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**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 _____.

(2)

- (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 : $2 \times 4 = 8$

- (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 : $5 \times 3 = 15$

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

(3)

- (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 biochemical functions of ascorbic acid. $3 + 2 = 5$

4. Answer any *three* of the following : $10 \times 3 = 30$

- (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. $2 + 1 + 3 + 4 = 10$

(4)

- (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

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