

M.Sc botany sem III (Internal exam I)
Paper-IV
Plant tissue culture & biotechnology

1. The production of secondary metabolites require the use of (d)
a) meristem b) protoplast c) axillary buds d) cell suspension
2. What is dimethyl sulfoxide used for (b)
a) a gelling agent b) cryoprotectant c) chelating agent d) an alkylating agent
3. Totipotency refers to (b)
a) development of fruits from flowers in a culture b) development of organ from a cell in culture medium c) flowering in a culture medium d) all the above
4. Haploids plants can be obtained from (a)
a) anther culture b) bud culture c) leaf culture d) root culture
5. Which of the following growth hormones produces apical dominance (c)
a) ethylene b) cytokinin c) auxin d) gibberellin
6. Which of the following plant cells shows totipotency (b)
a) cork cells b) meristem c) sieve tube d) xylem cells
7. Tissue culture technique was first practiced by (b)
a) white b) haberlandt c) halperin d) skoog
8. Which of the following plant part is free from the attack of the virus (c)
a) stem b) root c) meristem d) leaves
9. What are somatic hybrids (a)
a) hybrid protoplasts b) protoplasts c) fused plasmids d) fused chloroplast
10. In tissue culture system this is the main effect of cytokines (d)
a) shoot elongation b) adventitious root formation c) induction of somatic embryo
d) adventitious shoot formation
11. Which of the following plant propagation method uses girdling (c)
a) cutting b) grafting c) layering d) both a & b
12. Which of the following of first transgenic crop (b)
a) flax b) tobacco c) plastic d) cotton
13. Which of the following is a super bug (b)

a) virus b) bacteria c) transgenic plants d) worms

14. Growth of tissues in artificial media is called (b)

a) cell hybridization b) plant tissue culture c) transgenesis d) gene expression

15. The most common solidifying agent used in micropropagation is (a)

a) agar b) dextran c) mannan d) all of these

16. All are plant derived alkaloids except (a)

A) Methol b) nicotine c) quinine d) codeine

17. The variation in invitro culture is called (c)

a) invitro variation b) mutation c) somaclonal variation d) all of these

18. Immobilized cell bioreactors are based on (c)

a) cells culture in solid medium b) cells culture in liquid medium

c) cells entrapped in gel d) all of these

19. The culturing of cells in liquid agitated medium is called (d)

a) liquid culture b) micropropagation c) agar culture d) suspension culture

20. Hairy root cultures for secondary metabolite production are induced by transforming plant cells with (d)

a) virus b) agrobacterium tumefaciens c) bacillus thuringiensis d) agrobacterium rhizogenes

II. FILL IN THE BLANKS

1. Who is known as the father of tissue culture.....(Haberlandt)

2. The pair of chromosomes required for a callus to differentiate are.....(auxin & cytokinin)

3. The formation of embryoids from the pollen grains in the tissue culture medium is due to.....(cellular totipotency)

4. Synthetic seeds are produced by the encapsulation of somatic embryos with.....(sodium alginate)

5.is the main application of embryo culture (overcoming hybridisation barriers)

6. In the tissue culture of parenchyma, mitosis is accelerated in the presence of.....(auxin & cytokinin)
7.the conditions do the somaclonal variations appear (plants raised in tissue culture)
8.the chemicals are most widely used for protoplast fusion (polyethylene glycol)
9. The term totipotency was coined by.....(morgan)
10. Meristem culture was discovered by.....(morel)
11. Pre-zygotic barrier to can be overcome by.....(in vitro fertilization)
12. The inherent potentiality of a plant cell to give rise to a whole plant is described as(morphogenesis)
13. The relatively high level of auxin to cytokinin favoured.....during organogenesis (root formation)
14. The event of organogenesis is discovered by.....(torrey)
15. The callus culture was first discovered by.....(goutharat)
16. The suitable explant for producing virus free plant is.....(shoot tip)
17. The crucial stage in tissue culture is.....(multiplication)
18. Embryo culture is first reported by.....(hanning)
19. Endosperm is product offertilization (double)
20. Universally required vitamin in tissue culture medium is.....(thiamine)

III

1. Callus culture
2. Somaclonal variation
3. Micropropagation
4. Synthetic seeds
5. What is androgenesis
6. Anther culture
7. Cryopreservations
8. Explant

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9.Haploids

10.Cybrids