

**C 61272**

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Name.....

Reg. No.....

**FOURTH SEMESTER M.Sc. DEGREE EXAMINATION, MAY 2014**

(CUCSS)

General Biotechnology

GB4 E5—STEM CELL BIOLOGY

Maximum : 36 Weightage

Time : Three Hours

**Section A (Very Short Answers)**

Answer **all** questions.

Each question carries a weightage of 1.

- |                           |                                  |
|---------------------------|----------------------------------|
| 1. Self renewal.          | 2. Mesoderm.                     |
| 3. Gastrula.              | 4. Oct-4-transcriptional factor. |
| 5. MAPC 3.                | 6. STAT 3.                       |
| 7. Trans-differentiation. | 8. Liver stem cells.             |
| 9. Asteocytes.            | 10. Somatic nuclear transfer.    |
- (10 x 1 = 10 weightage)

**Section B (Short Answer Type Questions)**

Answer any seven questions.

Each question carries a weightage of 2.

11. What all cell types can be derived from human embryonic stem cells in vitro ?
12. What do you know about cord blood stem cells ?
13. Discuss the current use of epidermal stem cells.
14. What are the therapeutic application of mesenchymal stem cells ?
15. What are the cell surface antigenic markers to distinguish ES cells ?
16. Give a brief note on religious perspectives on stem cell research. ?
17. What are the critical elements for developing a safe stem cell based therapy ?
18. Explain Nuclear transfer and its possible applications.
19. Give an account on Bone marrow stem cells. ?
20. What causes Parkinson's disease and how stem cell therapy is applicable in this case ?
- (7 x 2 = 14 weightage)

**Turn over**

**Section C (Essay Type Questions)**

*Answer any **two** questions.*

*Each question carries a weightage of 6.*

21. Discuss about current application of stem cells in tissue engineering. What are the challenges for transplantation therapy of human ES cells?
22. What are the ethical guidelines should govern over human ES cell research?
23. Describe stem cell isolation and characterization.

(2 x 6 = 12 weightage)