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SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, MARCH 2014

(UG–CCSS)

Biotechnology

BT 6B 02—ANIMAL BIOTECHNOLOGY

Time : Three Hours

Maximum : 30 Weightage

I. Objective Type Questions. Answer *all* questions :

1 pH of the culture medium is maintained by :

    (a) Presence of CO_2.

    (b) Presence of bicarbonate buffer.

    (c) Addition of bases.

    (d) None of these.

2 Cancerous cells are :

    (a) Anchorage independent.

    (b) Anchorage dependent.

    (c) Stable.

    (d) None of these.

3 Optimum range of glucose concentration in the medium :

    (a) 5.5-55 mmol/litre.

    (b) 75-105 mmol/litre.

    (c) 55-75 mmol/litre.

    (d) 105-150 mmol/litre.

4 Human fibroblast cell line is an example of :

    (a) Established cell line.

    (b) Primary cell line.

    (c) Transformed cell line.

    (d) None of these.

    ggregation of cells can achieved by :

    (a) Physical disruption.

    (b) Enzymatic treatment.

    (c) Treating with chelating agent.

    (d) All of these.

6 An animal viral vector :

    (a) Gemini.

    (b) CMV.

    (c) SV40.

    (d) None of these.

State True *or* False :

7 P^{53} gene is a tumor activated gene.

8 HAT medium is used for isolation of tumor cell.

9 HeLa is a malignant adenocarcinoma cell line.

10 Kohler and Milsten developed hybridoma technology.

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11 MCF-7 is a breast Cancer cell line.

12 OKT3 is a therapeutic antibody.

(12 x $^{1}/_{4}$ = 3 weightage)

II. Short Answer Type Questions. Answer *all* nine questions :

13 Haemocytometer.

14 Liposome.

15 FACS.

16 Cell cloning.

17 3T3 cell line.

18 Established cell line.

19 Multicellularity.

20 Haemopoietic cells.

21 Passaging cells.

(9 x 1 = 9 weightage)

III. Short Essay. Answer any *five* questions :

22 Explain different methods of cell cloning and its applications.

23 Discuss the various physiochemical properties which influence the culture media.

24 Explain various methods to preserve cell lines.

25 Describe various methods for primary explant culture.

26 Discuss the advantages of serum free medium.

27 Give a brief account on embryonic and adult stem cells.

28 Explain the protocol for freezing and thawing of frozen cells.

(5 x 2 = 10 weightage)

IV. Essay Questions. Answer any *two* questions :

29 Discuss about various methods used to measure cytotoxicity of a drug.

30 Explain immortalization of cell lines using viral genes.

31 Write an essay on various application of animal cell culture.

(2 x 4 = 8 weightage)

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Name

Reg. No. . . . .

FIRST SEMESTER B.Sc. DEGREE EXAMINATION, JANUARY 2014

(UG.—CCSS)

Core Course—Biotechnology

BT 1B 01—BIOINFORMATICS

Time : Three Hours

Maximum : 30 Weightage

I. Objective type questions : Answer *all* twelve questions :—

(A) Name the following

1 The molecule which acts as a template for cDNA synthesis.

2 Maximum parsimony method is involved in the construction of.

3 A sudden inheritable change in the DNA sequence.

4 The alignment which considers only short stretches of sequences.

5 Name the DNA sequence database associated with human mendelian inheritance.

6 The version of BLAST used for nucleotide sequence analysis.

(B) Expand the following :-

7 BLAST.

8 NCBI.

9 PHYLIP.

10 EST.

11 SRS.

12 BTTS.

(12 x   = 3 weightage)

II. Short answer type questions (Answer all *nine* questions) :-

13 Phylogeny.

14 Global alignment.

15 Entrez.

16 Accession number.

17 PDB.

18 Conserved sequences.

19 Tree topology.

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20 Dot matrix method.

21 T BLAST X.

<div align="right">(9 x 1 = 9 weightage)</div>

III. Short essay or paragraph questions :— Answer any *five* out of the seven.

22 Construction of a cDNA library.

23 Multiple sequence alignment.

24 PHYLIP.

25 Composite protein sequence databases.

26 Parsimony tree.

27 FASTA.

28 Designing in molecular biology.

<div align="right">(5 x 2 = 10 weightage)</div>

IV. Essay questions (Answer any *two* from three) :-

29 What is sequence alignment ? Explain the types and application. Add a brief note on BLAST.

30 Explain the features of DNA sequence analysis. Add a note on DNA sequence databases and their applications.

31 Describe the applications of bioinformatics in phylogenetic analysis.

<div align="right">(2 x 4 = 8 weightage)</div>