



GAD-2318

Seat No. _____

B. Sc. (Sem. V) Examination

November / December – 2013

Biotechnology : CC - I - IX - 503

(Paper - 9 : Principal of Biotechnology Applied to Plants)

Time : 3 Hours]

[Total Marks : 70

1 Answer the following : (any fourteen) 14

- (i) Who was first observed organogenesis in the liquid medium in 1934 ?
- (a) Robbins
 - (b) Bartley
 - (c) Bonner
 - (d) White
- (ii) Which culture is used for study of plant developmental stages and also to produce high value products ?
- (a) Callus culture
 - (b) Embryo culture
 - (c) Organ culture
 - (d) Anther culture
- (iii) High levels of cytokinins cause _____
- (a) Bud inetiatio
 - (b) Rooting
 - (c) Shooting
 - (d) Callus growth
- (iv) High levels of auxin favours _____
- (a) Shooting
 - (b) Bud initiation
 - (c) Rooting
 - (d) Callus growth

- (v) Which contain have efficient bud forming ability, irrespective of auxin - cytokinin concentration ?
- (a) Parenchyma
 - (b) Collenchyma
 - (c) Sclerenchyma
 - (d) - All of above
- (vi) Which is the play a major role in vascular differentiation ?
- (a) Glucose
 - (b) Sucrose
 - (c) Fructose
 - (d) Maltose
- (vii) Which is the promote differentiation into xylem tissue ?
- (a) Auxins
 - (b) 2,4-D
 - (c) Abscisic acid
 - (d) Gibberellins
- (viii) Which is activity growing cell ?
- (a) Shoots
 - (b) Root
 - (c) Embryo
 - (d) Callus
- (ix) Somatic embryogenesis in culture was demonstrated for the first time in _____
- (a) Carrots
 - (b) Mango
 - (c) Citrus
 - (d) Cotton
- (x) Regeneration of somatic embryos is generally induced by
- (a) Low concentration of 2,4-D
 - (b) High concentration of 2,4-D
 - (c) Low concentration of BAP
 - (d) High concentration of BAP

- (xi) Which is the faster method of rapid clonal propagation ?
- (a) Callus culture
 - (b) Anther culture
 - (c) Embryo culture
 - (d) Suspension culture
- (xii) Which is a type of media ?
- (a) MS
 - (b) B5
 - (c) None of them
 - (d) (a) and (b) both
- (xiii) Which is a type of macronutrients ?
- (a) Mn
 - (b) Zn
 - (c) P
 - (d) Cu
- (xiv) A technique of micro propagation is
- (a) Multiple shoot production
 - (b) Multiple shoot production and somatic embryogenesis
 - (c) Growth of micro-organisms on culture medium.
 - (d) Somatic embryogenesis.
- (xv) Which growth regulators responsible for the callus growth ?
- (a) Auxin
 - (b) Cytokinins
 - (c) Gibberellins
 - (d) (a) and (b) both
- (xvi) Which is responsible for the maturation of somatic embryos ?
- (a) Cytokinins
 - (b) Auxin
 - (c) Abscisic acid
 - (d) Gibberellins

- 2** Answer the following : (any **eight**) **16**
- (i) Name a few compounds used as cryoprotectants.
 - (ii) Define Cell-totipotency.
 - (iii) Name the bacteria known as natural genetic engineer of plants.
 - (iv) What are the uses of callus culture ?
 - (v) Explain Growth Hormones.
 - (vi) Which growth promoters are added in callus culture ?
 - (vii) What is sterilization ?
 - (viii) Define :
 - (a) Explants culture
 - (b) Callus culture.
 - (ix) Ideal criterias of explants.
 - (x) Write a plant tissue culture technique.
- 3** Answer the following : (any **four**) **20**
- (i) Write a cell suspension cultures.
 - (ii) Explain Callus culture technique.
 - (iii) Explain morphogenesis.
 - (iv) Write a note on Historical Development Plant tissue culture.
 - (v) Write a note on Lab requirement of tissue culture.
 - (vi) Write a note on Transgenic plant.
- 4** Answer the following : (any **two**) **20**
- (i) "The Agrobacterium is considered as Natural Genetic engineer of plants." Comment.
 - (ii) Explain Protoplast technique with application.
 - (iii) Write a note on Germplasm preservation
 - (iv) Write a note on Viral resistance and insect Resistance Crop.
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