



**DP-003-1016041**

Seat No. \_\_\_\_\_

**B. Sc. (Sem. VI) (CBCS) (WEF-2016) Examination**

**March - 2022**

**BT-601 : Principles of Biote. Applied to  
Plant & Animals**

**Faculty Code : 003**

**Subject Code : 1016041**

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

[Total Marks : 70

1 (A) OBJECTIVE TYPE QUESTIONS : 4

- (i) In MS medium of PTC, we use \_\_\_\_\_ as solidifying agent. (Fill in the blank)
- (ii) Undifferentiated mass of cells is termed as explant. (True/False)
- (iii) HgCl<sub>2</sub> can be used to sterilize the explant. (True/False)
- (iv) \_\_\_\_\_ process of sterilization involves use of flame for killing the microbes. (Fill in the blank)

(B) ANSWER IN BRIEF : (ANY 1 OUT OF 2) 2

- (i) Write any two desirable properties of explant.
- (ii) Mention any two chemical sterilizers, with their mode of action, which are routinely used in explant sterilizer.

(C) ANSWER IN DETAIL : (ANY 1 OUT OF 2) 3

- (i) Write any three landmark discoveries in history of plant tissue culture.
- (ii) Write the role of Lamina Air Flow bench in plant tissue culture.

- (D) WRITE A NOTE ON : (ANY 1 OUT OF 2) 5
- (i) Give the description of important components of a generalized plant tissue culture medium along with its important role.
  - (ii) Write a detailed account of laboratory organization in plant tissue culture.
- 2 (A) OBJECTIVE TYPE QUESTIONS : 4
- (i) Generally, root is used as explant to develop haploid plant through tissue culture. (True/False)
  - (ii) \_\_\_\_\_ fungus was used as source of enzyme by E. C. Cocking for protoplast isolation. (Fill in the blank)
  - (iii) Auxin and cytokines can be used to fuse the protoplast of two different species. (True/False)
  - (iv) A cytoplast is an entity that is used to describe a cell membrane and the cytoplasm without nucleus. (True/false)
- (B) ANSWER IN BRIEF : (ANY 1 OUT OF 2) 2
- (i) Differentiate between hybrid and cybrid.
  - (ii) Describe enzymatic isolation of protoplast.
- (C) ANSWER IN DETAIL : (ANY 1 OUT OF 2) 3
- (i) Write any three strategies to select the true hybrids after fusion experiments.
  - (ii) Write advantages and limitations of synthetic seed technology.
- (D) WRITE A NOTE ON : (ANY 1 OUT OF 2) 5
- (i) Write a comprehensive account of the cause and effect of somaclonal variation during tissue culture giving suitable examples.
  - (ii) Anther and pollen culture.

- 3 (A) OBJECTIVE TYPE QUESTIONS : 4
- (i) Name the chemical compound which induce the *Agrobacterium tumefaciens* to sense and infect the dicot plant.
  - (ii) A plantibody is produced by insertion of genes encoding antibodies into a transgenic plant. (True/False)
  - (iii) Microinjection is \_\_\_\_\_ (direct/indirect/vector mediated) method of genetic transformation. (Fill in the blank with correct option)
  - (iv) Does the natural Ti plasmid of *Agrobacterium tumefaciens* contain antibiotic resistance gene? (Yes/No)
- (B) ANSWER IN BRIEF : (ANY 1 OUT OF 2) 2
- (i) Draw the labelled diagram of Ti plasmid.
  - (ii) Write two differences between microinjection and macroinjection.
- (C) ANSWER IN DETAIL : (ANY 1 OUT OF 2) 3
- (i) Write short note on edible vaccines
  - (ii) Give the brief description of the principle and methodology of production of BT cotton.
- (D) WRITE A DETAILED NOTE ON : (ANY 1 OUT OF 2) 5
- (i) Indirect method of genetic transformation in plants
  - (ii) Bioreactor for cell culture techniques.
- 4 (A) OBJECTIVE TYPE QUESTIONS : 4
- (i) In animal cell culture, what concentration of CO<sub>2</sub> is recommended?
  - (ii) \_\_\_\_\_ is nitrogen donor in animal cell culture medium. (Fill in the blank)
  - (iii) \_\_\_\_\_ is carried out in animal cell culture for separation of cells. (Fill in the blank)
  - (iv) How does the higher dissolved oxygen concentration affect in animal tissue culture medium?
- (B) ANSWER IN BRIEF : (ANY 1 OUT OF 2) 2
- (i) Describe any two benefits of adding serum in animal cell culture medium.
  - (ii) What is BSS. Write its two important roles in cell culture.

- (C) ANSWER IN DETAIL : (ANY 1 OUT OF 2) 3
- (i) Describe three important instruments used in animal cell culture along with their important role.
  - (ii) Compare synthetic media with natural media.
- (D) WRITE A NOTE ON : (ANY 1 OUT OF 2) 5
- (i) Enzymatic and non-enzymatic disaggregation.
  - (ii) Write a detailed note on application of transgenic animals.
- 5** (A) OBJECTIVE TYPE QUESTIONS : 4
- (i) Superovulation is also known as controlled ovarian hyperstimulation. (True/False)
  - (ii) Polio vaccine was developed first of all through animal cell culture. (True/False)
  - (iii) Write the function of t-PA.
  - (iv) When the DNA is encapsulated with lipid molecules for transformation in animal cell, the technique is called as Lipofection. (True/False)
- (B) ANSWER IN BRIEF : (ANY 1 OUT OF 2) 2
- (i) Why viruses are considered to be important biological agent for animal cell transformation?
  - (ii) Define secondary culture.
- (C) ANSWER IN DETAIL : (ANY 1 OUT OF 2) 3
- (i) Write biological method of transformation in animal cell line.
  - (ii) Write a short note on selection of cell line.
- (D) WRITE A NOTE ON : (ANY 1 OUT OF 2) 5
- (i) Procedure of primary culture.
  - (ii) Transgenic animal.
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