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SARDAR PATEL UNIVERSITY

M. Sc. (Integrated) Biotechnology – Eighth Semester Examination

Thursday, 20th October, 2016.

2:00 p.m. to 5:00 p.m.

PS07CIGIB2: ANIMAL TISSUE CULTURE TECHNOLOGY

Note :(i) Figures to right indicate marks.
(ii) All questions are compulsory.

Total Marks: 70

Q – 1 Choose the most appropriate alternative for the following: **(08)**

1. In Inverted microscope objective lens placed _____.
   a) above the stage
   b) below the stage
   c) above the light source
   d) None of above

2. To culture the hematopetic cells, which of the following media can be used?
   a) MEM
   b) DMEM
   c) RPMI-1640
   d) M-199

3. When the amount of tissue is not sufficient to disaggregate, then we can culture the fragment of tissue by _____.
   a) primary culture
   b) organ culture
   c) explant culture
   d) tissue culture

4. What is the normal cell seeding concentration to established cell culture?
   a) 1×10^4
   b) 1×10^5
   c) 1×10^6
   d) 5×10^6

5. Deamination of glutamine release _____, Which is toxic to the cultured cells.
   a) lactate
   b) Ammonium
   c) Pyruvate
   d) Alanine

6. In labeled chromium uptake assay 51 Cr binds to _____.
   a) membrane lipids
   b) extra cellular protein
   c) intra cellular protein
   d) DNA

7. Fusion between a plasma cell and a tumor cell creates _____.
   a) Myeloma
   b) Lymphoblast
   c) Hybridoma
   d) Lymphoma

8. Undifferentiated cells present in a differentiated cell mass are known as _____.
   a) Totipotent cells
   b) Pluripotent cells
   c) Embryonic stem cells
   d) Adult stem cells

Q – 2 Attempt ANY SEVEN from the following: **(14)**

1. Why glucose is replaced by glutamine in animal tissue culture media?
2. What is buffering system in animal tissue culture media?
3. Narrate about washing media.
4. Prepare the flow chart of basic steps to establish primary culture.
5. What is trypsinization? Write the types of trypsinization with merits and demerits.
6. Enlist the cell viability assays.
7. Write about MTT based cytotoxicity assay.
8. Enlist various applications of MABs.
9. Classify the stem cells based on potency.

Q – 3 (a) Explain the role of serum in animal cell culture. **(06)**

(b) Give a detailed account on sterilization techniques used in animal tissue culture. **(06)**

OR

(b) Write a note on serum-free media. **(06)**

Q – 4 (a) Give a detailed account on scale-up culture of monolayer cells. **(06)**

(b) Write a note on cell line. **(06)**

OR

(b) Write short note on followings:

1) Mechanical disaggregation techniques **(03)**
2) Multicellular Tumor Spheroids (MCTS) culture **(03)**

Q – 5 (a) Discuss the basic biology of *in vitro* cultured cells. **(06)**

(b) Enlist the various sources of contamination. Add a note on bacterial and cross-contamination in animal cell culture. **(06)**

OR

(b) Give a detailed account on FACS technique for cell separation. **(06)**

Q – 6 (a) Write an explanatory note on cryopreservation. **(06)**

(b) How attenuated vaccines are different from inactivated vaccines? Write the method of production of attenuated vaccines. **(06)**

OR

(b) Define Tissue Engineering. What are the basic components of Tissue Engineering? Describe about the different cell sources in Tissue Engineering. **(06)**

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