

**6/H-77 (vii) (Syllabus-2015)**

**2 0 2 2**

**( May/June )**

**BIOTECHNOLOGY**

**( Honours )**

**( Animal and Plant Biotechnology )**

**Marks : 56**

**Time : 3 hours**

*The figures in the margin indicate full marks  
for the questions*

**Answer Question No. 1 which is compulsory  
and any four from the rest**

**1. Differentiate between the following :  $3 \times 4 = 12$**

- (a) Differentiation and Dedifferentiation**
- (b) Cybrid and Hybrid**
- (c) Copyright and Patent**
- (d) Embryo culture and Embryo rescue**

**2. (a) What are established cell lines? Give an  
example of an established cell line.  $2+1=3$**

- (b) What could be the possible factors for low success rate of animal cloning? Write a short note on social concerns regarding the use of transgenic technology in humans. 4+4=8
3. (a) What are suspension cultures? How do they differ from callus cultures? 1+4=5
- (b) Discuss the different methods by which protoplast fusion can be achieved. 6
4. (a) Write a short note on the properties of embryonic stem cells. 4
- (b) Discuss the role of CO<sub>2</sub> in the culturing of animal cells. What are the advantages and disadvantages of serum-free media? 3+4=7
5. What is somaclonal variation? How does it affect genetic fidelity? How can the concept of RFLP be used to ascertain the genetic fidelity of tissue cultured plants? 2+2+7=11
6. (a) What are the criteria for determining the need for subculture? How are adherent cells subcultured? 3+4=7
- (b) What are the risks associated with the use of gene therapy in humans? 4
7. (a) Define the term 'transgenic'. How is the Ti plasmid modified to make it a suitable delivery tool for creating transgenic plants? 2+6=8
- (b) What is an explant? List the different types of explants used in plant tissue culture. 1+2=3
8. Outline the steps involved in any two of the following : 5½×2=11
- (a) Tissue engineering
- (b) Marker-assisted selection
- (c) Somatic embryogenesis

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