

1 (Sem-4) BV MHS 1

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

Paper : MHS0400104

(Clinical Biochemistry)

Full Marks : 45

Time : 2 hours

***The figures in the margin indicate full marks
for the questions***

1. Fill in the blanks :

1×5=5

- (a)** The metabolic defect in Type I diabetes mellitus is due to absolute deficiency of _____.
- (b)** Hyperglycemia refers to an increased level of _____ in blood.
- (c)** The metabolic disorder phenylketonuria is due to deficiency of the enzyme _____.
- (d)** Gout is associated with increased _____ levels in blood.
- (e)** The organ responsible for bilirubin metabolism is the _____.

(2)

2. Answer any *five* from the following questions : $2 \times 5 = 10$

- (a) List any two contributing factors to the development of Type II diabetes mellitus.
- (b) Identify two laboratory tests commonly used to assess liver function.
- (c) What is gout? Mention the metabolic defect responsible for it.
- (d) Give two examples of enzymes that serve as markers for cardiac disorders.
- (e) State any two distinguishing features between Type I and Type II diabetes.
- (f) Mention two possible health complications arising from diabetes mellitus.
- (g) Briefly describe bilirubin and its significance.
- (h) How would you define hypercholesterolemia?
- (i) State the normal reference range for fasting blood sugar levels.
- (j) What role does the enzyme SGPT play in liver function assessment?

(3)

3. Answer any *four* from the following questions : $5 \times 4 = 20$

- (a) Explain the metabolic defect and clinical significance of phenylketonuria.
- (b) Write the clinical significance of Troponin assay.
- (c) Write a note on carbohydrate metabolism and how its disturbance leads to hyperglycemia.
- (d) Write a short note on the importance of enzyme assays in clinical biochemistry.
- (e) Explain the biochemical basis, causes and diagnosis of Type I diabetes mellitus.
- (f) Write a short note on lipid profile test and its clinical interpretation.
- (g) Write about creatinine clearance and its importance in assessing kidney function.
- (h) Explain the role of isoenzymes in clinical diagnosis with suitable examples.

4. Answer any *one* from the following questions : 10

(a) Explain in detail the kidney function tests, highlighting both glomerular and tubular function assessments. 5+5=10

(b) Describe the liver function tests including SGPT, SGOT, ALP and total bilirubin. 3+3+2+2=10

(c) Explain hypercholesterolemia and hypertriglyceridemia and their association with heart disease. 4+4+2=10

(d) Discuss the use of CPK and LDH in the diagnosis of myocardial infarction. 5+5=10

(e) Write a detailed account of Maple Syrup Urine Disease, its causes, symptoms, metabolic defect and treatment. 2+2+3+3=10

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