

[81]

No. Of Printed Pages: 2

SARDAR PATEL UNIVERSITY
M Sc IV Semester Examination
Date: 07-04-2016 Day: Thursday
Time: 02.30 PM To 05.30 PM
Subject: BIOTECHNOLOGY
Paper: PS04EBIT02 – Animal Biotechnology

Marks: 70

Q1. Select appropriate answer for the following.

(8M)

- (I) The chromosome proteins are partially digested by trypsin and producing a banded pattern on subsequent staining in
- (a) G-banding (b) C-banding (c) Q-banding (d) R-banding
- (II) The antibody producing hybridoma cell lines are generated from
- (a) Glioma and T Lymphocytes
(b) Sarcoma and Erythroid cells
(c) Myeloma and B Lymphocytes
(d) B Lymphocytes and T lymphocytes
- (III) The serum is a source of broad range growth factor
- (a) PDGF (b) EGF (c) KGF (d) Still factor
- (IV) The appropriate energy source in media other than glucose is
- (a) Glutamyl - Glycine (b) Glutamyl - Methionine
(c) Glutamyl - Cysteine (d) Glutamyl- proline
- (V) A major cytoskeleton component involved in the movement of fibroblast is
- (a) Microfilament (b) Microtubule
(c) Intermediate filament (d) Microtubule associated motor protein
- (VI) The matrigel is developed from
- (a) Carcinoma (b) Sarcoma (c) Teratoma (d) Glioma
- (VII) Which of the following is a fibroblastic cell line?
- (a) STO (b) HEP G2 (c) Caco (d) HaCaT
- (VIII) The assay suitable for the study of metabolic cytotoxicity is based on
- (a) Cell membrane integrity
(b) Clonogenic ability
(c) Tetrazolium salt reduction
(d) Co culture using filter well insert

Q2. Answer briefly any Seven from the following.

(14M)

- (i) What is the role of cyclin and cyclin dependent kinases in regulation of cell cycle?
- (ii) State the role of CO₂ incubator in animal cell culture.
- (iii) Define totipotent stem cells and pluripotent stem cells with examples.
- (iv) Explain the terms 'anchorage dependent and 'anchorage independent cells
- (v) Explain the regulation of cell proliferation during culture..
- (vi) Explain the major differences between monolayer culture and suspension culture.
- (vii) What is conditioned medium? Write its composition and significance.
- (viii) Write the organization and importance of gap junctions.
- (ix) How cloning can be carried out in suspension culture? Explain.

- Q3. (a) Explain the development of a cell line starting from primary culture. (6M)
(b) Explain the importance and mode of action of different chemicals used for sterilization. (6M)
- OR
- (b) Describe Ca²⁺ dependent and Ca²⁺ independent cell adhesive molecules. (6M)
- Q4. (a) Describe the culture protocol of epidermis and write the applications of cultured epidermis. (6M)
(b) Write short notes on (6M)
I. Embryo technology
II. Production of transgenic animals
- OR
- (b) Answer the following (6M)
I. Discuss any three techniques for identification of apoptosis in cell lines.
II. Describe embryonic stem cells.
- Q5. (a) Give the details of nutrient constituents and supplements required in complete media. (6M)
(b) Describe the primary culture of mesenchymal cells from mouse embryo. (6M)
- OR
- (b) Discuss any three physical cell purification techniques. (6M)
- Q6. (a) Describe different cell characterization techniques used for species identification. (6M)
(b) Give an overview on different techniques used for immortalization of cell lines. (6M)
- OR
- (b) Write notes on (6M)
(i) The growth pattern of cultured cells as sigmoid curve
(ii) The cell viability and cell survival assays for cytotoxicity study
-