Printed Pages: 01 **Sub Code: NBT 051**

Paper Id: **154236** **Roll No.** | | | | | | | | | | |

B TECH

(SEM-VIII) THEORY EXAMINATION 2018-19

FUNDAMENTALS OF STEM CELL TECHNOLOGY

Time: 3 Hours ***Total Marks: 100***

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION – A

1. Attempt all parts. All parts carry equal marks. **[2x10=20]**

a. What do you understand by embryoid bodies?
b. What do you mean by multipotent and unipotent?
c. Difference between differentiation and directed-differentiation.
d. What is the role of feeder layer in stem cell culture?
e. What is blastocyst?
f. What are iPSCs?
g. What do you understand by germ layers?
h. What is polar body?
i. What is trans differentiation?
j. Define organogenesis.

SECTION – B

2. Attempt any three parts. All parts carry equal marks. **[3x10=30]**

a. What are stem cells and what are their properties?
b. Describe various ethical issues related to stem cell research.
c. What are the potential uses of human stem cells and the obstacles that must be overcome before these potential uses will be realized?
d. Write short note on Menstrual Cycle
e. How are embryonic stem cells stimulated to differentiate?

SECTION – C

3. Attempt any one part **(10 marks)**

a) Describe oogenesis in detail.
b) What are the similarities and differences between embryonic and adult stem cells?

4. Attempt any one part **(10 marks)**

a) Describe myelo-dysplastic and myelo-proliferative disorders in brief.
b) Describe the formation of the three germ layers in detail

5. Attempt any one part **(10 marks)**

a) Describe Hemapheresis in detail.
b) What is the importance of stem cell therapy in Alzheimer's disease?

6. Attempt any one part. **(10 marks)**

a) Describe Apheresis procedures in detail.
b) What is the role of hepatic stem cell in liver regeneration?

7. Attempt any one part. **(10 marks)**

a) What laboratory tests are used to identify embryonic stem cells?
b) Write about the potential of stem cell therapy for following diseases-
   i) Parkinson's Disease.
   ii) Diabetes.
   iii)Multiple Sclerosis.