

M. Sc. DEGREE EXAMINATION, APRIL 2019
BIOTECHNOLOGY
FOURTH SEMESTER

COURSE : CORE
PAPER : STEM CELL BIOLOGY AND TISSUE ENGINEERING
TIME : 3 HOURS **MAX. MARKS: 100**

SECTION – A

ANSWER ALL THE QUESTIONS

(20 x 1 = 20)

1. What are Pluripotent stem cells?
2. What are adult stem cells?
3. What are stem cell niche?
4. What are embryonic stem cells?
5. What are interleukin 6?
6. What are amniotic stem cells?
7. What are growth factors?
8. What are the properties of stem cells?
9. State the uses of mesenchymal stem cells?
10. What are beta cells?
11. What are effects of Huntington disease?
12. What are the clinical implication of cancer cells?
13. Define xenograft.
14. What is microencapsulation?
15. What are vascular endothelial growth factors?
16. Give the importance of microgravity?
17. What are uses of scaffolds?
18. What is gene editing?
19. What is demyelination?
20. What is bio artificial pancreas?

SECTION – B

ANSWER ANY 4 QUESTIONS IN ABOUT 600 WORDS

(4 x 10 = 40)

21. Briefly explain the Mechanism of Stem Cell Renewal?
22. List the Extrinsic and Intrinsic determinants of Pluripotency?
23. Briefly comment on the uses of Embryonic stem cells to treat heart disease.
24. Give an account of neural stem cells?
25. How is an artificial womb constructed?
26. Comment on Biomaterials used in tissue engineering?
27. Give an account on Cell based therapy for treatment of cartilage defects?

SECTION – C

ANSWER ANY TWO QUESTIONS IN ABOUT 1500 WORDS

(2 x 20 = 40)

28. How are bioreactors designed for Tissue engineering?
29. Throw light on artificial pancreas as means to control diabetes.
30. Give an account on stem cell niches
31. Give an account on the future perspectives of Tissue Engineering
