

**GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR
(GIET UNIVERSITY)**



M.Tech. (First Semester) Regular Examinations, February – 2025
24MBTPE11011 - Fundamentals of Stem Cell Technology
(Biotechnology)

Time: 3 hrs

Maximum: 60 Marks

Answer ALL questions
(The figures in the right hand margin indicate marks)

PART – A**(2 x 5 = 10 Marks)**Q.1. Answer **ALL** questions

- Differentiate between External and Internal Fertilization.
- Write on gametes.
- Write a short note on bone marrow.
- Define stem cell bank.
- Explain germ layers.

CO #	Blooms Level
CO1	K1
CO2	K2
CO3	K1
CO4	K2
CO5	K2

PART – B**(10 x 5 = 50 Marks)**Answer **ALL** the questions

- | | Marks | CO # | Blooms Level |
|---|-------|------|--------------|
| 2. a. Discuss in details about various stages of differentiation in Eukaryotes. | 5 | CO1 | K1 |
| b. Define Embryo. Discuss about the various stages of the Embryo. | 5 | CO1 | K1 |
| (OR) | | | |
| c. Discuss about the germ layers. And discuss about the development of different layers and their significance for organ development. | 5 | CO1 | K2 |
| d. Discuss about Placenta and Umbilical cord and their significance in human development. | 5 | CO1 | K3 |
| 3.a. Elaborate about the process of Reproduction in humans. | 5 | CO2 | K1 |
| b. Elaborate about oogenesis and spermatogenesis and its significance. | 5 | CO2 | K1 |
| (OR) | | | |
| c. Write on menstrual cycle and its significance. | 5 | CO2 | K2 |
| d. Explain the detailed mechanism of invitro fertilization and its significance. | 5 | CO2 | K2 |
| 4.a. What are types of stem cell and bone marrow transplantation? | 5 | CO3 | K2 |
| b. Explain about blood transfusion and its significance in health care. | 5 | CO3 | K1 |
| (OR) | | | |
| c. How plastic is adult cell? Discuss | 5 | CO3 | K3 |
| d. Discuss about several disorder related to haematopoietic cell. | 5 | CO3 | K2 |
| 5.a. Discuss in details about stem cells and its types. And also, significance of stem cells. | 5 | CO4 | K1 |
| b. Discuss about epidermal stem cell and its significance. | 5 | CO4 | K1 |
| (OR) | | | |
| c. How stem cells have been used for AIDS patients? | 5 | CO5 | K2 |
| d. Role of stem cell therapy in cancer. Discuss. | 5 | CO5 | K2 |
| 6.a. Discuss any three diseases, where stem cell therapies have shown potential in curing them. | 5 | CO5 | K2 |
| b. Discuss about preservation and clinical use of blood. | 5 | CO3 | K1 |
| (OR) | | | |
| c. Explain the Hepatic stem cell and its role in liver regeneration. | 5 | CO4 | K1 |
| d. What unique properties of stem cells promote its use in cell therapy? | 5 | CO4 | K2 |

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