

SEM	SET	PAPER CODE	TITLE OF THE PAPER
VI	2012	11UBO630303A	CORE ELECTIVE III: STEM CELL TECHNOLOGY

**SECTION – A****Answer all the questions:****20 x 1 = 20****Choose the correct answer:**

- \_\_\_\_\_ is a accessible source of autologous adult stem cells in human
  - small intestine
  - large intestine
  - bone marrow
  - none of the above
- Human embryos reach the blastocyst stage at \_\_\_\_\_.
  - 4–7 days
  - 4–5 days
  - 2–3 days
  - none of these
- Germ line stem cells can generate \_\_\_\_\_ gametes.
  - haploid
  - diploid
  - multiplied
  - none of these
- Innovations of stem cell research are protected by \_\_\_\_\_.
  - Human right commission
  - funding agencies
  - Intellectual Property Rights (IPR)
  - none of these
- Research and stem cells informations and links of stem cell ethics are from \_\_\_\_\_.
  - National Institutes of Health
  - United nations
  - Australia
  - None of these

**Fill in the blanks:**

6. Stem cells are \_\_\_\_\_ that can differentiate into specialized cells.
7. \_\_\_\_\_ also called somatic stem cells.
8. Germ line stem cells can generate gametes which are responsible for transmitting \_\_\_\_\_ information.
9. First \_\_\_\_\_ could be genetically manipulated to introduce the therapeutic gene.
10. ISSCR stands for \_\_\_\_\_.

**State True or False:**

11. Pre-implantation phase takes place in the second week of embryonic development.
12. Epithelial stem cells are not found in hair follicle cells.
13. Cell Banks should be accredited, designated, authorized or licensed by an appropriate purpose.
14. To determine the ideal site to inject stem cell, do not use mapping or direct visualization to identify the locations.
15. Human reproductive cloning is defined as the act of seeking establish either a pregnancy or the birth of a child.

**Match the following:**

- |                                 |                                       |
|---------------------------------|---------------------------------------|
| 16. Mature sperm                | - a) Methocult™ media                 |
| 17. Colony – Forming Unit Assay | - b) Assisted Reproductive Technology |
| 18. ART                         | - c) Oviduct                          |
| 19. Stem cell therapy           | - d) Infertility treatment            |
| 20. Donated blastocyst          | - e) Cancer disease                   |

**SECTION – B**

**Answer all the questions:**

**5 x 4 = 20**

21. a. Point out the history and key events of stem cells.

**OR**

- b. Distinguish the cell proliferation and cell differentiation.
22. a. Describe the isolation of stem cells.

**OR**

- b. Write the functional characteristics of hematopoietic stem cells.
23. a. Give a brief note on banking of hES cells.

**OR**

- b. Explain briefly the cloning of stem cells.
24. a. Give the instances to prove that stem cells will repair the heart.

**OR**

- b. Write a note on stem cell-based gene therapies.
25. a. Briefly write about the scientific background of Human Embryonic stem cell research.

**OR**

- b. Describe the future of stem cell research.

### **SECTION – C**

**Answer any FOUR questions:**

**4 x 15 = 60**

- 26. Explain the basics of early human embryology.
- 27. Write a detailed account on Embryonic stem cells and Adult stem cells.
- 28. Briefly explain the cloning of stem cells.
- 29. Explain about the Cardiac stem cells and their based therapies.
- 30. Give a detailed account on Ethics and Scientific concerns on hES research.

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