B.Sc. (Part—III) Semester—VI Examination

BIOCHEMISTRY

(Immunology and Clinical Biochemistry)

Time : Three Hours] [Maximum Marks : 80

Note :— (1) **All** questions are compulsory and carry equal marks except question no. **1** which carries **8** marks.

(2) Draw neat labelled diagrams wherever necessary.

1. (A) Fill in the blanks :

(i) The difference between plasma and serum is the presence or absence of ___ ___.

(ii) The cells responsible for production of immunoglobulins _____.

(iii) The cells responsible for cellular immunity _____.

(iv) _____ is employed as anticoagulant for collecting blood to estimate glucose. 2

(B) Choose correct alternative :

(i) The immunoglobulin present in most abundant quantity :

(a) IgG (b) IgA

(c) IgM (d) IgE

(ii) Name the immunoglobulin involved in body allergic reactions :

(a) IgA (b) IgE

(c) IgD (d) IgM

(iii) The following anticoagulant binds with Ca^{2+} and prevents blood clotting :

(a) Heparin (b) Oxalate

(c) Protein C (d) All of them

(iv) T–Lymphocyte maturation occurs in :

(a) Liver (b) Thymus

(c) Spleen (d) Lymph nodes 2

(C) Answer in **one** sentence each :

(i) What are Cytokines ?

(ii) What is major histocompatibility complex ?

(iii) What is complement system ?

(iv) What is meant by antigenic determinants ? 4

2. Describe in short humoral and cellular immunity. 12

OR

Define antibodies; write on structure and classification of immunoglobulins. 12

3. Describe the following :
   (a) Precipitation 4
   (b) Agglutination 4
   (c) Complement fixation. 4

OR

   (p) Principle and application of ELISA 4
   (q) Radio Imunoassay 4
   (r) Toxin-antitoxin reaction. 4

4. (a) Explain antibody dependent classical pathway of complement. 4
   (b) What are monoclonal antibodies ? 4
   (c) What is type III hypersensitivity ? 4

OR

   (p) Describe antibody independent alternative pathway of complement. 4
   (q) Explain in short Hybridoma Technology. 4
   (r) Discuss type IV hypersensitivity. 4

5. Write on the following :
   (a) Scope of Clinical Biochemistry in diagnosis. 4
   (b) Units and abbreviations used in Clinical Biochemistry. 4
   (c) Basic requirements of a Clinical Laboratory. 4

OR

   (p) Definition of Molarity and Normality with their formula. 4
   (q) Principle and application of auto analyser. 4
   (r) Quality control in a Clinical Laboratory. 4

6. Give brief account of :
   (a) Collection of whole blood, plasma and serum 4
   (b) Collection of urine 4
   (c) Collection of cerebrospinal fluid. 4

OR

   (p) Chemical analysis of Serum 4
   (q) Chemical analysis of CSF 4
   (r) Chemical analysis of Urine. 4

7. Describe Hypo and Hyper glycemia in detail. 12

OR

Discuss clinical significance of SGOT, LDH and CPK. 12