[This question paper contains 3 printed pages.]

Sr. No. of Question Paper : 6998 **D** **Your Roll No.....**

Unique Paper Code : 217567

Name of the Course : **B.Sc. (P) Applied Physical Sciences – Analytical Chemistry**

Name of the Paper : Analytical Chemistry – 5, Analytical Biochemistry (ACPT-505)

Semester : V

Duration : 3 Hours Maximum Marks : 75

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Answer any **five** questions.
3. **All** questions carry equal marks.

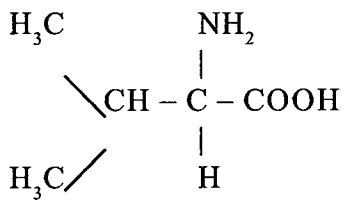
1. (a) What are hetropolysaccharides ? Give the structure and function of heparin.

   (b) Name the different lipoproteins found in plasma. How are they classified ? What are their functional roles ?

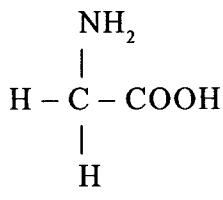
   (c) Define saponification number of a fat. What is the significance of the saponification number ? How can you determine the saponification number of a given fat in the laboratory ? (5+5+5)

2. (a) What are transport proteins ? Give 2 examples.

   (b) With the help of a flow chart describe the systematic synthesis of the dipeptide Valine-Glycine (Val-Gly) starting from amino acids Valine and Glycine.



Valine



Glycine

P.T.O.

(c) Describe the Sanger's method for determination of N-terminal of amino acids. (4+6+5)

3. (a) Many hormones regulate cellular reactions without even entering the cell. Explain.

(b) Why do we get a sigmoid curve when we plot substrate concentration [S] vs. velocity for an allosteric enzyme ?

(c) Name any three secretion of the adrenal cortex. What are the functions of glucocorticoids ? (5+5+5)

4. (a) What are the main constituents of blood ? How many types of leucocytes are found in blood and what are their functions ?

(b) Describe the phenomenon of formation of a blood clot.

(c) Describe the method of collection of venous blood. (5+5+5)

5. (a) Give the principle of the Libermann-Burchard reaction for the estimation of cholesterol. What are the factors that affect colour formation in the Libermann-Burchard method ?

(b) Why is it necessary to add sodium fluoride at the time of collection of blood for the estimation of blood glucose ? Describe the 'clinitest' for estimation of glucose in urine.

(c) Describe the Berthelot's method for the estimation of blood urea. (5+5+5)

6. (a) What is the pH of blood ? Describe in detail how the pH of blood is maintained.

(b) What are the changes that occur on keeping an unpreserved urine sample ? What precautions can be taken to prevent these changes ?

(c) What are the conditions under which proteinuria is observed ? What is orthostatic proteinuria ?

(d) What is hemolytic jaundice ? (5+4+4+2)

7. Write short notes on **any 3** of the following :

   (a) Obstructive jaundice

   (b) Erythrocyte sedimentation rate

   (c) Physical properties of urine

   (d) Trinder's method for estimation of blood glucose

   (e) Van den Bergh reaction (5×3)

(500)