2008

MICROBIOLOGY

PAPER—X

Full Marks : 40

Time : 2 hours

Answer any **two** questions from each Group

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 brief note about the generation of computers.

(*b*) What do you understand by machine language and high-level languages? Name three high-level programming language.

(*c*) What do you mean by source program and object program? What is the role of compiler? 3 + 4 + 3

2. (*a*) Write short notes on 'if' statement and 'for' statement of C language.

(*b*) What do you mean by array in C? Explain with an example.

(*c*) Write a program in C to find the average of *n* numbers. 4 + 2 + 4

3. (*a*) What is operating system? Name two commonly used operating systems.

(*b*) What are the uses of Recycle bin in Windows? Is it a folder?

(*c*) Describe a method to create a short cut.

(*d*) Write a note on file attributes.

(*e*) What is virtual memory? Explain. 2 + 2 + 2 + 2 + 2

GROUP—B

[*Marks* : 20]

Answer any *two* questions

4. Answer the following: 2×5

(*i*) What is homology and how does it relate to similarity?

(*ii*) What are the full forms of NCBI and PDB?

(*iii*) What is optimal alignment?

(*iv*) What is FASTA format? Explain with an example.

(*v*) What is DOT PLOT. Explain with example.

5. (*a*) What is gap penalty?

(*b*) Assume that you have made an alignment with gap creation penalty 10 and gap extension penalty 0·6. Next you realign the same sequences with gap creation penalty 250 and gap extension penalty 15. Did the alignment change? If yes, explain why?

(*c*) Write short note on BLAST. 2 + 5 + 3

6. (*a*) What are the utilities of scoring matrices in sequence alignment? Explain BLOSUM and PAM.

(*b*) Define global and local alignment.

(*c*) If you align sequences that are evolutionary distantly related should you use BLOSUM 62 or BLOSUM 45?

(*d*) "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" .... Is the statement correct? If not then explain why?

(1 + 3) + 2 + 2 + 2