BLDE (DEEMED TO BE UNIVERSITY)

Jan-26

B.Sc. Medical Laboratory Technology

[Time: 3 Hours] **[Max. Marks: 80]**

IV SEMESTER

PAPER - I (Fundamentals of Biochemistry II)

QP CODE: 8430

Your answer should be specific to the questions asked.
Write Question No. in left side of margin.

Long Questions **10X1 = 10 Marks**

1. What are standard amino acids? Classify them based on their structure and chemical nature.

Short Essays: (Any – 8) **5 X 8 = 40 Marks**

2. Write a short note on genetic code.
3. Write a note on Lowry and Bronsted concept of acids and Bases.
4. What is the transcription and reverse transcription?
5. What is acid-base balance? Why is it important to maintain the acid-base balance?
6. What are the key enzymes involved in protein digestion, and what roles do they play?
7. Explain the transamination and deamination.
8. Differentiate between positive nitrogen balance, negative nitrogen balance, and nitrogen equilibrium.
9. Note on clinical applications of radioactive Isotopes.
10. Which factors can affect protein digestion and absorption?

Short Answers: (Any – 10) **3 X 10 = 30 Marks**

11. How is biological oxidation linked to aging and diseases?
12. What is the anion gap, and why is it important in diagnosing metabolic acidosis?
13. Malnutrition
14. Significance of the urea cycle.
15. How do cells protect themselves against the harmful effects of biological oxidation?
16. Explain the importance of standard operating procedures (SOPs) in a laboratory setting.
17. Note on PCR technique.
18. Write the normal ranges for blood pH, pCO_2, and pO_2.
19. Role & Nutritional Significances of PUFA, MUFA, SFA.
20. Describe how phenolphthalein and litmus paper work as indicators.
21. Briefly explain the quality control program in the clinical Biochemistry laboratory,

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IV SEMESTER

PAPER - II (Fundamentals of Microbiology II)

QP CODE: 8431

Your answer should be specific to the questions asked.
Write Question No. in left side of margin.

Long Questions **10X1 = 10 Marks**

1. Describe Pathogenesis and Laboratory diagnosis of infections caused by Staphylococcus aureus.

Short Essays: (Any – 8) **5 X 8 = 40 Marks**

2. Lab Diagnosis of Diphtheria
3. Widal test
4. Difference between VDRL and RPR
5. Tuberculin test.
6. Laboratory Diagnosis of Cholera
7. Standard precautions
8. Laboratory Diagnosis of Shigellosis
9. Hospital Acquired Infection
10. Laboratory diagnosis of Pulmonary tuberculosis

Short Answers: (Any – 10) **3 X 10 = 30 Marks**

11. MRSA
12. Classification of Streptococci
13. Enumerate three Gram positive cocci
14. List 3 bacteria causing Urinary tract infection
15. Enumerate three spore forming bacilli.
16. List 3 anaerobic bacteria
17. Describe specimen collection techniques for patients having Urinary tract infection
18. Enumerate infections caused by Klebsiella pneumoniae
19. Enumerate Zoonotic diseases
20. Name 3 infections caused by Spirochetes
21. Oxidase test

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IV SEMESTER

PAPER - III (Hematology & Clinical Pathology II)

QP CODE: 8432

Your answer should be specific to the questions asked.
Write Question No. in left side of margin.

Long Questions

10X1 = 10 Marks

1. Define anemia. Write the etiological classification of anemia. Explain in detail the laboratory diagnosis and peripheral smear findings in megaloblastic anemia.

Short Essays: (Any – 8)

5 X 8 = 40 Marks

2. Write about the functions of platelets and the role of coagulation factors in blood clotting.
3. Discuss about the fixatives and routine stains and special stains used in histopathology
4. Explain the collection, preservation, processing and examination of cerebrospinal fluid (CSF).
5. Write short notes on the principle and use of Haematoxylin and Eosin stain.
6. Define hemolytic anemia. Write the classification and investigations.
7. Explain the principle and working of an automated tissue processor.
8. Write a note on the significance and interpretation of RBC indices (MCV, MCH, and MCHC).
9. Describe the different types of anticoagulants used in hematology with their mechanisms of action.
10. Explain the structure, working, and maintenance of a compound microscope.

Short Answers: (Any – 10)

3 X 10 = 30 Marks

11. Mention three causes of increased ESR.
12. Name three types of fixatives used in cytology.
13. Write three causes of microcytic anemia.
14. Mention three types of microtomes and their uses.
15. Define "cross matching" and state its importance.
16. Define decalcification and mention two agents used.
17. Write the normal ranges of hemoglobin in adult males and females.
18. Mention three stains used for demonstrating fungi in tissues.
19. Write three differences between serum and plasma.
20. Mention three causes of hematuria.
21. Define prothrombin time and write its normal value.