

2024

**MEDICAL LABORATORY TECHNICIAN/
MEDICAL LAB AND MOLECULAR
DIAGNOSTIC TECHNOLOGY**

Paper : MLT-VE-6026/MDT-VE-6026

(Biochemistry—VI)

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) The enzyme responsible for releasing supercoils in DNA helix during DNA replication is _____.

(b) Acid phosphatase is a marker of _____.

(c) According to the SI system, the unit of radioactivity is _____.

(d) Creatine-Kinase-MB is used as a biomarker for diagnosis of _____.

- (e) Alkaptonuria (AKU) is a very rare autosomal recessive disorder of _____.
- (f) Standard deviation is denoted by the symbol _____.
- (g) In a competitive ELISA _____ competes with sample antigen to bind to the antibody.

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

- (a) What are Okazaki fragments? What is the function of DNA ligase in lagging strand synthesis? 1+1=2
- (b) What do you understand by population mean and sample mean? 1+1=2
- (c) What is inborn error of metabolism? Give few examples. 1+1=2
- (d) Mention two properties of genetic code. 2

3. Answer the following questions (any three) : 5×3=15

- (a) State the differences between transcription and translation. 5
- (b) Mention the advantages and disadvantages of ELISA. 3+2=5

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(3)

(c) What is Phenylketonuria (PKU)?
Mention the clinical manifestations of
phenylketonuria. 1+4=5

(d) Mention the uses of radioisotopes in
biological research. 5

(e) Write briefly on the different types of
isoenzymes of Creatine-Kinase (CK). 5

4. Answer the following questions (any three) :
10×3=30

(a) Describe the process of DNA replication
in prokaryotes with diagram. 10

(b) Discuss in detail various metabolic
disorders of amino acids mentioning
their clinical manifestations and
laboratory diagnosis. 10

(c) What are the types of correlation? Find
coefficient of correlation of the following
data : 2+8=10

Person	9	8	7	6	5	4	3	2	1
Haemoglobin	15	16	14	13	11	12	10	8	9

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(4)

- (d) What is clinical enzymology? Write down the diagnostic significance of Alanine aminotransferase (ALT) and Aspartate aminotransferase (AST). Write in detail on the commonly used biomarkers used for diagnosis of myocardial infarction. $1+4+5=10$
- (e) What is an immunoassay? State the principle behind immunoassay. Write in detail various types of immunoassays mentioning their applications. $1+2+7=10$
- (f) What is translation? What are the different types of RNA? Describe various steps involved in translation in prokaryotes. $1+1+8=10$
