



KC-488 · Seat No. _____

B. Sc. (Sem. V) Examination

October / November - 2017

CC-I-9 : Biotechnology

(Principles of Biotechnology Applied to Plants)

Time : 3 Hours] [Marks : 70

1 Answer the following : 15

- (1) What are the uses of Callus culture?
 - (a) Plant regeneration
 - (b) Preparation of single cell suspension and Protoplasts
 - (c) Genetic transformation studies
 - (d) All of the above
- (2) Organogenesis is ?
 - (a) Formation of Callus Culture
 - (b) Formation of root and shoot on callus culture
 - (c) Both (a) and (b)
 - (d) Genesis of organ.
- (3) Protoplast can be produced from suspension cultures, callus tissues or intact tissues by enzymatic treatments by
 - (a) Cellulolytic enzymes
 - (b) Pectolytic enzymes
 - (c) Both Cellulolytic enzymes and Pectolytic enzymes
 - (d) Proteolytic enzymes

- (4) Growth hormone producing apical dominance is
- (a) Auxine (b) Giberellins
(c) Ethylene (d) Cytokinin
- (5) To obtain haploid plant, we Culture
- (a) Entire Anther (b) Nucleus
(c) Embryo (d) Apical Bud
- (6) Production of secondary metabolites require the use of
- (a) Protoplast (b) Cell suspension
(c) Meristem (d) Auxiliary Bud
- (7) Explants are disinfected by
- (a) Autoclaving
(b) Surface sterilization
(c) UV irradiation
(d) Dry Heat
- (8) The ability of component cell of callus to form whole plant is known as
- (a) Redifferentiation
(b) Dedifferentiation
(c) Redifferentiation and Dedifferentiation
(d) None of these
- (9) The first transgenic crop was
- (a) Tomato (b) Bt Cotton
(c) Tobacco (d) Flax
- (10) DMSO (Dimethyl sulfoxide) is used as
- (a) Gelling agent (b) Alkalyting agent
(c) Chelating agent (d) Cryoprotectant

- (11) Golden Rice is rich in _____
- (12) _____ is the gas responsible for the ripening of fruits.
- (13) _____ refers to an unorganized mass of cells which are generally paranchymatous in nature.
- (14) Genetically engineered _____ plants produced polyhydroxy butyrate globules in their chloroplast
- (15) Define Protoplast.

2 Answer the followings : (any five) 10

- (1) What are the components of Plant Tissue Culture Media?
- (2) If we keep ratio of
 - (i) Cytokinin greater than Auxin = _____
 - (ii) Auxin greater Cytokinin = _____ what will happen to callus?
- (3) Define Cell Totipotency.
- (4) What are the invitro Parameters that affect the Plant growth?
- (5) Advantages of Micropropogation
- (6) What is organogenesis?
- (7) What is embryo rescue technique?

3 Answer the followings : (any five) 2

- (1) Herbicides resistant Crop with its example
- (2) What is Somatic embryogenesis? Give its application
- (3) Any two methods of gene transfer techniques in plant cells with its diagramme.
- (4) Cryopreservation
- (5) Bt Cotton
- (6) Artificial seed production
- (7) Short note - Genomic haploid production

4 Answer the followings : (any two) 20

- (1) What are basic tools, techniques and various sterilization techniques of PTC?
- (2) Agro bacterium mediated gene transfer in detail.
- (3) Write an essay on secondary metabolite production