

Note: Answer to all questions (including multiple choice questions) should be written in the provided answer book only.

Number of Printed Pages = 2

SEAT No. \_\_\_\_\_

[45]

SARDAR PATEL UNIVERSITY  
M.Sc (IV Semester) Examination (CBCS)  
Thursday, 02<sup>nd</sup> Nov, 2017  
2:00 p.m. to 5:00 pm  
Biochemistry  
PS04CBIC01 – Animal Biotechnology

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TOTAL MARKS: 70

Q.1 Tick mark / select the correct answer for the following. (Only correct option against given question number needs to be written in provided answer book) (08 Marks)

- 1) Which tissue is thin and specialized for the diffusion of gases and ions?
  - a) cuboidal epithelial
  - b) connective
  - c) simple squamous epithelium
  - d) simple columnar epithelium
  
- 2) For *in vitro* work, cells sediment satisfactorily at
  - a) 100 – 120 g
  - b) 120 – 120 g
  - c) 80 – 100 g
  - d) 60 – 80g
  
- 3) One of the following constituent is included in most media as a source of energy:
  - a) Hormones
  - b) Fructose
  - c) Glucose
  - d) Growth factors
  
- 4) One of the following is the most reliable enzyme based cell death assays because it does not lose its activity during cell death assays:
  - a) Phenol red
  - b) Glucose -6-phosphate
  - c) Lactate dehydrogenase
  - d) Methyl Orange
  
- 5) One of the following enzyme is not a part of Isoenzyme Electrophoresis with Authentikit:
  - a) Glucose -6-phosphate dehydrogenase
  - b) Malate dehydrogenase
  - c) Aspartate aminotransferase
  - d) Superoxide dismutase
  
- 6) One of the following is not used to selectively grow tumor cells:
  - a) Confluent feeder layers
  - b) Suspension cloning
  - c) Histotypic culture
  - d) Embryo culture
  
- 7) Growth medium used for culture of mammary epithelium is:
  - a) L -15 Leibivitz medium
  - b) DMEM
  - c) Ham's F-12 medium
  - d) RPMI - 1640
  
- 8) One of the following is one of the oldest and most commonly used human cell lines.
  - a) CHO
  - b) HepG2
  - c) H9c2
  - d) HeLa

- Q.2 Answer any seven from the following: 14
- a) State the major applications of animal tissue culture?
  - b) List the various equipments required to set up a cell culture lab?
  - c) What is cell transformation?
  - d) Which enzymes are used in enzymatic Disaggregation?
  - e) Describe the morphology of epithelial cells and fibroblast cells during culture at sub-confluence and confluence.
  - f) State two points of difference between monolayer and suspension culture
  - g) What is contact inhibition?
  - h) Explain the terms 'anchorage dependent' and 'anchorage independent' cells.
  - i) State the factors that necessitate the need for replacement of medium?
- Q.3 (A) How can you establish a cell line starting from primary culture 6
- (B) "An *in vitro* system can never be an exact replica of *in vivo* system" Justify this statement explaining the major differences in cell behavior between cultured cells and their counterparts *in vivo* 6
- OR
- (B) Describe structure of extracellular matrix in brief and add a note on the importance of extracellular matrix in animal cell culture 6
- Q.4 (A) Describe the advantages and disadvantages of using serum in animal cell culture media. 6
- (B) State the chemical, physical and metabolic functions of any six constituents of culture medium. 6
- OR
- (B) Write short notes on (1) Embryo Sexing (2) Outline classification of epithelial tissue 6
- Q.5 (A) What is tissue disaggregation? What are different ways by which a tissue can be disaggregated after isolation and dissection 6
- (B) Give detailed information of different assays performed to understand the toxicity of a compound on the cultured cells 6
- OR
- (B) Why should we characterize the cell lines? Describe any one approach for characterization of a particular cell line. 6
- Q.6 (A) Write short note on embryonic stem cell and add a note on any three therapeutic application of stem cell. 6
- (B) Write short notes on assisted reproductive technology 6
- OR
- (B) Write short note on transgenic animals 6

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