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SARDAR PATEL UNIVERSITY**B.SC. (semester-6) EXAMINATION****BOTANY-US06CBOT24 (PLANT BIOTECHNOLOGY)**

Date: 27/06/2022, _____, TIME: 10-00 A.M. TO 12-00 NOON

Que.1- Multiple choice questions: (10)

1. Ability of a single cell to divide and produce all the differentiated cells in a organism is called.....

A. Totipotency B. Meristematic cells C. Osteocytes D. Lateral Meristem

2. The nutrient medium used for plant tissue culture DOES NOT contain.....

A. Carbon source B. Enzymes
C. Vitamins & Amino acids D. Plant growth hormones

3. Cybrids are produced by

A. Nuclear genome of only one parent, but cytoplasm from both the parents
B. Cytoplasm of only one parent, but nuclear genome from both the parents
C. Fusion of two different nuclei from different parents
D. None of the above

4. In Cryopreservation, tissue/organ is stored in....

A. Liquid Nitrogen at 100°C B. Liquid Nitrogen at -100°C
C. Liquid Nitrogen at 196°C D. Liquid Nitrogen at -196°C

5. Ti Plasmid used in genetic engineering is obtained from:

A. *Bacillus thuringensis* B. *Agrobacterium schizogenensis*
C. *Thermus aquaticus* D. *Agrobacterium tumefaciens*

6. Which one of the following is not step of PCR?
- A. Denaturation B. Primer annealing C. DNA synthesis D. DNA transformation
7. Flavr Savr tomato was genetically modified to reduce ripening rate using.....
- A. Antisense DNA technology B. Antisense ~~RNA~~ technology
- C. Somatic Hybridization D. Herbicide resistance
8. Transformation carried out using a particle gun is known as biolistic transformation. It falls under which category of transformation?
- A. Physical B. Chemical C. Electroporation D. Natural
9. Which one is the first genetically modified crop in India?
- A. Bt-cotton B. Bt-brinjal C. Golden rice D. Flavr Savr tomato
10. The expression of a Transgene in the target tissue is identified by a
- A. Transgene B. Promoter C. Enhancer D. Reporter

Que.2- Fill in the blanks or true –false

(08)

1. Excision and insertion of a gene is called _____.
2. The Golden Rice variety is rich in _____.
3. A marker is a DNA sequence with a known physical location on chromosome. True or False
4. Small part of the plant by which whole plant can be generated through plant tissue culture is called _____.
5. PCR technique was invented by _____.
6. A genomic library contains both noncoding and coding sequences, whereas a cDNA library contains noncoding sequences only. True or False
7. Production of a large number of identical DNA molecules from a single ancestral DNA molecule is called _____.
8. Haploid plants can be obtained from anther culture. True or False

Que.3 - Answer in short (any ten)

(20)

1. What is Cryopreservation?
2. Define somatic hybridization.
3. What is the importance of Auxin Cytokinin ratio in plant tissue culture?
4. What is chromosomal walking?
5. Define vectors and its types.
6. What is Endonuclease and Exonuclease?
7. Describe the features of Ti plasmid?
8. What is Electroporation?
9. Define chemical methods of direct gene transfer and its types.
10. What is Moon dust carnation?
11. What is golden rice?
12. What is Edible vaccine?

Que.4 - Answer in detail of any four

(32)

1. Note on steps of Micropopagation / Plant tissue culture.
2. Application of plant tissue culture.
3. Polymerase Chain Reaction and its application.
4. Write a note on method used for DNA sequencing (Sanger sequencing)
5. Write a note on Micro projectile bombardment, its Advantages and Disadvantages
6. Write a note on commonly used Reporter genes, its Advantages and Disadvantages
7. Write a detailed note on ANY ONE Transgenic crop.
8. Role of transgenic in bioremediation & Industrial enzyme production with examples.

