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MAL-003-001621 Seat No. _____

B. Sc. (Sem. VI) (CBCS) Examination

March / April - 2018

BT-601 : Principles of Biotechnology Applied to Plants & Animal

Faculty Code : 003
Subject Code : 001621

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

1 Answer the following question in one word : **20**

(1) _____ is produced by encapsulating somatic embryo with sodium alginate.

(2) _____ are produced by nucleus of one species but cytoplasm from both the parent species.

(3) A medium which is composed of chemically defined compound is called _____.

(4) Variations that are produced during tissue culture are known as _____.

(5) Crown gall disease is induced by _____.

(6) Anther and pollen culture is used to obtain _____ plant.

(7) An _____ is an excised piece of leaf or stem tissue used in micropropagation.

(8) Protoplasts can be produced from suspension cultures, callus tissues or intact tissues by enzymatic treatment with _____ and _____.

(9) Formation of root and shoots on callus tissue is known as _____.

(10) The concept of in-vitro cell culture was developed by _____.

(11) The embryo formed by unfertilized egg is called _____.

(12) Drug synthesis from transgenic plants is known as _____.

(13) The first successfully cloned animal was _____.

(14) In humans, the babies produced by in-vitro fertilization and embryo transfer are known as _____.

(15) Any DNA molecule that has the ability to replicate in appropriate host cell, to which the desired gene is integrated for cloning, is called as _____.

(16) In pBR 322, BR stands for _____.

(17) _____ plasmid is the cause of hairy root formation on dicotyledonous plants that are infected by Agrobacterium rhizogenes.

(18) The culturing of cells in liquid agitated medium is called _____.

(19) _____ type of bioreactors is based on cells entrapped in gels.

(20) The molecules that stimulates the production of secondary metabolites are called _____.

2 (a) Write any three out of six : **6**

(1) What is cellular totipotency ?

(2) Define explant.

(3) What is artificial seeds ?

(4) Name commonly used auxins in PTC media.

(5) Enlist micro and macro nutrients used in PTC media.

(6) What is cell suspension ?

(b) Write any three out of six : **9**

(1) Write a note on explant and its preparation.

(2) Explain haploids production and give its significance.

(3) What are the factors affecting somatic embryogenesis ?

(4) Limitation of micropropagation.

(5) What are the types of cell lines.

(6) Difference between organ culture and cell lines.

(c) Write any two out of five : **10**

(1) Explain in detail PTC Laboratory organisation and requirements.

(2) Enzymatic and non-enzymatic method of cell disaggregation.

(3) What is direct gene transfer ? Explain different methods of direct gene transfer.

(4) Explain the methods of protoplast fusion.

(5) Application of transgenic animals.

3 (a) Write any three out of six : **6**

(1) What are the uses of callus culture.

(2) What is organogenesis ?

(3) Define cytodifferentiation

(4) Give importance of surface sterilization.

(5) Explain acclimatization.

(6) What are the scopes of ATC.

(b) Write any three out of six : **9**

(1) How secondary metabolites are produced ?

(2) Types of bioreactor used in ATC.

(3) Application of PTC in forestry

(4) Importance of artificial seeds over true seeds.

(5) Explain the mechanism causing somoclonal variation.

(6) Write a note on BT cotton.

(c) Write any two out of five : **10**

(1) Enlist and explain components of media used in ATC.

(2) Write a note on IVF.

(3) Write in detail the mechanism and application of edible vaccine and plantibodies.

(4) Write a detail note on history of PTC.

(5) Write a note on transgenic sheep.
