



M.Sc. II Semester Degree Examination, September/October - 2022
21BTH2C8L : STEM CELL TECHNOLOGY AND REGENERATIVE
MEDICINE

Time : 3 Hours

Maximum Marks : 70

Instructions : (i) Answer **any five** of the following questions with Question No. **1 compulsory**, each question carries **equal** marks.
(ii) Draw neat diagrams wherever necessary.

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| 1. | (a) | Explain how stem cells are special than other cells ? | 4 |
| | (b) | Write on general properties of human embryonic stem cells. | 4 |
| | (c) | Explain about neural stem cells and their application in medicine. | 6 |
| 2. | (a) | Explain brief about P13K mediated cell signaling. | 4 |
| | (b) | Explain extracellular matrix regulated signaling in stem cells. | 5 |
| | (c) | Differentiate the tight gap and adherens mediated stem cell communication. | 5 |
| 3. | (a) | Explain in detail about hemopoiesis with a neat labelled diagram. | 7 |
| | (b) | Describe in detail about causes, clinical features and manifestation for sickle cell anemia and erythroblastosis fetalis conditions. | 7 |
| 4. | (a) | Explain brief about stem cell-based therapies and their applications. | 5 |
| | (b) | Discuss in briefly about stem cell-based repair therapies used for nervous system regulation. | 5 |
| | (c) | Explain brief about skin replacement technique. | 4 |
| 5. | (a) | Discuss both religious and ethical views about stem cell research in India. | 7 |
| | (b) | Explain the current regulation of human embryonic stem cell research. | 7 |
| 6. | (a) | Describe in detail about erythrocytoses and polycythemia vera conditions. | 7 |
| | (b) | Discuss in detail about various haemopoietic growth factors and their role in regulation. | 7 |



7. (a) Distinguish between bone marrow transplantation and stem cell transplantation. **7**
- (b) Express your views about predictable future of advanced stem cell research in India. **7**
8. (a) Discuss a detailed protocol and various steps involved in stem cell transplantation. **10**
- (b) Write a short note on types of stem cells and their applications as regenerative medicine. **4**

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