

Subject Code **2024**

# BOTANY(Core-14)

Question Booklet No.

|                                |   |   |
|--------------------------------|---|---|
| Signature of Invigilator ..... | To be filled in by candidate by ball-point pen only                           | OMR Sl. No. _____                                 |
|                                | Roll No. _____  | _____   |
| Time of Examination .....      | <b>Declaration : I have read and understood the instructions given below.</b> |   |
| Date of Examination .....      | Full Signature of Candidate .....   | <b>Full Marks : 80/50</b><br><b>Time : 1 hour</b> |
|                                | Name of Candidate .....   |   |

Number of Questions in the Booklet } **50/40**



## UU 6th Semester Examination, 2020

### INSTRUCTIONS TO CANDIDATES

- Immediately after getting the booklet read instructions carefully mentioned on the front and back page of the Question Booklet. Do not open the seals unless asked by the Invigilator.
- Write your Roll No., OMR Response Sheet No., in the specified places given above and put your signature.
- Write the subject code of the booklet in your OMR Sheet.
- Make all entries in the OMR Response Sheet as per the given instructions; otherwise OMR Response Sheet will not be evaluated.
- After opening the seals, ensure that the Question Booklet contains total no. of pages as mentioned above and printing of all the **50 / 40** questions are proper. If any discrepancy is found, inform the invigilator within **15** minutes and get the correct Question Booklet.
- For each question in the Question Booklet choose the correct option from the given four alternatives and darken the same circle in the OMR Response Sheet with Black or Blue ball-point pen.
- Darken the circle of correct answer properly; otherwise answers will not be evaluated. The candidate will be fully responsible for it.
- If more than one option is darkened for a particular question, then it will be treated as wrong answer.
- After completion of the examination, only OMR Response Sheet is to be handed over to the invigilator.

**THERE IS NO NEGATIVE MARKING FOR WRONG ANSWER**

# Rough Work

## BOTANY (CORE -14)

(Answer any 25 questions)

- 1 The pair of hormones required for a callus to differentiate are
  - (A) Ethylene and Auxin
  - (B) Auxin and cytokinin
  - (C) Auxin and Abscisic acid
  - (D) Cytokinin and gibberellin
- 2 What is Dimethyl sulfoxide used for?
  - (A) A gelling agent
  - (B) A Cryoprotectant
  - (C) A Chelating agent
  - (D) An Alkylating agent
- 3 Which ones produce androgenic haploids in anther cultures?
  - (A) anther wall
  - (B) tapetal layer of anther
  - (C) connective tissue
  - (D) young pollen grains
- 4 Polyethylene glycol(PEG) is a —
  - (A) Fusogenic Agent
  - (B) Electro fusion stimulant
  - (C) Callus stimulant
  - (D) Differentiation stimulant
- 5 The enzymes required to obtain naked protoplasts are-
  - (A) Cellulase and proteinase
  - (B) Cellulase and pectinase
  - (C) Cellulase and amylase
  - (D) Amylase and pectinase
- 6 Cybrids are produced by
  - (A) Fusion of two different nuclei from two different species
  - (B) Fusion of two same nuclei from same species
  - (C) Nucleus of one species but cytoplasm from both the parent species
  - (D) None of the above
- 7 Haploid production is important because of
  - (A) Reduction of breeding cycle
  - (B) Triploid formation
  - (C) Somaclonal variation
  - (D) Virus free plant formation
- 8 The disease free plants in micropropagation can be obtained by
  - (A) Cell Culture
  - (B) Anther culture
  - (C) Meristem Culture
  - (D) Embryo Culture
- 9 The production of secondary metabolites require the use of
  - (A) protoplast
  - (B) cell suspension
  - (C) meristem
  - (D) axillary buds
- 10 The inter-generic hybridization can be achieved through
  - (A) Plant breeding
  - (B) Protoplast fusion
  - (C) Embryo rescue
  - (D) In vitro fertilization

- 11 Recombinant plasmids are added to a bacterial culture that has been pretreated with \_\_\_\_\_ ions
- (A) iodine
  - (B) magnesium
  - (C) calcium
  - (D) ferric chloride
- 12 Which enzyme is used to join together two different types of DNA molecules?
- (A) Ligase
  - (B) endonuclease
  - (C) exonuclease
  - (D) protease
- 13 Which of these restriction enzymes produce blunt ends?
- (A) SaII
  - (B) EcoRV
  - (C) XhoI
  - (D) HindIII
- 14 Isoschizomers recognize
- (A) same recognition sequence but different recognition site
  - (B) same recognition site and recognition sequence
  - (C) same recognition site and different recognition sequence
  - (D) different recognition site and different recognition sequence
- 15 Restriction enzymes are named for
- (A) the person who discovered
  - (B) the bacterium they are derived from
  - (C) the viral DNA that they attack
  - (D) none of the above
- 16 In gel electrophoresis, DNA molecules migrate from \_\_\_\_\_ to \_\_\_\_\_ ends of the gel.
- (A) negative - positive
  - (B) basic - acidic
  - (C) long - short
  - (D) positive - negative
- 17 The first ever discovered, Type II restriction endonuclease was
- (A) Hinf I
  - (B) Eco K
  - (C) Hind II
  - (D) EcoRI
- 18 In order to insert a foreign gene into a plasmid, both must
- (A) have identical DNA sequences
  - (B) originate from the same type of cell
  - (C) be cut by the same restriction enzyme
  - (D) be of the same length
- 19 Which antibiotic resistance is present in pBR322?
- (A) Ampicillin
  - (B) Kanamycin
  - (C) Lactase
  - (D) Gentamycin
- 20 Phagemid vectors are
- (A) combination of plasmid and phage  $\lambda$
  - (B) combination of phages and cosmid
  - (C) phages carrying properties of plasmids
  - (D) all of the above

- 21 The PCR technique was developed by
- (A) Kohler
  - (B) Altman
  - (C) Milstein
  - (D) Kary Mullis
- 22 The polymerase chain reaction is .
- (A) a DNA sequencing technique.
  - (B) a DNA degradation technique
  - (C) a DNA amplification technique
  - (D) All of the above
- 23 The basic requirement of PCR include
- (A) DNA segment to be amplified
  - (B) Two oligonucleotide primers
  - (C) A heat stable DNA polymerase
  - (D) All of the above
- 24 What does a DNA library consists of
- (A) Collection of cloned DNA fragments in bacterial culture
  - (B) Database of gene sequence from a organism's genome
  - (C) Collection of vector DNA, cleaved by a restriction nuclease
  - (D) Catalogue of commercially available DNA probes
- 25 What is the starting material for making a cDNA library
- (A) Genomic DNA
  - (B) mRNA
  - (C) Plasmid vectors
  - (D) Viral DNA
- 26 Reverse transcriptase PCR uses
- (A) mRNA as a template to form cDNA
  - (B) RNA as a template to form DNA
  - (C) DNA as a template to form ssDNA
  - (D) all of these
- 27 Who discovered restriction enzymes
- (A) Watson & Crick
  - (B) Jacob & Monad
  - (C) Boyer & Cohen
  - (D) Nathan, Arber & Smith
- 28 pBR322 has which of the selection markers
- (A) Amp<sup>r</sup>
  - (B) Tet<sup>r</sup>
  - (C) Both a & b
  - (D) Kan<sup>r</sup>
- 29 The Ti plasmid is found in
- (A) Agrobacterium
  - (B) Azotobacter
  - (C) Rhizobium
  - (D) Bacteriophage
- 30 Antibiotics are used in genetic engineering. They are useful in
- (A) Making the culture free from microbial infection
  - (B) Selection of healthy vectors
  - (C) Identification of replication sites
  - (D) As selectable markers

- 31 The first transgenic tobacco plant showing engineered foreign genes were produced by using
- (A) *Agrobacterium tumefaciens*
  - (B) *Bacillus thuringiensis*
  - (C) *Arabidopsis thaliana*
  - (D) *Streptomyces hygroscopicus*
- 32 The enzyme affecting the shelf life of tomato flavr savr is
- (A) Galactosidase
  - (B) Transacetylase
  - (C) Permease
  - (D) Polygalactouranase
- 33 Golden rice is rich in
- (A) Vitamin C
  - (B)  $\beta$  carotene and ferritin
  - (C) Biotin
  - (D) Lysine
- 34 Genetically engineered microorganism used successfully in bioremediation of oil spill is a species of
- (A) *Trichoderma*
  - (B) *Xanthomas*
  - (C) *Bacillus*
  - (D) *Pseudomonas*
- 35 What is true about Bt toxin
- (A) Bt protein exist as a active toxin in *Bacillus*
  - (B) The inactive protein gets active in the insect gut
  - (C) The concerned *Bacillus* has antitoxins
  - (D) The activated toxin enters the ovaries of the insect thus, prevents multiplication
- 36 What is rabies glycoprotein expressed in tomato is an example of
- (A) Edible hormones
  - (B) Edible Enzymes
  - (C) Edible vaccines
  - (D) Edible proteins
- 37 Main objective of production of herbicide resistance GM crops is to
- (A) reduce herbicide accumulation in food articles for health safety
  - (B) eliminate weeds from the field without the use of manual labour
  - (C) eliminate weeds from field without the use of herbicide
  - (D) encourage eco friendly herbicide
- 38 Which of the following is the genetically engineered insulin?
- (A) Humulin
  - (B) Rumulin
  - (C) H-insulin
  - (D) R-insulin
- 39 The attractive flower colour of Moondust carnation has been inserted from bringing the gene from
- (A) *Chrysanthemum* plant
  - (B) *Petunia* plant
  - (C) *Mirabilis* plant
  - (D) *Clitoria* plant
- 40 Roundup ready soybeans are known to have resistance to —
- (A) Glyphosate
  - (B) Cytochromes
  - (C) Phosufuran
  - (D) Mevalonate



