction	01	CO2	K1
vii	Name any one Rh antigen.	01	CO1	K1
viii	What is meant by normocytic normochromic anaemia?	01	CO4	K2
ix	Define anisocytosis.	01	CO4	K1

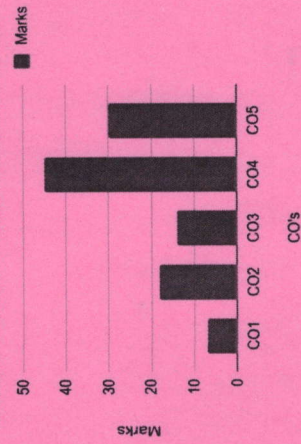
x	Which amino acid replaces glutamic acid in sickle cell anaemia?	01	CO1	K1
xi	How long can whole blood be stored under standard blood bank conditions?	01	CO1	K1
xii	What is the full form of HPLC?	01	CO1	K1
Section B (Answer any FOUR out of SIX) – 28 Marks (Each question Carry 07 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
2	Explain common haematological abnormalities.	07	CO4	K4
3	Explain components of complete blood count.	07	CO2	K2
4	Explain the haemoglobin estimation by the Drabkin (cyanmethemoglobin) method.	07	CO3	K3
5	Discuss secondary haemostasis.	07	CO2	K3
6	Explain toxic granulation in neutrophils.	07	CO4	K4
7	Describe the procedure for preparation and examination of a peripheral blood smear.	07	CO3	K3
Section C (Answer any TWO out of FOUR) – 30 Marks (Each question Carry 15 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
8	Discuss clinical manifestations and management of anaemia.	15	CO5	K5
9	Discuss Rh blood group system.	15	CO4	K4
10	Discuss leukocytopenia with causes.	15	CO4	K4
11	Describe estimation techniques in haematology analyser.	15	CO5	K5

CO- Course Outcomes, **KL-** Knowledge Level, **PO** – Program Outcome

Course Outcomes	CO1	Remember key concepts and techniques in haematology, including blood cell types and functions.
	CO2	Understand the principles of haematological tests like CBC and coagulation studies.
	CO3	Apply haematological techniques for tests such as blood smears and haemoglobin analysis.
	CO4	Analyse results to diagnose conditions like anaemia and leukaemia.
	CO5	Evaluate haematological methods and their clinical relevance

GRAPHICAL REPRESENTATION

Course Outcome Wise Mark Distribution



Bloom's Level Wise Marks Distribution

