2012

M.Sc.

2nd Semester Examination

MICROBIOLOGY

PAPER—X (MCB-204)

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.

Group—A

(Computer and Bioinformatics)

[Marks : 20]

Answer Q. No. 1 any *two* from the rest.

1. Answer any *four* :   4×2

(a) What is the function of CPU ?

(b) What are the functions of operating system ?

(c) Find the value —

$$(2619)_{10} = (?)_2 = (?)_{16}$$

(d) Find the 2's complement :

$$(1001101)_2$$

(e) What do you mean by logical operators ?

(f) What are differences between primary memory and secondary memory ?

2. (a) Write the functions of ALU ?

(b) What is the difference between '=' and '= =' ?

(c) What do you mean by data types ?   2+2+2

3. (a) Write a 'C' program to Check whether a number is even or odd.

(b) Write few words about 'WINDOWS'.

(c) Who is the inventor of 'C' Language ?   3+2+1

4. (a) Why 'printf' and 'scanf' is used in 'C' programing ?

(b) Write a C program to print the following sequence.

| 5 | 10 | 15 | 10 | 20 | 30 | 15 | 30 | 45 |

2+4

Group—B

[Marks : 20]

Answer any *two* questions.

5. (a) What do you understand by pairwise sequence alignment ? What is its utility ? Distinguish between global and local sequence alignment. Explain with examples.

2+1+2

   (b) (i) What is score of an alignment what are gaps ?

     (ii) What are different algorithms for global and local alignments ?

3+2

6. (a) What is the principle behind homology modeling ? Write in brief, the different steps of homology modeling ?

   (b) What do you mean by orthologous and paralogus sequences ?

   (c) What is protein data bank ? What kind of information is stored there ?

(2+4)+2+2

       (Turn Over)

7. What are the importances of phylogenetic tree ? How will you convert an unrooted tree into a rooted tree ? How many rooted and unrooted trees are possible using 10 taxa ? Differentiate between phylogram and cladogram.

2+2+2+2

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