

B.Sc. BIOTECHNOLOGY
SIXTH SEMESTER [SPECIAL REPEAT]
GENOMICS AND PROTEOMICS
BBT-602

SET
A

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 3 hrs.

Full Marks: 70

(Objective)

Time: 30 mins.

Marks: 20

Choose the correct answer from the following:

1 × 20 = 20

1. The term 'Genomics' was coined by:
 - a. Thomas Raderick
 - b. Nethen Wright
 - c. Jessy Ross
 - d. None of the above
2. Functional genomics includes:
 - a. Forward genetics
 - b. Reverse genetics
 - c. Both a and b
 - d. Only a
3. Chemical sequencing is another name of:
 - a. Sanger's sequencing
 - b. Maxam-Gilbert sequencing
 - c. Automated DNA sequencing
 - d. None of the above
4. Oxygen at position 3 is absent in:
 - a. Pyro sequencing
 - b. Maxam-Gilbert sequencing
 - c. Sanger's sequencing
 - d. None of the above
5. In pyrosequencing, light is given by the final product:
 - a. Sulfurylase enzyme
 - b. Luciferase enzyme
 - c. ATP
 - d. Luciferin
6. Most commonly used short segment DNA sequencing is:
 - a. Pyro sequencing
 - b. Maxam-Gilbert sequencing
 - c. Sanger's sequencing
 - d. Automated DNA sequencing
7. Contigs are:
 - a. Short DNA fragments
 - b. Long DNA fragments
 - c. Single broken nucleotides
 - d. None of the above
8. BACs are used in:
 - a. Shotgun sequencing
 - b. Clone contig method
 - c. Pyrosequencing
 - d. None of the above
9. Example of genome assembly tool:
 - a. Phrap
 - b. Phred
 - c. Assembler 2.0
 - d. All of the above
10. Programme used to find overlapping regions among fragments and to align them is:
 - a. GelMerge
 - b. GelAssemble
 - c. GelView
 - d. GelDisassemble

11. Following is/are example of web based server and software for genome analysis:
 - a. VISTA
 - b. Ensemble
 - c. Neither a nor b
 - d. Both a and b
12. Proteins, on reaction with strong acids or bases results in:
 - a. Protonation
 - b. Deprotonation
 - c. Both a and b
 - d. Neither a nor b
13. Reduction to sulphhydryl groups of proteins occurs in the presence of:
 - a. Ethanol
 - b. B-mercaptoethanol
 - c. Detergents
 - d. None of the above
14. Occurrence of electrostatic attraction between molecules of proteins resulting in the formation of a precipitate takes place in:
 - a. Isoelectric precipitation
 - b. Above pI
 - c. Below pI
 - d. None of the above
15. In α -helix, each residue is related to the next one by a rise of:
 - a. 1.2 Å
 - b. 1.7 Å
 - c. 1.4 Å
 - d. 1.5 Å
16. Amino acid residues present in turns:
 - a. Glycine and Aspartate
 - b. Leucine and Proline
 - c. Leucine and Valine
 - d. Glycine and Proline
17. In SDS-PAGE, SDS act as a:
 - a. Reducing agent
 - b. Disulphide breakpoint
 - c. Charging agent
 - d. All of the above
18. Example of porous beads is/are:
 - a. Sepharose
 - b. Dextran
 - c. Polyacrylamide
 - d. All of the above
19. In mass-spectrometry, in velocity selector region, the strength of magnetic field is..... the strength of electric field.
 - a. Equal to
 - b. Greater then
 - c. Smaller then
 - d. None of the above
20. In 2D-PAGE, the anode of the IPG strip is dipped in:
 - a. Triethanol amine
 - b. Phosphoric acid
 - c. Sodium hydroxide
 - d. None of the above

(Descriptive)

Time : 2 hr. 30 mins.

Marks : 50

[Answer question no.1 & any four (4) from the rest]

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| 1. What is mass-spectrometry based method of protein identification? | 10 |
| 2. What is Edman's degradation? Explain with proper diagram. | 10 |
| 3. Elaborate with examples web based servers and softwares for genome analysis. | 10 |
| 4. Write a note on selected model organisms of Genomes and databases. | 10 |
| 5. Explain Maxam-Gilbert and Sanger's method of DNA sequencing with proper diagram. | 5+5=10 |
| 6. Differentiate between SDS-PAGE and Native PAGE. Write down the advantages and disadvantages. | 10 |
| 7. Explain 2D-PAGE with sample preparation, solubilization, reduction, resolution and reproducibility. | 10 |
| 8. Write short notes on: | 5+5=10 |
| a) Pyrosequencing | |
| b) Shotgun sequencing | |

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