



RX-003-1016041 Seat No. _____

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

March - 2019

**BT - 601 : Principles of Biotechnology Applied to
Plants and Animals**

Faculty Code : 003

Subject Code : 1016041

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

[Total Marks : 70

- Instructions :** (1) Figures to the right indicate marks.
(2) Draw the figure wherever necessary.
(3) Write answers in main answer sheet.

- 1 (A) Objective type questions : 4**
- (1) Who is the father of Tissue Culture?
 - (2) Culturing of gymnosperm tissues of sequoia was done by the scientist _____
 - (3) Kinetin is a type of cytokinin. TRUE/FALSE
 - (4) In a callus culture, increasing level of _____ induces shoot formation
- (B) Answer in brief : (Any One out of Two) 2**
- (1) What is PGRs?
 - (2) What is callus?
- (C) Answer in detail : (Any One out of Two) 3**
- (1) Write the characteristics of Explant.
 - (2) Explain the principles of PTC.
- (D) Write a note on : (Any One out of Two) 5**
- (1) Laboratory requirements and aseptic techniques used in PTC.
 - (2) Culture medium for PTC.

- 2** (A) Objective type questions : **4**
- (1) Protoplasts are the cells devoid of _____
 - (2) Somaclonal variations are the ones produced during tissue culture. TRUE/FALSE.
 - (3) _____ is a technique which allows the manipulation of cellular genomes by protoplast fusion.
 - (4) Entire anther is cultured to produce _____ plant.
- (B) Answer in brief : (Any **One** out of Two) **2**
- (1) What is somatic embryogenesis?
 - (2) What is somatic hybridization?
- (C) Answer in detail : (Any **One** out of Two) **3**
- (1) Explain method of fusion.
 - (2) Explain pollen culture.
- (D) Write a note on : (Any **One** out of Two) **5**
- (1) Explain the causes and effects of somaclonal variations.
 - (2) Explain protoplast culture.
- 3** (A) Objective type questions : **4**
- (1) The first transgenic crop was _____
 - (2) The production of secondary metabolites requires the use of _____
 - (3) Agrobacterium based gene transfer is efficient only with dicots. TRUE/FALSE ?
 - (4) Which vector is mostly used in crop improvement?
- (B) Answer in brief : (Any **One** out of Two) **2**
- (1) What is transformation?
 - (2) What are secondary metabolites?

- (C) Answer in detail : (Any **One** out of Two) **3**
- (1) Explain non vector mediated gene transfer.
 - (2) Explain bioreactors for cell culture techniques.
- (D) Write a note on : (Any **One** out of Two) **5**
- (1) Write application of PTC.
 - (2) Write application of Transgenic plants.
- 4 (A) Objective type questions : **4**
- (1) _____ developed the roller tube technique.
 - (2) Tissue extract such as extract of spleen can be used as a animal cell culture media. TRUE/FALSE
 - (3) What is the concentration of CO₂ required for culturing animal cells?
 - (4) Disaggregation of cells can be achieved by _____
- (B) Answer in brief : (Any **One** out of Two) **2**
- (1) What is disaggregation?
 - (2) What is Animal tissue culture?
- (C) Answer in detail : (Any **One** out of Two) **3**
- (1) Explain synthetic media for ATC.
 - (2) What is the scope of ATC?
- (D) Write a note on : (Any **One** out of Two) **5**
- (1) Write a note on laboratory requirements and aseptic conditions for ATC.
 - (2) Write a note on culture medium for ATC.

- 5 (A) Objective type questions : 4
- (1) Name the first mammal cloned.
 - (2) _____ is the process of producing genetically identical individuals of an organisms either naturally or artificially.
 - (3) _____ is the method of gene delivery using nano materials such as carbon nano fibres, carbon nanotubes etc.
 - (4) _____ was the first child successfully born after her mother received IVF treatment.
- (B) Answer in brief : (Any **One** out of Two) 2
- (1) What are cell lines ?
 - (2) What is cloning?
- (C) Answer in detail : (Any **One** out of Two) 3
- (1) Explain Selection of cell lines.
 - (2) Explain the need of IVF.
- (D) Write a note on : (Any **One** out of Two) 5
- (1) Describe different types of transformation methods in animals.
 - (2) Write a note on application of transgenic animals.
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