2015

P.G. Diploma Examination in Quality Control and Assurance in Microbial Technology

1st Semester Examination

PAPER—QUA-101

Full Marks : 50

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.

Answer any *Five* Questions from each Group.

Group—A

[*Marks : 25*]

Answer any *five* questions.

1. (a) What are the useful magnification obtain with :

(i) Phase Contrast-microscope ;

(ii) Electron microscope.

(b) Mention two limitation of electron microscope.

(c) How will you measure the bacteria ?

1+1+3

2. (a) Name the various nutritional categories of micro-organisms and give example in each case.

(b) Name one metabolic bi-product of microbe and mention its industrial importance.

3+2

3. (a) What are pure cultures ? Why are they important ?

(b) Mention the principle of lyophilization.

2+3

4. (a) Mention the steps of peptidoglycan synthesis in bacteria.

(b) What is protoplast ?

4+1

5. (a) How will you classify algae on the basis of their mode of Carbon source reserve ?

(b) Describe in brief the importance of fungi to humans.

3+2

6. Name one antibiotics along with its mode of action. How numerical aperture of a microscope is related to working distance ? 2+3

7. Describe in detail the methods used for molecular characterization of bacteria. 5

8. How will you determine the generation time of a bacteria ? What is the generation time of *E. Coli* ? 4+1

Group—B

[*Marks : 25*]

Answer any *five* questions.

1. What is the significance of statistical data analysis in Bioinformatics ? Write the name of two softwares used for statistical data analysis. 3+2

2. What do you mean by ISO-OSI reference model ? How many layers are present in OSI model ? 3+2

3. Write the short note (any *two*) of the following : $2 \times 2\frac{1}{2}$

   (i) BLAST ;

   (ii) FASTA ;

   (iii) Pubmed.

4. How can you construct a homologous protein structure of a primary amino acid sequences with the help of sequence and structure database ? 5

5. Describe the salient features of Pubmed Database. What are the differences between Pubmed and Pubmed Central (PMC) ? 3+2

6. Describe the major features of Genbank Datamodel. What are accession and GI numbers? 3+2

7. Describe the classification of proteins based on their secondary structures. Mention the two major databases for these. 3+2

8. What is Swiss Prot? Describe its salient features. 2+3
