2015

M.Sc.

2nd Semester Examination

BIOCHEMISTRY

PAPER—BIC-201

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.

Group—A

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

(a) What function might a capsule serve for the pathogenic bacteria and state the chemical constituent of capsule.

(b) Mention nature, structure and function of mesosome.

(c) What is the importance of rRNA sequencing in identification of new bacterial species?

(d) What are Yeasts ? How are they different from mold ?

(e) When does a lag phase usually not occur ? And why does cell enter stationary phase ?

(f) How can you quantify virus by methods other than electron microscopy ?

(g) What are pure culture and why are they important ? Mention the various techniques of obtaining pure culture of a micro organism.

(h) Why does F^1 plasmid differ from a regular plasmid ?

Group—B

Answer any *two* questions from the following : 2×5

2. Why is continuous culture of micro organisms described as an open system ? How is the rate of cell growth controlled in a chemostat ?

3. What is nutrification ? What are the steps involved in nutrification ? Name the different geaera involved in each step of nutrification. 1+2+2

4. Describe and draw a labeled diagram of one step growth curve of Viruses.

5. Describe the life cycle of an industrially important Yeast.

Group—C

Answer any *two* questions from the following : 2×10

6. Name the various nutritional categories of micro organisms. State the differences between number of generations, generation time and growth rate. Describe the process of budding in Yeast. 3+3+4

7. Compare peptidoglyca and teichoic acid as to location and function. State the function of Acid Soluble DNA-binding protein and where is it found ? Give an outline of bacterial cell wall biosynthesis. 4+2+4

8. Describe the events that take place during conjugation between Hfr cell and a F-cell. Explain how are the interrupted mating experiments used for determining the location of gene on a bacterial chromosome. 6+4

9. What does it mean that bacteriophage T_4 genome is both cicularly permuted and terminally reduntant ? How does circular permutation appear in T_4 genome ? Differentiate between generalized and specialized transduction ?

4+3+3

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