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21ZOO1C4L

M.Sc. I Semester Degree Examination, April/May - 2023

ZOOLOGY

**DSC 4 : Stem Cell Biology and Regenerative Medicine
(CBCS)**

Time : 3 Hours

Maximum Marks : 70

Note : Answer **any five** of the following questions. Question No.1 (Q.1) is **compulsory** and each question carries **equal** marks.

1. Define stem cells. Explain growth factors and paracrine mechanism and action of stem cells. **14**
2. Explain somatic cell nuclear transfer technology with a note on stem cell Renewal. **14**
3. Explain the recent advances, applications and challenges in pluripotent stem cell research. **14**
4. Describe the adult stem cells and their lineages with examples. **14**
5. Explain the ethical concerns in stem cell research. **14**
6. (a) Give a detailed account of pathways involved in origin of cancer stem cells. **7**
(b) Write a note on applications of stem cells in gene therapy. **7**
7. (a) Write on isolation, properties and test for embryonic stem cells. **7**
(b) Write a note on pancreatic stem cells and diabetes. **7**
8. Write a note on the following :
 - (a) HLA typing. **5**
 - (b) Teratocarcinoma. **5**
 - (c) Stem cell banking. **4**

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