

2009

MICROBIOLOGY

PAPER—X

Full Marks : 40

Time : 2 hours

The figures in the right-hand margin indicate marks

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

Illustrate the answers wherever necessary

GROUP—A

[Marks : 20]

Answer any two questions

1. (a) Write a note on five major components of a computer.

(Turn Over)

(b) What is the fundamental unit to measure the capacity of a computer memory? Write all other units and state the relations among them.

(c) What are the uses of CU and ALU in a computer? 4 + 3 + 3

2. (a) What do you mean by ASCII file and binary file?

(b) What are the differences between system program and application program?

(c) What is the main difference between a programming language and a package?

(d) Explain taskbar in Windows operating system.

(e) Write down the steps to create a folder "FACULTY" in a specific drive, say, in C. 2×5

3. (a) What is the difference between interpreter and compiler ?
- (b) What do you mean by modem ? Where does it become useful ?
- (c) Write a note on do-while loop in C.
- (d) Write a program in C to find the maximum among three numbers. 2 + 2 + 3 + 3

GROUP—B

[Marks : 20]

Answer any *two* questions

1. Define global alignment. Using Needleman and Wunch algorithm align the following 2 sequences: 2 + 8
- GAAT and GGA
- Consider Match = 2
- Mismatch = -1
- and Gap penalty = -2.

2. (a) Write down whether the following statements are *true* or *false*: 1 × 5

(i) Matrices constructed from higher PAM values can be used if the sequences have a greater degree of similarity.

(ii) The BLOSUM family was derived from closely related sequences.

(iii) BLAST can report more than one segment of HSP per database entry.

(iv) One PAM is a unit of evolutionary divergence in which 1% of the amino acids have been changed. Therefore after 100 PAMS every amino acid will be different.

(v) PDB is the name of DNA data bank.

(b) Write short notes on:

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

(i) Dot plot

(ii) Gap penalty.

3. (a) Explain the terms Similarity, Identity and Homology with examples.

(b) Write down the basic steps of BLAST. 5 + 5
