



BBF-003-1016041

Seat No. _____

B. Sc. (Sem. VI) Examination

June / July - 2021

601 : Biotechnology

(Principles of Biotechnology Applied to Plants & Animal)

Faculty Code : 003

Subject Code : 1016041

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

Instruction : Answer any 5 questions out of 10.

- 1 (A) Answer in short: 4
- (1) Undifferentiated mass of cell is called _____
 - (2) Who is the father of plant tissue culture?
 - (3) IBA used for cell division and root differentiation. TRUE/FALSE.
 - (4) Autoclaving is used for media _____
- (B) Answer in brief: 2
- (1) Define: Explant
- (C) Answer in detail: 3
- (1) Explain the principles of PTC.
- (D) Answer in detail: 5
- (1) Write a note on role of PGRs under invitro condition.
- 2 (A) Answer in short: 4
- (1) In 1950 G.Morel proposed culture of monocot tissues using coconut milk TRUE/FALSE.
 - (2) Give one example of cytokinin.
 - (3) Which sterilization method used for heat labile compound?
 - (4) Pieces of differentiated tissues taken from the original plant is called _____.
- (B) Answer in brief: 2
- (1) Define callus and write its one application.
- (C) Answer in detail 3
- (1) Write a note on explant sterilization.
- (D) Answer in detail: 5
- (1) Explain in detail PTC laboratory organisation & requirements.

- 3 (A) Answer in short: 4
- (1) _____ first reported the natural occurrence of the haploid condition in *Datura* plants.
 - (2) UV- rays used in haploid formation. TRUE/FALSE.
 - (3) The cell devoid cell wall is called _____
 - (4) anther & pollen culture is used to obtain _____ plant.
- (B) Answer in brief: 2
- (1) What is somatic embryogenesis?
- (C) Answer in detail: 3
- (1) Write a note on pollen culture.
- (D) Answer in detail: 5
- (1) Write a note on synthetic seed production.
- 4 (A) Answer in short: 4
- (1) Guha & Maheshwari introduced the 1st haploid embryos & plantlets by culturing the exercised anthers of *Datura innoxia* in lab condition. TRUE/FALSE.
 - (2) Which chemical used for haploid formation?
 - (3) Genetic variation observed among progeny of plant regenerated from somatic cells cultured in vitro is called _____
 - (4) For isolation of plant protoplast generally we used _____ enzymes.
- (B) Answer in brief: 2
- (1) What are artificial seeds?
- (C) Answer in detail: 3
- (1) Explain factor affecting somatic embryogenesis.
- (D) Answer in detail: 5
- (1) Explain methods of protoplast fusion
- 5 (A) Answer in short: 4
- (1) Particle gun method used for gene delivery in plant. TRUE/FALSE.
 - (2) _____ is the 1st transgenic crop.
 - (3) The term secondary metabolite was first coined by _____
 - (4) Which bacterial gene present in BT. Cotton?
- (B) Answer in brief: 2
- (1) Enlist the name of genetic transformation method.
- (C) Answer in detail: 3
- (1) Write a note on "- edible vaccines".

- (D) Answer in detail: 5
 (1) Explain the structure of Ti plasmid of agrobacterium with suitable diagram.
- 6 (A) Answer in short: 4
 (1) Vector mediated gene transfer by agrobacterium. TRUE/FALSE.
 (2) _____ secondary metabolites protect plant against UV-damage.
 (3) An apparatus in which a biological reaction or process carried out is called _____
 (4) _____ is an antibody produced by genetically modified plants.
- (B) Answer in brief: 2
 (1) Explain any two application of PTC.
- (C) Answer in detail: 3
 (1) Write a note on micro injection.
- (D) Answer in detail: 5
 (1) Give the steps of transgenic plant development & an account of BT cotton.
- 7 (A) Answer in short: 4
 (1) Who is the father of tissue culture?
 (2) Disaggregation of embryonic tissue by trypsin. TRUE/FALSE.
 (3) A cell culture developed from a single cell & therefore consisting of cell with an uniform genetic make-up is called _____
 (4) Passaging is also called subculture. TRUE/FALSE.
- (B) Answer in brief: 2
 (1) Define quantitation.
- (C) Answer in detail: 3
 (1) Explain enzymatic disaggregation method.
- (D) Answer in detail: 5
 (1) Write a note on culture media.
- 8 (A) Answer in short: 4
 (1) The first successfully cloned mammal was _____.
 (2) Collagenase is used for disaggregation of normal & malignant tissue. TRUE/FALSE.
 (3) As a carbon source glucose is used in tissue culture. TRUE/FALSE
 (4) Cell shown to require attachment for growth are said to be _____.

- (B) Answer in brief: 2
 (1) Define disaggregation.
- (C) Answer in detail: 3
 (1) Give the difference between synthetic and natural media.
- (D) Answer in detail: 5
 (1) Explain laboratory requirements and aseptic techniques.
- 9 (A) Answer in short: 4
 (1) HeLa cell line do not used in animal cell line. TRUE/FALSE
 (2) Give the full form of FCS.
 (3) A number of different processes that can be used to produce genetically identical copies of a biological entity is called _____
 (4) Embryonic stem cells of mice is totipotent. TRUE/FALSE.
- (B) Answer in brief : 2
 (1) Explain secondary culture.
- (C) Answer in detail: 3
 (1) Explain need of IVF.
- (D) Answer in detail: 5
 (1) Write a note on transgenic sheep.
- 10 (A) Answer in short. 4
 (1) Give the full form of DMEM.
 (2) RPMI is used in cell culture. TRUE/FALSE.
 (3) The copied materials which has the same genetic make-up as the original is referred to as _____.
 (4) The delivery of DNA into cells using, liposomes is called _____.
- (B) Answer in brief. 2
 (1) What is cell suspension ?
- (C) Answer in detail: 3
 (1) Give a detail account of biological transformation in animal cell.
- (D) Answer in detail: 5
 (1) Write a note on application of transgenic animal.