

[59/A9]

Seat No.: _____

No. of Printed Pages : 2

SARDAR PATEL UNIVERSITY
BSc 5th Semester Examination; Subject: Biotechnology
Course--US05CBIT03; Paper--Plant Biotechnology
Date: 15/11/019(Friday)

Time:10.00am-1.00pm

Total Marks--70

Q1 Multiple choice questions(MCQs).

[10]

i. On Ti-plasmid T-region or T-DNA is flanked by a direct repeat of

- A. 12 bp B. 20 bp C. 25bp D. 30bp

ii. Which of the following genes are constitutively expressed and control the plant induced activation of other vir genes?

- A. vir A and vir G B. vir C and vir D
C. vir B and vir E D. vir A and vir B

iii. cry gene encodes for -----

- A. antibiotic B. mycotoxin C. insecticide D. antiviral

iv. Which of the following enzymes was used to make golden rice?

- A. Nitrilase
B. Glutathione S-transferase
C. Phytoene synthase
D. Glutamine synthetase

v. Liquid nitrogen is used as

- A. Cryoprotectant B. Cryopreservant
C. Sterilant D. None of the above

vi. The process of frozen substance becoming liquid or soft as a result of warming up is called

- A. Cryoprotecting B. Cryopreserving
C. Thawing D. Chilling

vii. Heterocyclic nitrogenous compound synthesized by plants/fungi are

- A. Steroids B. Flavonoids C. Alkaloids D. Polysaccharides

viii. phototropism and geotropism in plants are shown by

- A. Cytokinins B. Auxins C. Gibberellins D. A&B both

ix. Disarmed plasmid is not having the genes for---

- A. virulence B. auxin and cytokinin C. Opines D. ori C

x. Hairy root culture requires the presence of

- A. *Agrobacterium tumefaciens* B. *Agrobacterium rhizogenes*
C. *Escherichia coli* D. *Bacillus thuringiensis*

Q2 Short questions. Attempt any TEN questions.

[20]

- Define and explain the terms selectable and scorable markers.
- Explain what are opines.
- Enlist the characteristic features of Ti plasmid.
- Explain the use liposome in gene transfer.

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(PTO)

- e. what is antisense RNA technology mean?
- f. what is the significance of cryoprotectants?
- g. Enlist the functions of auxin.
- h. Give five examples of bioactive compounds.
- i. Which genes can be used to make flavr savr tomato?
- j. Explain the role of vir D in Ti plasmid.
- k. Define artificial seed, and give its significance.
- l. Enlist the importance of somaclonal variations.

Q3a. Explain in detail about the construction and use of binary vector. [07]
Q3b. Give the detail of any two selectable markers. [03]

OR

Q3. Describe in detail the construction and working of gene gun. [10]

Q4a. Write a note on making glufosinate(herbicide) resistant plant. [07]

Q4b. How you modify cry gene for its best result in making insect resistant plant? [03]

OR

Q4a. Explain the term edible vaccine. Discuss their mode of action. [07]

Q4b. Enlist the steps involved in Ethylene synthesis. [03]

Q5a. Define cryopreservation. Explain the factors affecting cryopreservation. [06]

Q5b. Discuss the role of ABA in regulating the stomatal closing/opening. [04]

OR

Q5a. How GA helps in promoting the growth of a plant? [06]

Q5b. Write a note on synthetic seeds. [04]

Q6a. Discuss the techniques used in screening of somaclonal variants. [06]

Q6b. Define and describe bioactive compounds with any two examples [04]

OR

Q6a. Explain various strategies used for the production of secondary metabolites, give their significance [06]

Q6b. Give the molecular basis and significance of somaclonal variations [04]

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 (2)