2023

MEDICAL LAB AND MOLECULAR DIAGNOSTIC TECHNOLOGY/MEDICAL LABORATORY TECHNICIAN

QP : Medical Laboratory Technician

Paper : MDT/MLT–VC–2026

(Biochemistry—II)

Full Marks : 60

Time : 3 hours

The figures in the margin indicate full marks for the questions

1. Fill in the blanks : 1×7=7

(a) Attractive forces between molecules of different types are called _____.

(b) Synthesis of vitamin A in the body takes place in _____.

(c) _____ can be used to measure the degree of unsaturation of oils and fats.

(d) An enzyme that joins the ends of two strands of nucleic acid is _____.

(e) The net gain of ATP during the conversion of glucose to pyruvate is _____.

(f) _____ hormone is responsible for increasing gluconeogenesis in the liver during prolonged starvation.

(g) Deficiency of vitamin _____ is the leading cause of blindness in children worldwide.

2. Answer the following questions : 2×4=8

(a) What are epimers? Explain with examples.

(b) What are the factors that affect enzyme activities?

(c) What is the surface tension of water at its boiling point? What is the unit of surface tension? 1+1=2

(d) Which phospholipid is in a reservoir for the second messenger? Name the fused ring system present in cholesterol. 1+1=2

3. Answer any *three* of the following questions : 5×3=15

(a) Write in detail about the classification of proteins on the basis of their functions.

(Continued)

(b) How does ADH affect serum osmolality? What is the relationship between urine osmolality and serum osmolality? 2+3=5

(c) Differentiate between glycogenesis and glycogenolysis.

(d) Write the principle, clinical significance, procedure and interpretation of Rothera's test. 1+1+2+1=5

(e) What are the clinical manifestations of B12 deficiency? Mention the bio-chemical functions of ascorbic acid. 3+2=5

4. Answer any *three* of the following : 10×3=30

(a) Write in detail about the TCA cycle along with a diagram.

(b) Define holoenzyme. Is apoenzyme naturally active? Classify enzymes with examples based on the type of reaction they catalyze. 1+1+8=10

(c) What are catabolism and anabolism? Is respiration a catabolic process? Write down the different stages of catabolism. Mention the key differences between anabolism and catabolism. 2+1+3+4=10

(d) Define rancidity. What are the causes of rancidity? Enlist the tests used to check the purity of oils and fats. Discuss in brief the functions of phospholipids. 1+2+2+5=10

(e) What is the code of conduct in the laboratory? What is the importance of ethics in medical laboratory practice? Write a note on the guidelines for safe laboratory practices. 2+2+6=10

★★★