

SARDAR PATEL UNIVERSITY

M. Sc Integrated Biotechnology – Seven (07) Semester Examination

Tuesday, 18 – 10 - 2016, Time: 02:00 pm to 05:00 pm

NAME OF COURSE – PLANT TISSUE CULTURE TECHNOLOGYCOURSE NUMBER-PS07CIGIB01

Maximum Marks: 70

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

Q.1 Choose the most appropriate answer from the four alternatives givens. [8]

1. Activated charcoal is used where..... compounds are a problem for *in vitro* growth of cultures.
(A) Phenol-like (B) Citric acid - like (C) Phloroglucionol - like (D) Ascorbic acid -like
2. Sucrose in the medium is rapidly converted into.....
(A) Maltose and Fructose (B) Glucose and Fructose (C) Lactose and Fructose (D) Lactose.
3. Develop seedless triploid variety through Culture.
(A) Endosperm (B) Embryo (C) Somatic embryogenesis (D) None of them
4. Androgenic method of haploid production is from the..... of an angiosperm plant.
(A) Female gametophyte (B) Male gametophyte (C) Vegetative nucleus (D) Nucleus
5. is the most widely used chemical for protoplast fusion, as fusogen.
(A) Polyethylene glycol (B) Mannitol (C) Sorbitol (D) Galactose
6. Virus eradication through..... method.
(A) Embryo (B) Micrografting (C) Somatic embryogenesis (D) None of them
7. is the direct mechanical introduction of DNA under microscope.
(A) Microinjection (B) Macroinjection (C) Macrofection (D) None of them
8. The removal of tumor causing genes from Ti plasmid is termed as.....
(A) Gene replacement (B) Disarming (C) Gene displacement (D) None of them

Q.2 Answer the following (Any Seven). [14]

1. Write the application of PTC.
2. Enlist the basic steps of micropropagation.
3. Give the difference between androgenesis and gyanogenesis.
4. Define Somaclonal variation.
5. Enlist advantages of cell culture system over conventional cultivation of plant.
6. What are the natural secondary metabolites produced from plants? Give example.
7. "Agrobacterium is considered as natural genetic engineer of plants" – Justify.
8. Write the disadvantages of agrobacterium mediated transformation.
9. Enlist the different gene transfer techniques.

Q.3 A. Enlist the sterilization techniques. Discuss any four sterilization techniques in detail. [6]

B. Discuss the selection of different explants and application of PTC. [6]

OR

B. What are the plant growth regulators? Discuss the role of plant growth regulators in PTC. [6]

Q.4 A. Enlist the different techniques of haploid production. Discuss any one technique. [6]

B. Write short note on embryo culture. [6]

OR

B. How to develop seedless triploid variety production with suitable example. [6]

Q.5 A. Discuss the suitable technique of virus eradication. [6]

B. What is somatic hybridization? Discuss the method of somatic hybridization. [6]

OR

B. Explain hybrid cell identification and selection methods. [6]

Q.6 A. Give a detailed account on organization of Ti plasmid with suitable diagram. [6]

B. Write a note on Binary and co integrated vector. [6]

OR

B. Enlist the physical gene transfer methods. Explain any one method. [6]

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