

SEAT No. _____

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No. of Printed Pages : 2

SARDAR PATEL UNIVERSITY EXAMINATION-2020
CLASS-TYBSC; SUBJECT BIOTECHNOLOGY (NC)
COURSE --US05CBIT03; PAPER--PLANT BIOTECHNOLOGY
DATE:28/12/2020; MONDAY

TIME--2.00PM-4.00PM

MARKS--70

Q1 Multiple choice questions. Attempt all questions.

[10]

i. Fiber mediated DNA delivery uses

- A. Lead carbide fiber
B. Boron carbide fiber
C. Silicon carbide fiber
D. Aluminium carbide fiber

ii. Bar gene encodes for?

- A. Glutamine synthase
B. Glutathione S-transferase
C. Phosphinothricin acetyl transferase
D. Nitrilase

iii. Bt gene in transgenic plants provide resistance to

- A. insects
B. viruses
C. bacteria
D. fungus

iv. Removal of genes for auxin and cytokinin from T-DNA is called--

- A. Dislocation
B. Displacement
C. Disarming
D. None of the above

v. Which one of the following plant hormones stimulates the synthesis of alpha-amylase?

- A. Auxin
B. Abscisic acid
C. Ethylene
D. Gibberellin

vi. Protoplast culture is used in-----

- A. Tissue culture process
B. Gene transfer process
C. Hybridization process
D. Germplasm conservation process

vii. DMSO is used in preserving germplasm as

- A. Cryopreservant
B. Sterilant
C. Cryoprotectant
D. All of them

viii. Reverting the Process of differentiation in a mature explant is called---

- A. Regeneration
B. Transformation
C. Dedifferentiation
D. Hardening

ix. Flavouring and colouring properties of saffron lies in its----

- A. leaves
B. Stigma
C. Petals
D. Roots

x. Use of elicitors in plant tissue culture technique is for-----

- A. Secondary metabolites
B. Somaclonal variations
C. Hardening process
D. Regeneration process

Q2. Fill in the blanks & True/False. Attempt all.

[08]

- a. Cry protein is toxic to-----.
b. Disarmed plasmid does not have gene for-----.
c. Phosphinothricin acetyl transferase is encoded by -----gene.
d. Electroporation is a technique used for-----.
e. Npt-II is a scorable marker. (True/False)
f. Indole-3-acetic acid is the most common naturally occurring plant hormone of _____ class.
g. _____ is a gaseous plant hormone.
h. Secondary metabolites are the essential component of the plant growth. (True/False)

[1]

(P.T.O.)

Q3. Short questions. Attempt any TEN questions. [20]

- a) Enlist all the techniques of gene transfer.
- b) Explain the use of any one scorable marker.
- c) Define clean gene technology and edible vaccine.
- d) List out the objectives of micropropagation.
- e) What are opines? explain.
- f) Define and give the significance of artificial seeds.
- g) What are bioactive compounds? Give two examples of it.
- h) How GA helps in seed germination?
- i) Draw the labeled structure of Ri plasmid.
- j) What is the significance of using glycerol in germplasm conservation?
- k) Enlist all the genes present on T-DNA.
- l) How calcium phosphate is used for gene transfer?

Q4. Long questions. Attempt any FOUR questions. [32]

- i. Explain the mechanism how T-DNA of Ti plasmid is transferred to plant cell? [08]
- ii. Define and explain the selectable markers? Give the use of two selectable and two scorable markers. [08]
- iii. Discuss in detail how different strategies were used in raising herbicide-glyphosate resistant plants. [08]
- iv. Describe the structure of bt toxin and mechanism by which toxin kills the insects [08]
- v. Explain all the steps used for cryopreservation with role of cryoprotectants. [08]
- vi. Explain the functions of GA and ethylene. [08]
- vii. Define somaclonal variations. Explain different methods to isolate them and mention their significance. [08]
- viii. Describe in detail hairy root culture with its significance. [08]

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[2]