

2015

**BIOTECHNOLOGY**

[ **Honours** ]

PAPER — IV

*Full Marks : 90*

*Time : 4 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 : 30* ]

Answer any **two** questions from the following :  $15 \times 2$

1. (a) What are primary and secondary data ? Give example.

- (b) Write the properties of standard deviation.
- (c) Compute the SD of the following body weight (kg) of 10 persons :

55, 60, 62, 58, 57, 61, 59, 60, 61, 62

4 + 4 + 7

2. (a) How can you perform a random sampling using random number table ?
- (b) What do you mean by Positive and negative correlation ? State three important properties of linear correlation.
- (c) What is Poisson distribution ? State its simple properties.  $4 + (2 + 2 + 2) + (2 + 3)$ .
3. (a) Describe the characteristics of different generations of computer.
- (b) What do you mean by "Low level language and High level" language.
- (c) Write a computer programme to find the lowest value of serum protein of 10 given samples.  $5 + 4 + 6$

4. (a) Define "Genomics" and "Proteomics".  
(b) Distinguish between Compiler and Interpreter.  
(c) What is bioinformatics ? How bioinformatics can be used in drug development ? 4 + 4 + 2 + 5

GROUP – B

[ Marks : 40 ]

Answer any **five** questions from the following : 8 × 5

5. What are the components of internet ? What do you mean by search engine ? What is FTP ? 3 + 3 + 2
6. What is WWW ? How do you retrieve information of a specific topic in biology ? What is URL ? 2 + 5 + 1
7. (a) What is meant by CGI ?  
(b) Explain the working principle of CGI with illustration. 2 + 6
8. (a) What is a firewall ? What are the differences between a firewall and an antivirus software.

(b) What is a digital signature ?

(c) What is remote login ?  $(2 + 2) + 2 + 2$

9. (a) State the functions of scroll bars in MS WORD.

(b) State the differences between "save" and "save as" option in MS WORD.

(c) What is Mail Merging ?  $2 + 4 + 2$

10. Comment on any *two* of the following :  $4 + 4$

(i) Spread sheet

(ii) Biological database

(iii) Optical and magnetic storage

(iv) Object oriented programming language

(v) TCP/IP.

11. (a) What is "ab-initio" protein structure prediction ?

(b) What is homology modelling ?  $4 + 4$

12. (a) What do you mean by LAN and WAN ?
- (b) Discuss different types of web searching tools with examples. 4 + 4

GROUP – C

[ Marks : 20 ]

Answer any **five** questions from the following : 4 × 5

13. Write the basic principle of two dimensional electrophoresis. 4
14. State the application of affinity chromatography. 4
15. What is ultracentrifugation ? 4
16. State the basic principle of mass spectrometry ?  
How it can be applied for the diagnosis of a disease ? 4
17. What is meant by native PAGE ? Mention the role of SDS and APS in SDS-PAGE. 1 + 3
18. What is IPR ? Mention the components of a IPR framework. 3 + 1

19. What are the managerial quality needed to become a good bio-medical sales representative? 4
20. Describe the recommendation of WTO in relation to the genetically engineered food product. 4
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