

SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, MARCH/APRIL 2016

(UG-CCSS)

Elective Course—Microbiology

MB 6B 21 (E2)—CELL AND TISSUE CULTURE

Time : Three Hours

Maximum : 30 Weightage

Part A*Answer all questions.**Each questions carries weightage $\frac{1}{4}$.*

1. **Electroporation** is a technique with
 - (a) Pollen.
 - (b) Callus.
 - (c) Cell suspension.
 - (d) **Protoplast**.
2. To produce homozygous plants for all the traits the best method is _____
 - (a) Callus culture.
 - (b) Anther/Pollen culture.
 - (c) **Protoplast** culture.
 - (d) Organ culture.
3. Pores in the **protoplast** may be opened to DNA by the application of _____
4. 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.
5. The ability of a cell to produce the whole plant is called _____
6. Filtration is used for _____
7. An example for a vector is _____
8. MS medium is a medium used for _____ tissue culture.
9. An organism containing only one set of chromosomes is called _____
10. **Electroporation** is used for _____

Expand the following :

11. ABA.
12. cDNA.

(12 x $\frac{1}{4}$ = 3 weightage)**Turn over**

Part B

*Comment on the following.
Each question carries 1 weightage.*

- | | |
|-----------------|----------------------------|
| 13. Explant. | 14. Seedless plants. |
| 15. Protoplast. | 16. Surface sterilization. |
| 17. Callus. | 18. Androgenesis. |
| 19. Cytokinin. | 20. Cell markers. |
| 21. Cell lines. | |

(9 x 1 = 9 weightage)

Part C

*Write notes on any **five** of the following not to exceed one page.
Each question carries 2 weightage.*

22. Anther culture.
23. Applications of stem cell culture.
24. Role of different hormones in cell culture.
25. Production of secondary metabolites.
26. Identification and characterization of somatic hybrids.
27. Testing the viability of cells.
28. Organ culture.

(5 x 2 = 10 weightage)

Part D

*Write in detail about any **two** of the following.
Each question carries 4 weightage.*

29. Stem cell culture and stem cell characterisation.
30. Specific gene transfer methods.
31. Basic lab requirements and applications of tissue culture.

(2 x 4 = 8 weightage)