# P. P. SAVANI UNIVERSITY

**Fifth Semester of B.Sc. Examination**
**December-2021**
**SSBT3090–Animal Biotechnology-II**

**10.12.2021, Friday** **Time: 12:30 p.m. to 03:00 p.m.** **Maximum Marks: 60**

***Instructions:***

1. The question paper comprises of two sections.
2. Section I and II must be attempted in separate answer sheets.
3. Make suitable assumptions and draw neat figures wherever required.
4. Use of scientific calculator is allowed.

**Section-I (Total Marks - 30)**

**Q.1 Short Questions** **[10]**

**1.1 Objectives** **[05]**

**1.1a** Stem cells can

- **A** Renew
- **B** Differentiate
- **C** Multiply
- **D** All of the above

**1.1b** Fertilized egg is

- **A** Totipotent
- **B** Multipotent
- **C** Oligopotent
- **D** Unipotent

**1.1c** To maintain pH of medium we add

- **A** Salts
- **B** Sodium
- **C** Buffer
- **D** Amino acids

**1.1d** To block mitosis we use

- **A** Colchicine
- **B** Colcemid
- **C** Vinblastin
- **D** Any one of the above

**1.1e** Animal Biotechnology includes

- **A** Cell culture
- **B** Tissue culture
- **C** In vitro fertilization
- **D** All of the above

**1.1f** DNA has high melting point when it has

- **A** High AT content
- **B** High GC content
- **C** High AG content
- **D** High TC content

**1.1g** In animal tissue culture, the osmotic balance is maintained by

- **A** Sodium
- **B** Potassium
- **C** Calcium
- **D** All of the above

**1.1h** Magnets are used in

- **A** Hybridization
- **B** Western Blotting
- **C** Cell Separation
- **D** Cell isolation

**1.1i** Conditioned media is

- **A** Defined media
- **B** Undefined media
- **C** Synthetic media
- **D** None of the above

**1.1j** Isolation of genetic variant can be obtained by

- **A** Cell separation
- **B** Cell isolation
- **C** DNA Hybridization
- **D** Blotting

**1.2 Answer the Following:** **[05]**

**1.2a** SDS PAGE method is used ..... Blotting.

**1.2b** What is the Full form of VNTRs?

**1.2c** Define Karyotype.

**1.2d** What is animal cell characterization?

**1.2e** Transformed cells have limited life span (True/False).

**Q.2 Short Notes (Attempt any two)** **[06]**

**A** Feeder cells

**B** Conditioned media

**C** Northern Blotting

**Q.3 Explain in detail (Attempt any two)** **[14]**

**A** Explain how HAT media could be used as selective inhibitors.

**B** Explain different methods for animal cell separation.

**C** How do you prepare chromosome slide? & Write a detailed note on different techniques of chromosome banding techniques.

## Section-II (Total Marks - 30)

**Q.1 Short Questions** [10]

**1.1 Objectives** [05]

**1.1a** We freeze the cells to avoid

A Genetic drift
B Transformation
C Contamination
D All of the above

**1.1b** Which of the following is not cryoprotectant?

A DMSO
B PEG
C PVP
D GMSO

**1.1c** Inflammation causes due

A Transformation
B Irritation
C Multiplication
D None of the above

**1.1d** Differentiated Fibrocytes produce

A Collagen
B Albumin
C Hemoglobin
D Serum

**1.1e** Flow cytometry is used in

A Cell multiplication
B Cell culture
C Cell feeding
D Cell counting

**1.1f** ..... is an example of terminal differentiated cell.

A Zygote
B HSC
C RBC
D Myloid and Lyphoid

**1.1g** In heterotypic interaction, which of the following chemicals are used for cellular communication

A Hormone interaction
B Chemical interaction
C Same type of cell interaction
D Different types of cell interaction

**1.1h** P53 is involved in

A Immortalization
B Malignancy
C Anchorage independence
D All of the above

**1.1i** Animal cells have following growth phases

A Lag
B Log
C Stationary
D All of the above

**1.1j** Marker for erythrocytes is

A Albumin
B Hemoglobin
C Transglutaminase
D invoclurin

**1.2 Answer the Following:** [05]

**1.2a** Define Differentiation
**1.2b** Define Immortalization
**1.2c** Thawing is done instantly (True/False)
**1.2d** Full form of DMSO.
**1.2e** Characterization is not required for Animal cells (True/False)

**Q.2 Short Notes (Attempt any two)** [06]

**A** What are the rationales for freezing animal cells?
**B** What are the in vitro limitations of assays?
**C** What different growth phases are observed in animal cell culture?

**Q.3 Explain in detail (Attempt any two)** [14]

**A** Define cryopreservation and write a detailed note about it.
**B** Why do we count cells and what different methods are employed?
**C** Write a detailed note on animal cell differentiation.