

**PARUL UNIVERSITY**  
**FACULTY OF APPLIED SCIENCE**  
**M.Sc., Winter 2017-18 Examination**

**Semester: 3**  
**Subject Code: 11202202**  
**Subject Name: Cell Culture Technology & Tissue Engineering**

**Date: 19/12/2017**  
**Time: 10.30 am To 1.00 pm**  
**Total Marks: 60**

---

**Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

- Q.1. A) Brief note (Each of 04 marks) (08)**  
(a) Somatic embryogenesis  
(b) Somaclonal variations
- Q.1. B) Answer the following questions (Any two) (04)**  
(a) Brief note (Each of 02 marks) (04)  
1. What is the role of vitamin in plant tissue culture media?  
2. What is the role of solidifying agents in plant tissue culture media?  
(b) Write a short note on protoplast culture. (04)  
(c) Write a short note on production of haploid plants. (04)
- Q.2. A) Answer the following questions. (04)**  
(a) Short note on significance of apoptosis (04)  
(b) Discuss methods for isolation of animal tissue. (04)
- Q.2. B) Answer the following questions (Any two) (03)**  
(a) Short note on organ culture. (03)  
(b) Short note on established cell line cultures. (03)  
(c) Short note on serum free media. (03)
- Q.3. A) Brief note (Each of 04 marks) (08)**  
(a) Write a brief note on Embryonic stem cells.  
(b) Stem cell differentiation.
- Q.3. B) Answer the following questions (Any two) (04)**  
(a) Brief note (Each of 02 marks) (04)  
1. Define knock-in mice.  
2. Define chimeras.  
(b) Short note on adult stem cells. (04)  
(c) Short note on knockout mice (04)
- Q.4. A) Answer the following questions. (04)**  
(a) Short note advantages and disadvantages bone marrow transplantation. (04)  
(b) Write a short note on Clinical applications of stem cell therapy. (04)
- Q.4. B) Answer the following questions (Any two) (03)**  
(a) Short note on stem cell therapy for the treatment of Parkinson's disease. (03)  
(b) Short note on stem cell therapy for the treatment of Alzheimers. (03)  
(c) Short note congenic transplantation (03)