

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, 02nd 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 <i>in vitro</i> system can never be an exact replica of <i>in vivo</i> system" Justify this statement explaining the major differences in cell behavior between cultured cells and their counterparts <i>in vivo</i>	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

— X —

[A-17]

No. of Printed Pages: 02

SARDAR PATEL UNIVERSITY
M Sc IV Semester Examination
Date: 25-04-2015 Day: Saturday
Time: 10:30 AM To 1:30 PM
Subject: BIOCHEMISTRY
Paper: P504CBIC01 - Animal Biotechnology

Marks: 70

Q1. Select appropriate answers for the following

(8M)

(i) Which of the following is an endothelial mitogen?

- (a) FGF (b) Erythropoietin (c) Angiogenin (d) KGF

(ii) At pH 4, phenol red indicator turns

- (a) Yellow (b) Purple (c) Pink (d) White

(iii) The appropriate marker for the characterization of enterocytes is

- (a) Tyrosinase (b) Proline hydroxylase (c) Creatine kinase (d) ALP *Cytokeratin*

(iv) A cell with very slow turnover is

- (a) Blood vessel endothelia (b) Keratinocytes (c) Enterocytes (d) Blood cells *ESC - 120*
30 *20 day* *WBC - 1-5*

(v) The cell line that can be disaggregated very easily is

- (a) Epidermal (b) Endothelia (c) Mesenchymal (d) Hepatocyte

Tissue - embryonic

(vi) Which of the following are the metabolic products of glucose and glutamine?

- (a) CO₂ and NH₃ (b) CO₂ and lactate (c) Lactate and ammonium (d) Lactate only

(vii) The chromosome proteins are partially digested by crude trypsin, producing a banded appearance on subsequent staining in

- (a) G banding (b) C banding (c) Q banding (d) R banding

centromere

Quantitative

Rev. of G.B

(pg 266)

(viii) Growth medium used for culture of rat hepatocytes is

- (a) L-15 Leibovitz (b) DMEM (c) Ham's F-12 medium (d) RPMI-1540

Hela fibro

low cell density
clonal toxicity assay
(PTO)

lympho



Shot on OnePlus
By Dolly

[80]

No. Of Printed Pages: 3

SARDAR PATEL UNIVERSITY
M.Sc. IV Semester Examination
Date: 07-04-2016 Day: Thursday
Time: 02.30 PM To 05.30 PM
Subject: BIOCHEMISTRY
Paper: PS04C3H121 - Animal Biotechnology

Marks: 70

(88A)

Q1. Select appropriate answer for the following

(i) The signal for the differentiation of epidermal keratinocytes is received from

- uminal ☒ (a) Lymphocytes (b) Fibroblast (c) Melanocytes ☒ (d) Neuronal cells

(ii) Which of the following is not a DNA fluorochromes but is conventionally used for measuring DNA content?

- ☒ (a) Haematoxylin (b) Hoechst 33258 (c) Propidium iodide (d) DAPI (A=T P₁ Res)
B₂ nucleic acid

(iii) Dilution cloning is based on the observation that the

- (a) Cells grow best in diluted medium
☒ (b) Cells get diluted below certain density to form discrete colonies
(c) Cells get more oxygen in diluted medium
(d) Cells can be induced to proliferate to reach to confluence very fast

(iv) The oldest and most commonly used cell line is

- ☒ (a) HeLa (b) Jurkat (c) Vero cells (d) F11 cells

(v) Cells which have undergone transformation frequently become

- wound. ☒ (a) Anchorage independent (b) Anchorage dependent - need surface to grow
by cell. (c) Stable (d) Density dependent

(vi) The most appropriate assay to measure irritability response in cultured cells is by

- (a) Measuring level of growth hormone ☒ (b) Using tetrazolium salt assay MTT assay
(c) Monitoring cytokine level (d) Measuring membrane polarity

(vii) The enzymatic marker for the characterization of endothelial is

- (a) Creatine kinase (+Neuron) (b) Tyrosinase (Melanocytes)
(c) DOPA decarboxylase (Neuron) ☒ (d) Angiotensin converting enzyme

(viii) The plating efficiency of cells can be checked during

- (a) Lag phase ☒ (b) Log phase
(c) Plateau phase (d) All the three growth phases

[27]

SARDAR PATEL UNIVERSITY
M.Sc (IV Semester) Examination (CBCS)
Friday, 12th April, 2018
10:00 a.m. to 1:00 pm
Biochemistry
PS04CBIC01 - Animal Biotechnology

SEAT No. _____

No. of Printed Pages - 2

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) (06 Marks)

1. The predominant amino acids of collagen are
☒ a. Glycine - Proline
☐ b. Lysine - Cysteine

- ☐ c. Valine - Glutamic acid
☐ d. Hydroxyproline - Glutamic acid

2. Which of the following is a cell line from spleen?
☐ a. WEHI - *mouse multiple*
☐ b. CaCo - *cow (large Int)*

- ☒ c. Friend - *Glucocorticoid induced*
☐ d. HaCat - *Keratinocytes*

3. Which enzyme marker is suitable for the characterization of macrophages?
☐ a. Proline hydroxylase
☒ b. Non specific esterase

- ☐ c. Glutaryl synthetase
☐ d. Angiotensin converting enzyme

4. The predominant signaling observed in malignantly transformed cells is
☐ a. Endocrine - *distant*
☒ b. Paracrine - *neighboring cell - firing*

- ☐ c. Autocrine - *same cell*
☐ d. Juxtacrine - *cell-cell*
cell-ECF

5. pH 4 i.e. acidic pH, phenol red indicator turns:
☐ a. Yellow
☐ b. Purple
☐ c. Pink
☒ d. White

6. Which one of the following is the firstly established continuous human cell line
☐ a. Vero
☐ b. A 549
☒ c. Hela
☐ d. MCF-7

7. Which of the following cells are independent to sentisence?
☐ a. Germ cells
☐ b. Stem Cells
☒ c. Transformed Cells
☐ d. all of above

8. The role of glucose in cell culture media is:
☐ a. Source of nitrogen
☒ b. Source of energy, carbon
☐ c. Adjusts osmotic pressure
☐ d. Growth stimulator

[P.T.O.]

(3)



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

Number of Printed Pages = 2

SRAT No. _____

[45]

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

TOTAL MARKS: 70

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c) ☒ simple squamous epithelium
d) simple columnar epithelium
- 2) For in vitro work, cells sediment satisfactorily at
a) 100 - 120 g
b) 120 - 130 g
c) ☒ 80 - 100 g
d) 60 - 80 g
- 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
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c) ☒ Lactate dehydrogenase → *tetrazolium MTT*
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- 5) One of the following enzyme is not a part of Isoenzyme Electrophoresis with Authentic:
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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.
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b) HepG2
c) H9c2
d) ☒ HeLa



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SARDAR PATEL UNIVERSITY
M.Sc (IV Semester) Examination (CBCS)
Thursday, 02nd Nov, 2017
2:00 p.m. to 5:00 pm
Biochemistry
PS04CBC01 - Animal Biotechnology

TOTAL MARKS

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(iii) The appropriate marker for the characterization of enterocytes is

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(iv) A cell with very slow turnover is

- (a) Blood vessel endothelia (b) Keratinocytes (c) Enterocytes (d) Blood cells

30

2nd day.

R.B.
W.B.

(v) The cell line that can be disaggregated very easily is

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By CamScanner

SARDAR PATEL UNIVERSITY
M.Sc (IV Semester) Examination (CBCS)
Friday, 13th April, 2018
10:00 a.m. to 1:00 pm
Biochemistry
PS04CBC01 - Animal Biotechnology

SEAT No. _____

No. of Printed Pages : 2

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[P.T.O.]

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: BIOCHEMISTRY

Paper: PSD4CBIC01 - Animal Biotechnology

Marks: 70

Select appropriate answer for the following.

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 (c) Monitoring cytokine level (d) Measuring membrane polarity

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- (a) Creatine kinase *(Muscle cell)* (b) Tyrosinase *(Melanocytes)*
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