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JA-003-1016041 Seat No. _____

B. Sc. (Sem. VI) (CBCS) (W.I.F. 2016) Examination

August – 2019

Biotechnology : BT - 601

(Principles of Biote. Applied to Plant & Animals)

(New Course)

Faculty Code : 003

Subject Code : 1016041

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

1 (A) Objective type questions : **4**

(i) Name the most common and routinely used growth medium in PTC

(ii) Who is regarded as father of plant tissue culture?

(iii) Auxin induce rooting in in vitro grown shoots. (True/False)

(iv) _____ process of sterilization involve use of flame for killing the microbes. (Fill in the blank)

(B) Answer in brief : (any **one** out of two) **2**

(i) What do you understand by explant? Explain with suitable example.

(ii) Define callus and write its one application.

(C) Answer in detail : (any **one** out of two) **3**

(i) Give details of any three important landmark discoveries took place in development of plant tissue culture

(ii) Explant sterilization

(D) Write a note on : (any **one** out of two) **5**

(i) Major nutritional requirements in PTC medium

(ii) Role of PGRs under in vitro conditions.

2 (A) Objective type questions : **4**

(i) Generally _____ is used as explant to develop haploid plant through tissue culture. (Fill in the blank)

(ii) _____ Enzyme is used in protoplast isolation. (Fill in the blank)

(iii) Chemicals like _____ can be used to fuse the protoplast of two different species. (Fill in the blank)

(iv) A cellular nucleus together with a plasma membrane containing a small amount of cytoplasm is termed as karyoplast. (True/False)

(B) Answer in brief : (any **one** out of two) **2**

(i) Define and differentiate between symmetric and asymmetric hybridization.

(ii) Describe enzymatic method of protoplast isolation.

(C) Answer in detail : (any **one** out of two) **3**

(i) Write any three strategies to select the true hybrids after fusion experiments.

(ii) Write major applications of synthetic seed technology.

(D) Write a note on : (any **one** out of two) **5**

(i) Somaclonal variations

(ii) Anther and pollen culture

3 (A) Objective type questions : **4**

(i) Agrobacterium tumefaciens is the causal agent of crown gall disease in dicot plant. (True/False)

(ii) A _____ is an antibody that is produced by plants that have been genetically engineered with animal DNA encoding a specific human antibody known to neutralize a particular pathogen or toxin. (Fill in the blank)

(iii) Enlist any two direct method of genetic transformation in plant

(iv) t-DNA region of Ti plasmid contain genes for auxin and cytokinin production. (True/False)

(B) Answer in brief : (any **one** out of two) **2**

(i) Enlist the coding region presents on Ti plasmid and their main role.

(ii) Describe microinjection method for transformation in brief.

(C) Answer in detail : (any **one** out of two) **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 **one** out of two) **5**

(i) Application of plant tissue culture

(ii) Bioreactor for cell culture techniques.

4 (A) Objective type questions : **4**

(i) Write any one advantage of inverted microscope in animal cell culture.

(ii) The concentration of CO_2 is maintained at _____ range in CO_2 incubator during culturing the animal cells.

(iii) Write the role of glutamine in animal culture media.

(iv) Collagenase is used for tissue disaggregation of old or tough tissues. (True/False)

(B) Answer in brief : (any **one** out of two) **2**

(i) Describe any two benefit of adding serum in animal cell culture medium.

(ii) What is BSS. Write its two important role in cell culture.

(C) Answer in detail : (any **one** out of two) **3**

(i) Write the major six component of animal cell culture medium and with its role.

(ii) Write a note on synthetic media.

(D) Write a note on : (any **one** out of two) **5**

(i) Enzymatic and non-enzymatic disaggregation

(ii) Five major historical development in Animal cell culture.

5 (A) Objective type questions : **4**

(i) Main purpose of trypsinization is to _____ in tissue culture. (Fill in the blank)

(ii) When a female produce multiple egg, the condition is termed as superovulation. (True/False)

(iii) When the DNA is encapsulated with lipid molecules for transformation in animal cell, the technique is called as _____ (Fill in the blank)

(iv) Write the function of t-PA.

(B) Answer in brief : (any **one** out of two) **2**

(i) Why viruses are considered to be important biological agent for animal cell transformation?

(ii) Brief note on secondary culture.

(C) Answer in detail : (any **one** out of two) **3**

(i) Write the need of in vitro fertilization.

(ii) Describe the cloning methods of cell line.

(D) Write a note on : (any **one** out of two) **5**

(i) Procedure of primary culture.

(ii) Application of transgenic animal.
