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SEAT No. \_\_\_\_\_

No. of Printed Pages: 02

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SARDAR PATEL UNIVERSITY

M. Sc Integrated Biotechnology (IGBT) - IV<sup>th</sup> (04) Semester

Subject Code & Subject: PS04CIGB21- PLANT TISSUE CULTURE

Date: 19-03-2019, Tuesday Time: 10: 00A.M. TO 01: 00 P.M Total Marks: 70

Note: (1) All questions are compulsory. (2) Figure to right indicates marks.

01x08=08

Q-1. Answer the following objective questions.

1. pH of the nutrient medium is suitable for *in vitro* growth of explants is.....  
(A) 5.0 – 6.0 (B) 4.0 – 5.0 (C) 6.0-7.0 (D) 8.0- 9.0
2. Callus formation from mature tissue explants occurs through .....  
(A) Polydiferation (B) Differentiation (C) Dedifferentiation (D) Redifferentiation
3. First synthetic seeds produced by .....  
(A) Kitto and Janick (B) Haberlandt (C) Knop and White (D) Kotte and Robins
4. Somatic embryogenesis is a procedure in plant tissue methodology describe best as.....  
(A) Root meristem (B) Formation stable embryo (C) Axillary buds (D) None of them
5. The most widely used chemical for protoplast fusion, as fusogen, is .....  
(A) Polyethylene glycol (B) Mannitol (C) Sorbitol (D) Glycerol
6. In shake culture techniques, square plate move by a circular motion at the speed of .....  
(A) 250 - 450 rpm (B) 180 - 250 rpm (C) 10 - 60 rpm (D) 60 - 180 rpm
7. CAT marker gene used for plant transformation conformation by.....techniques.  
(A) Autoradiography (B) PCR (C) Dot-binding assay (D) Histochemical
8. Which problems of Bt cotton cultivation?  
(A) Colour variation (B) Seed production (C) Cross-pollination (D) Seeds are not reusable

02X07=14

Q-2. Answer the following (Any Seven).

1. Write the importance of micropropagation technique.
2. Enlist the expression of totipotency of different experiment.
3. Give the significance of endosperm culture.
4. Write the practical application of *in vitro* morphogenesis.
5. What are open and closed continuous culture?
6. Define protoplast and somatic hybridization.
7. Enlist the different techniques of gene transfer.
8. Give the examples of transgenic crops with improved quality traits.
9. What are the selected marker and screenable marker?

(P.T.O)

- Q-3 (A). Explain various growth regulators used in plant tissue culture nutrition medium. (06)
- (B). Explains the experiment of totipotency of (06)
1. Microchamber techniques
  2. Paper raft nurse technique
- OR
- (B). Define callus. Explain the callus initiation and establishment with suitable example. (06)
- Q-4 (A). Give a detailed note on somatic embryogenesis. (06)
- (B). What are the organ culture uses in PTC? Explain the any two cultures with suitable example. (06)
- OR
- (B). Write a short note on synthetic seeds and its application. (06)
- Q-5 (A). What are the techniques used for the protoplast fusion? Explain the electrofusion and chemofusion techniques. (06)
- (B). Define suspension culture. Explain any two techniques of batch culture. (06)
- OR
- (B). Explain the application of haploid and triploids plant production. (06)
- Q-6 (A). Describe microprojectile bombardment method of gene transfer and its advantage and disadvantages. (06)
- (B). Justify: "Flavr Savr tomato- A transgenic crop with improved Quality traits" (06)
- OR
- (B). Write a short note on Golden Rice. (06)
- .....XXX.....