

Model Question Paper

For Kashmir Division 2010 Regular Exam Only

Roll No.....

Subject

BIOTECHNOLOGY

Maximum Marks --- 60

Time Allowed – 3 Hours (Fifteen Minutes Extra to read the question paper)

Do questions from Part A or Part B or from both Part A and B Part of maximum 60 marks as per your preparation.

Part A

(Long Answer Type Questions)

1. Describe briefly Tertiary and Quaternary structure of Proteins.

Or

Give the role of Enzymes in Diagnostic arrays.

2. Give the classification of Proteins based upon their functional groups.

Or

Describe briefly the Beta thalasaemia and Sickle cell Anaemia.

3. Name and explain the various steps involved in recombinant-DNA technology.

Or

Describe in detail the method involved in the construction of CDNA Library.

4. Describe in detail the method of PCR technique and its applications.

Or

Explain in brief Southern blotting technique and its applications.

5

P. T. O.

5. Define Genomics and discuss Human Genome Project.

Or

Define Bioinformatics and its application in Biological Sciences. 5

(Short Answer Type Questions)

6. Write short note on Secondary structure of Proteins. 3

7. What are Intra-cellular and Extra-cellular Proteins ? 3

8. Write a short note on Restriction Enzymes. 3

9. Briefly explain "DNA probes". 3

10. Define Genome. Give two applications of Genome research. 3

11. Explain the term "ELSI". 3

12. What is C-value Paradox ? 3

(Very Short Answer Type Questions)

13. The following very short answer type questions of two marks, each may be answered in a few words or few sentences or as may be required.

(a) Write down the importance of Proteins. 2

(b) What do you mean by SAGE map ? 2

(c) Name some Genetic diseases. 2

(d) What is Genome similarity ? 2

(Objective Type Questions)

14. Choose the correct/most appropriate answer and write it in your Answer-book :

(i) The active form of Chymotrypsin is called

- A. α -chymotrypsin
- B. β -chymotrypsin
- C. Zymogen
- D. Chymotrypsinogen.

(ii) Protein structure is determined by using which of the following methods ?

- A. DNA technology
- B. Computer
- C. NMR
- D. None of these.

(iii) Who invented PCR ?

- A. E.M. Southern
- B. Kary Mullis
- C. Maxam and Gilbert
- D. Paul-Ber.

(iv) Which of the following has least Protein efficiency ratio value ?

- A. Wheat Protein
- B. Rice Protein
- C. Soya Protein
- D. All of these.

(4)

(v) Who used the term Genomics first ?

- A. H Winkler
- B. T. Roderick
- C. NCBI
- D. None of these.

1

(vi) PDB (Protein Data Bank) is

- A. Primary Database
- B. Secondary Database
- C. Tertiary Database
- D. None of these.

1

Part B

(Long Answer Type Questions)

1. Describe the main steps used for raising Microbial culture.

Or

Discuss in detail the Downstream processing used for products recovery and purification. 5

2. Explain in detail the main steps involved for regeneration of Plants by Tissue culture. Support your answer with the help of suitable diagrams.

Or

Discuss Direct gene transfer methods in Plant cells. 5

3. Write a detailed account of Molecular Pharming.

Or

Describe Bioethics in Plant Genetic engineering. 5

P. T. O.

(2)

4. Give a brief account on the equipments required for developing Animal cell culture.

Or

Discuss the characteristics of Animal cell growth in Culture. 5

5. Write a detailed account of Gene therapy with reference to Human beings.

Or

Describe in detail the role of Embryonic stem cell culture. 5

(Short Answer Type Questions)

6. Write a short note on Shakers used in Microbial cultures. 3
7. Give a brief account of the Growth media of Microbial cell culture. 3
8. Write explanatory note on Bioethics of Microbial technology. 3
9. Explain briefly about the maintenance of Aseptic environment. 3
10. State briefly what do you know about the Transgenic plants. 3
11. Explain briefly some characteristics of Animal cell culture. 3
12. What are Stem cells ? What are the basic properties of Stem cells ? 3

(Very Short Answer Type Questions)

13. The following very short answer type questions of two marks, each may be answered in a few words or few sentences or as may be required.
- (a) Write short note on Cryopreservation. 2
- (b) What is the role of Mechanical stirrers and baffles in fermentors ? 2

(3)

(c) State briefly the production of Somatic hybrids.

(d) Explain very briefly the Monoclonal antibodies.

(Objective Type Questions)

14. Choose the correct/most appropriate answer and write it in your Answer-book :

(i) Which of the following methods can be used for Strain improvement ?

A. Protoplast fusion

B. Genetic engineering

C. Hybridization

D. All the above.

1

(ii) The Cellular products are recovered by

A. Downstream processing

B. Chemostat

C. Increasing cell density

D. Cell disruption and Centrifugation.

1

(iii) The term used for the Cell which has the ability to divide is

A. Callus

B. Totipotency .

C. Explant

D. Mitosis.

1

(iv) An unorganised mass of cells is often termed as

A. Callus ,

B. Stem cell

C. Cybrid

D. Hybrid.

1

(v) Which Animal was produced first by Nuclear transplant ?

A. Bony

B. Ruby

C. Dolly

D. Zimy.

(vi) Hybridoma is fusion product of the following cells

A. B-cell and T-cell

B. B-cell and Myeloma cell

C. B-cell and Cancer cell

D. T-cell and Leucocytes.