

**2021**

**BIOCHEMISTRY — GENERAL**

**Paper : SEC-B-1**

**(Clinical Biochemistry)**

**Full Marks : 80**

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words  
as far as practicable.*

1. Answer **any ten** questions :

2×10

- (a) Name two biomarkers of cardio-vascular disorder.
- (b) Write the abnormal constituents of urine.
- (c) Differentiate between serum and plasma.
- (d) What is the significance of serum and urine creatinine levels?
- (e) What is the normal range of cholesterol in blood? Write one diseased condition when cholesterol level is elevated.
- (f) What are the major precautions taken during blood transfusion?
- (g) Name two anticoagulants of blood.
- (h) Give an example of  $\gamma$ -carboxylation.
- (i) Differentiate between direct and indirect methods of bilirubin estimation.
- (j) What are the clinically important enzymes found in serum?
- (k) Name two pathologic conditions in which serum lipase activity is found to rise.
  - (l) What do you understand by sickle cell haemoglobin?
- (m) What is the standard LDL-HDL ratio in blood?
- (n) How would you collect blood for estimation of  $\text{Ca}^{2+}$ ? What precaution is mandatory for collection of such estimation?
- (o) What is the importance of calibration in clinical Biochemistry?
- (p) What is the normal fasting and PP blood glucose level?
- (q) Name two parameters to diagnose renal disorder.
- (r) What are the isozymes of creatine kinase (CK)?
- (s) What is the procedure for separation of serum?
- (t) What is blood Rhesus (Rh) factor?

**Please Turn Over**

2. Answer **any four** questions :

- (a) (i) What are the major functions of liver?  
(ii) What is the importance of creatine phosphokinase (CPK)? 3+2
- (b) (i) What enzymatic pattern is observed in the diagnosis of cardiovascular disorder? Explain.  
(ii) What is HbA1c? What is its clinical significance? 2+3
- (c) (i) What are lipoproteins? Classify them.  
(ii) How is triglyceride estimated in serum? 2+3
- (d) (i) How is CKMB measured in the serum?  
(ii) What is its clinical significance? 2+3
- (e) (i) What are the significance of elevated alkaline phosphatase and acid phosphatase level?  
(ii) What is the normal range of triglycerides in serum? (2+2)+1
- (f) (i) What are the isoforms of lactate dehydrogenase (LDH)?  
(ii) Discuss the clinical significance of LDH isozymes. 2+3
- (g) (i) Discuss the principle of estimation of blood glucose by glucose oxidase-peroxidase method.  
(ii) What is the composition of normal saline? 3+2
- (h) (i) Write short note on the causes of diabetes mellitus.  
(ii) How can it be control? 3+2

Answer **any four** questions.

3. (a) What are the biochemical parameters of liver function test?  
(b) What are the main clinical symptoms of liver dysfunction? Write down its cause.  
(c) Write a physiological and a pathological condition when alkaline phosphatase levels are increased in blood. 3+(2+3)+2
4. (a) Explain the statement– Blood glucose level is regulated in normal individual.  
(b) How is the vial for estimation of blood glucose to be prepared? Give the biochemical reason for this.  
(c) What is the differential blood count? 4+(2+2)+2
5. (a) What are the parameters of lipid profile? Why is the assessment of lipid profile important clinically?  
(b) What is prothrombin time?  
(c) What is the role of calcium in blood clotting? (3+3)+2+2
6. (a) How is creatinine measured in serum?  
(b) Write down the reaction catalyzed by AST.  
(c) What is the clinical significance of AST? 3+3+4

7. (a) Name the clotting factors present in blood. Outline in short the role of any one clotting factor.  
(b) Aspirin is used to prevent thromboses in patients prone to coronary artery diseases. Why?  
(c) Name the human blood groups. What is the significance? (2+2)+3+(1+2)
8. (a) What is meant by blood pressure? What is its clinical significance?  
(b) What is the cause of megaloblastic anaemia?  
(c) Briefly discuss the principle of estimation of triglycerides.  
(d) What is the function of cholesterol in blood? (2+2)+2+2+2
9. (a) What is CSF?  
(b) What is the clinical significance of measuring parameters in CSF?  
(c) How do you estimate serum urea concentration?  
(d) Write down three major precautionary measures taken in a clinical laboratory. 2+2+3+3
10. (a) Write short notes on— Atherosclerosis and Diabetes insipidus.  
(b) What is the normal serum level of SGPT?  
(c) How does the level of serum SGPT clinically use to determine the hepatic disorder? (2½+2½)+2+3
-