

M.Sc Sem-3 Examination

502

CE & ART

Time : 2-30 Hours]

November-2024

[Max. Marks : 70

Q.1A	Give a brief classification of stem cells with markers of stem cells for identification and isolation with one example	7
Q.1B	Give a brief outline for separation of MNCs from cord blood.	7
	OR	
Q.1A	Explain the process of stem cell characterization using various analytical techniques	7
Q.1B	Describe in detail the clinical applications of mesenchymal stem cells.	7
Q.2 A	Write a brief overview on stem cell differentiation its applications and list out factors involved in differentiation.	7
Q.2 B	Describe the process of generation of iPSC and its applications	7
	OR	
Q.2 A	Write a note on adult stem cells and how they are different from embryonic stem cells. Provide the applications of stem cells	7
Q.2 B	Explain bone marrow stem cell transplantation.	7
Q.3 A	What is Henderson hasselbaltch equation and howthis equation is used in culture media pH maintenance.	7
Q.3 B	Explain the embryo culture media composition.	7
	OR	
Q.3 A	Elaborate the difference between single step and sequential media?	7
Q.3 B	What is the role of carbohydrates and amino acids in culture media?	7
Q.4 A	Explain role of culture media in epigenetics.	7
Q.4 B	Explain Culture media types & Protocols in details.	7
	OR	
Q.4 A	Explain the impact of change in osmolality of culture media with appropriate example.	7
Q.4 B	Explain embryo culture Strategies-Single culture, Group Culture, Co-Culture.	7
Q.5	Answer the Following Short Questions (Any 7)	14
1	What IMCS and MSC stands for in stem cells	
2	List two enzymes used in stem cell isolation.	
3	Give to CD antigen markers for hematopoietic stem cells.	
4	Define iPSC, UCB in stem cells.	
5	Define iPSC and MSC.	
6	Which bond links amino acids in the sequence of a protein?	

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7	Name 5 factors which impact culture environment?	
8	Arrange stem cells in terms of potency: Uni, toti, multi, Pluri	
9	Role of NaHCO_3 in culture media?	
10	Explain Oxygen Requirements & Its Maintain for embryos in vitro.	
11	What are salts present in culture media?	
12	What is the Importance of oil overlay in embryo culture?	