AT–415

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

6S : BIOCHEMISTRY

(Immunology and Clinical Biochemistry)

Time : Three Hours] [Maximum Marks : 80

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

(2) Draw a well labelled diagram wherever necessary.

1. (a) Fill in the blanks :

(i) Cell mediated immunity is a function of _____ lymphocytes. ½

(ii) Heavy chains in IgD are of _____ types. ½

(iii) _____ is the only antibody which crosses the placental barrier. ½

(iv) Allergic reactions are mediated by _____ antibody. ½

(b) Choose the correct alternative :

(i) The portion of the antigen which is recognised by antibody is known as :

(a) Hapten (b) Epitope

(c) Complement (d) Variable region ½

(ii) Secretory component is present in :

(a) IgA (b) IgG

(c) IgM (d) All the above ½

(iii) The immunoglobulin having the longest half life is :

(a) IgA (b) IgG

(c) IgE (d) IgM ½

(iv) Complement system can be activated by binding of antigen to :

(a) IgA (b) IgD

(c) IgE (d) IgM ½

(c) Answer in **one** sentence :

(i) Define plasma non-functional enzyme. 1

(ii) What is standard solution ? 1

(iii) Define antibody. 1

(iv) Define hypoglycemia. 1

2. Describe in detail structure and properties of different types of antibodies. 12

OR

Explain in detail innate and adaptive immunity. 12

3. (a) Describe application of agglutination. 4

(b) Explain principle of precipitation. 4

(c) Describe in brief RIA. 4

OR

(p) Describe application of precipitation. 4

(q) Explain in brief ELISA. 4

(r) Explain Coombs Test. 4

4. Describe in detail I to IV hypersensitivity classified by Cell and Coombs. 12

OR

Explain in detail classical and alternative pathway of complement activation. 12

5. (a) Explain different units used in clinical biochemistry to describe quantity of metabolites and activities of enzymes. 4

(b) Describe internal and external quality control. 4

(c) Explain advantages of automation in clinical labs. 4

OR

(p) Define clinical biochemistry and explain its scope. 4

(q) Describe semi and autoanalyzer. 4

(r) Describe manual versus automation in clinical laboratory. 4

6. (a) Explain the role of anticoagulant in blood collection with any four examples. 4

(b) Describe chemical analysis of blood. 4

(c) Describe procedure for collection of CSF along with its significance. 4

OR

(p) Describe chemical analysis of blood in brief. 4

(q) Explain creatinine clearance test. 4

(r) Give normal values for any eight constituents of blood. 4

7. (a) Describe plasma functional enzyme and plasma non-functional enzyme. 4

(b) Explain hyperglycemia. 4

(c) Describe clinical application of LDH and CPK. 4

OR

(p) Describe glycogen storage diseases. 4

(q) Give clinical application of amylase and lipase. 4

(r) Explain albinism. 4