

**SIXTH SEMESTER B Sc DEGREE EXAMINATION, MARCH 2014**  
**(UG - CCSS)**

**Microbiology**  
**(Elective Course)**

**MB 6B 21 (E2) – CELL AND TISSUE CULTURE**

**Maximum: 30 Weightage**

**Time: Three hours**

**Part A**

*(Answer all questions)*

1. Protoplasts can be produced from callus by enzymatic treatment with
  - a) cellulolytic enzymes
  - b) pectolytic enzymes
  - c) both a and b
  - d) proteolytic enzymes
- 2 ..... is an excised piece of leaf or shoot used in micro propagation
  - a) micro shoot
  - b) explant
  - c) medium
  - d) callus
3. Protoplast is the cell lacking .....
4. Organogenesis is .....
5. In a callus culture:
  - a) increasing the level of cytokinin induce shoot formation
  - b) increasing the level of cytokinin induce root formation
  - c) increasing the level of auxin induce shoot formation
  - d) none of these
6. The ability of a cell to produce the whole plant is called .....
7. Autoclave is used for .....
8. Vectors DNA is used for .....
9. A chemical used for surface sterilization is .....
10. Haploid cells contain ..... set of chromosomes

**Expand the following**

11. MS medium
12. ABA

**(12x<sup>1</sup>/<sub>4</sub> = 3 Weightage)**

**Part B**

*(Write briefly on the following )*

13. Callus
14. Protoplast fusion
15. Gibberellins

**Turn over**

16. Stem cell
17. Synthetic seeds
18. Membrane filters
19. Animal cell culture media
20. Cell lines
21. Cell marker

**Part C**

(9 x 1 = 9 Weightage)

*Write notes on any five of the following.  
Answer not to exceed one page*

22. Maintenance of sterile condition
23. Pollen culture
24. Explant selection
25. Somatic hybrids
26. Media formulation
27. Cell suspension culture
28. Indirect gene transfer

**Part D**

(5 x 2 = 10 Weightage)

*Write briefly on any two of the following*

29. Stem cell culture and its applications
30. Somaclonal variation and its application in crop improvement
31. Basic lab requirements and applications of tissue culture

(2 x 4 = 8 Weightage)