



DP-003-2016041

Seat No. _____

B. Sc. (Sem. VI) Examination

March - 2022

Biotechnology : BT601

(Principles of Biotechnology Applied to Plants & Animals) (2019)

Faculty Code : 003

Subject Code : 2016041

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

[Total Marks : 70

- Instructions :**
- (1) All questions are compulsory.
 - (2) The right-side figure indicates total marks of the question.
 - (3) Draw the figure wherever necessary.

1 (A) Answer the questions : 4

- (1) _____ is the most common carbon source used in the plant cell culture media.
- (2) The culturing of cells in liquid agitated medium is called _____.
- (3) _____ is the father of Tissue Culture.
- (4) Zentin is an example of auxin. True or False.

(B) Answer any one question : 2

- (1) Enlist components of plant tissue culture media.
- (2) Define "Totipotency".

(C) Answer any one question : 3

- (1) Define PGR and explain any one class in detail.
- (2) Discuss about sterilization of explant material and importance of aseptic condition during PTC work.

- (D) Answer any one question : 5
- (1) Explain about explant characteristics and its selection.
 - (2) Discuss in detail laboratory requirements of any plant tissue culture laboratory.
- 2 (A) Answer the questions : 4
- (1) Protoplasts can be produced from suspension cultures, callus tissues or intact tissues by enzymatic treatment with_____and_____.
 - (2) The variations that arise during invitro culture are called_____.
 - (3) _____are the molecules that stimulate production secondary metabolites.
 - (4) To produce plants that are homozygous for all traits, the best tissue culture method is _____.
- (B) Answer any one question : 2
- (1) Define “Cybrids”
 - (2) What is cyto-differentiation ?
- (C) Answer any one question : 3
- (1) Short note : Callus culture.
 - (2) Explain somatic hybridization.
- (D) Answer any one question : 5
- (1) Explain production of haploid through tissue culture technique.
 - (2) What is somaclonal variation ? Explain in detail.
- 3 (A) Answer the questions : 4
- (1) On Ti-plasmid T-DNA is flanked by a direct repeat of _____bp.
 - (2) Triticale is derived by crossing ____and_____.
 - (3) In gel electrophoresis, DNA molecules migrate from _____to_____ends of the gel.
 - (4) Virulence trait of Agrobacterium tumefaciens is present on _____.

- (B) Answer any one question : 2
- (1) What are edible vaccines ?
 - (2) Enlist any two chemical methods for gene transfer.
- (C) Answer any one question : 3
- (1) Explain any two bioreactors used in cell culture.
 - (2) Draw the labelled diagram of Ti Plasmid.
- (D) Answer any one question : 5
- (1) Explain Agrobacterium mediated gene transfer.
 - (2) Write a detail note on BT-cotton.
- 4 (A) Answer the questions : 4
- (1) Disaggregating of cell can be achieved by either physical disruption or enzymatic digestion or treating with chelating agents. True or False.
 - (2) The technique, mainly used for the diagnosing birth defects in the fetus by means of needle, is called _____.
 - (3) The first child successfully born after her mother received IVF treatment is _____.
 - (4) Give the full form of EMEM.
- (B) Answer any one question : 2
- (1) What do you mean by synthetic medium ?
 - (2) Why tissue disaggregation is necessary in ACC ?
- (C) Answer any one question : 3
- (1) Write a brief note on scope of ATC.
 - (2) Aseptic techniques used in ATC laboratory.
- (D) Answer any one question : 5
- (1) Explain in detail tissue disaggregation using trypsin.
 - (2) Write a note on laboratory requirement for animal cell culture laboratory.

- 5 (A) Answer the questions : 4
- (1) _____ mice are created by transfecting embryonic stem cells with an altered gene sequence.
 - (2) _____ is an increased ovulatory response by external hormonal therapy.
 - (3) Sometimes cell lines can be cultured for such a long time that they apparently develop the potential to be subcultured indefinitely in vitro. Such cells lines are called _____.
 - (4) _____ is the word used to describe what happens when the nucleus of a sperm joins with the nucleus of an egg cell.
- (B) Answer any one question : 2
- (1) What are transformed cell lines ?
 - (2) Define “Cloning”.
- (C) Answer any one question : 3
- (1) Explain about selection of cell lines.
 - (2) Explain any two transformation techniques used for animals.
- (D) Answer any one question : 5
- (1) Write a detail note on IVF.
 - (2) Give applications of transgenic animals.
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