2016

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.

Group—A

[*Marks : 25*]

Answer any *five* questions.

1. Mention the various methods used in the identification of an unknown bacteria ?   5

2. How working distance is related to the resolution of light microscope ? Justify.   5

(Turn Over)

3. In an experiment a researcher found two DNA sample, DNA-1 and DNA-2. The % of Thymine (T) is 10% in DNA-1 and 30% in DNA-2. Establish with proper justification which DNA will have high melting temperature (Tm).

5

4. Write down the various methods used in the enumeration of bacteria.

5

5. Write down the differences between :

   (a) Viroids and Prions ;

   (b) Cell wall of gram –ve bacteria with gram +ve bacteria.

$2 \times 2\frac{1}{2}$

6. Write a short note on DNA homology experiment. How it can be used in molecular characterization of bacteria ?

3+2

7. State the principles of Gram staining. Why 'negative staining' is so named ?

4+1

8. Define Tm. State the importance of G + C% in bacterial classification.

1+4

Group—B

[Marks : 25]

Answer any *five* questions.

1. What is Bioinformatrics ? Write the different components and field of applications in Bioformatics. 1+2+2

2. What do you mean by database ? Write in brief about various types of biological databases. 1+4

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

   (i) BLAST ;

   (ii) EMBL ;

   (iii) NCBI.

4. Write the role of Bioinformatics in drug discovery. 5

5. What is Phylogenetic tree ? Write its significance. 2+3

6. How sequence alignment helpful to study the interrelationship of the species ? What is gap penalty ? 3+2

7. How structure database has played a significance role to predict the unknown protein structure ? 5

8. Write the full form of the following :   5

    (a)   ITAA ;

    (b)   HTML ;

    (c)   URL ;

    (d)   ExPASy ;

    (e)   FASTA.

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