2008

M.Sc.

1st Semester Examination

BOTANY

PAPER—IV

Full Marks : 40

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

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

Illustrate the answers wherever necessary.

1. Answer any *five* of the following : 2×5

(i) What is cold sterilization? What is its utility?

(ii) What is 'resolving power' of a microscope?

(iii) Who proposed five kingdom concept? What are the kingdoms?

(iv) Name one protein synthesis inhibiting antibiotic acting on 30s ribosomal subunit? Name one antiviral agent.

(v) Which Immunoglobulin can cross the placenta and which one found in mother's milk to give rise passive immunity.

(vi) Distinguish between determinate and indeterminate types of nodules found in leguminous plants.

(vii) Why is poly-β-hydroxybutyrate important to bacteria.

(viii) Why does anaerobic bacteria unable to grow in aerobic condition?

2. Answer any *two* of the following : 5×2

(i) Write down the differences between the transformation mechanism of a gram (+) and a gram(–) bacteria? What is 'Col' plasmid? 4+1

(ii) Write down the general properties of an immune response. What is monoclonal antibody? 3+2

(iii) How continuous log phase of growth of a bacterium can be maintained in a laboratory? Write down the principle of work of a phase contrast microscope. 3+2

3. Answer any *two* of the following : 10×2

(i) (a) What are sulfa drugs? How does sulfa drug inhibit the metabolisms of bacteria? 1+3

(b) What are the different types of T-cell found in human? Briefly describe the functions of each type of T-cell. 1+2

(c) State the functions of leghemoglobin. 3

(ii) (a) What are the characteristic features of nitrogenase complex? State how nitrogenase enzyme remain active in aerobic bacteria. 3

(b) What are the difference between batch culture and continuous culture? 3

(c) Name two viruses where reverse transcriptase enzymes are found. Mention the different enzymatic activities shown by reverse transcriptase. 1+3

(iii) (a) What are the difference between $F^+ \times F^-$ and Hfr × F^- conjugation in bacteria.

(b) What are difference between generalized transduction and specialised transduction. 5+5

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