

MSc Sem.-2 Examination

409

CB

Time : 2-30 Hours]

May-2025

[Max. Marks : 70

Instructions:

All Questions are compulsory
Draw neat and labeled diagram wherever
necessary

- Q-1** **Write the following** **14**
- (i) Write a note on the specialization of three germ layers. 7
- (ii) Based on which factors, the stem cell separation techniques are broadly classified. Write a brief note on the techniques based on their physical parameters. 7
- OR**
- (i) Write a note on neurulation and its various stages during organogenesis. 7
- (ii) Explain novel stem cell separation processes. 7
- Q-2** **Write the following** **14**
- (i) Write a note on the adult stem cells present in the nervous system. 7
- (ii) Explain the techniques used for characterization of stem cells. 7
- OR**
- (i) Write a note on DNA methylation and microRNA with respect to stem cells and embryogenesis. 7
- (ii) Describe the magnetic-activated cell sorting technique. 7
- Q-3** **Write the following** **14**
- (i) Explain the different approaches used to investigate tumor heterogeneity. 7
- (ii) Explain cord blood banking in terms of both public and private banking. 7
- OR**
- (i) Describe the different targets of cancer stem cells, including examples. 7
- (ii) Write a brief note on stem cell classification and discuss the permissible and prohibited areas of research on stem cells according to ICMR guidelines. 7
- Q-4** **Write the following** **14**
- (i) Describe various CSC isolation techniques using intrinsic functional properties of the cells. 7
- (ii) Give a definition of iPSC and a thorough explanation of the process used to create it using a viral vector. 7
- OR**
- (i) Describe various surface markers used as a CSC target. 7
- (ii) What are pluripotent stem cells? Explain different methods of 7

(P.T.O)

