



VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
 [AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]
 Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 90011

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2025
 Seventh Semester
 Biotechnology
 U19BTV30 – STEM CELL TECHNOLOGY
 (Regulation 2019)

Time: Three Hours

Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	What does it mean for a stem cell to be totipotent?	2	K1	CO1
2.	Differentiate between multipotent and unipotent stem cells.	2	K2	CO1
3.	Mention any two characteristics of adult stem cells.	2	K1	CO2
4.	How does therapeutic cloning differ from reproductive cloning?	2	K2	CO2
5.	Define the purpose of hematopoietic stem cells commonly used in gene therapy.	2	K2	CO3
6.	Mention one advantage and one limitation of using viral vectors in gene therapy.	2	K1	CO3
7.	Enumerate the role of Mesenchymal Stem Cells (MSCs) in spinal cord repair.	2	K2	CO4
8.	How do induced Pluripotent Stem Cells (iPSCs) contribute to Parkinson's disease therapy?	2	K2	CO4
9.	State the purpose of the National Guidelines for Stem Cell Research.	2	K1	CO5
10.	Why is safety assessment important before using stem cells in clinical therapy?	2	K2	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.	Questions	Marks	KL	CO
11. a)	Describe how stem cells are grown in the lab. What type of culture media, growth factors, and conditions are needed to keep them healthy and growing.	13	K1	CO1

