P. P. SAVANI UNIVERSITY

Fifth semester of B.Sc. Examination

December-2020

SSBT3030- Plant Biotechnology –II

01/01/2021, Friday Time:10:00 a.m. to 12:30 p.m. Maximum Marks: 60

Instructions:

1. The question paper comprises of two sections.
2. Section I and II must be attempted in separate answer sheets.
3. Make suitable assumptions and draw neat figures wherever required.
4. Use of scientific calculator is allowed.

Section-I (Total Marks - 20)

Q.1 Objectives (20 MCQ Compulsory-01 mark each) **20**

1 Advantage of microprojectile method over microinjection method for gene transfer in plants include
   A. Intact cells are used
   B. Gene can be transferred to many cells simultaneously
   C. Method is universal in its application irrespective of all shape, size, type and presence or absence of cell wall
   D. All of above

2 Which gene transfer technique involves a tiny needle which is used to inject DNA into a cell lacking that DNA sequence?
   A. Electroporation
   B. Microinjection
   C. Particle bombardment
   D. Liposome transfer

3 In the liposome mediated gene transfer in plants, nucleic acids are
   A. Protected from nuclease digestion
   B. Stable in liposomes
   C. Not stable in liposomes
   D. Both (a) and (b)

4 On Ti-plasmid T-region or T-DNA is flanked by a direct repeat of
   A. 12 bp
   B. 25 bp
   C. 20 bp
   D. 30 bp

5 Full form of EPSP gene
   A. Enolpuruvylshikimate phosphate
   B. Enolphosphate shikimate pyruvyl
   C. Enolpyruvyl shikimate phenylanaline
   D. Enolphenylanaline shkimate pyruvyl

6 Test gene whose expression results in quantifiable phenotype
   A. Screenable gene
   B. Selectable gen
   C. A&B both
   D. None of above

7 Which chemical induces vir gene activation?
   A. Glutenin
   B. Acetosyringone
   C. Dextran
   D. Cynadin

8 In the liposome mediated gene transfer in plants, nucleic acids are
   A. Protected from nuclease digestion
   B. Stable in liposomes
   C. Not stable in liposomes

D. Both (a) and (b)

9 CAT gene was most probably found in
- A. Tn11
- B. Tn10
- C. Tn9
- D. Tn12

10 Scientific name of jelly fish
- A. Aequorea fish
- B. Aequorea Victoria
- C. Aequorea benzylidine
- D. None of above

11 *Bacillus Thuringiensis* is NOT a
- A. Gram negative bacteria
- B. Soil bacteria
- C. Produce crystal protein
- Gram positive bacteria

12 Molecular mass (KDa) of pro toxin crystal protein & Active toxin crystal protein:
- A. 180 & 68
- B. 130 & 68
- C. 130 & 108
- D. 150 & 300

13 Cholesterol oxidase insect resistance gene was isolated from
- A. *B. thuringiensis*
- B. *E. coli*
- C. *Strepotmyces sp.*
- D. *Aspergillus sp.*

14 Glyphosate is a competitive inhibitor of
- A. EPSPS
- B. Anthralate
- C. Shikimate
- D. Chorisimate

15 Abiotic stresses include
- A. Insect Resistance
- B. Virus Resistance
- C. Drought Resistance
- D. Bacteria Resistance

16 Function of ribozymes to develop virus resistance transgenic plant
- A. Transcription of RNA
- B. catalytic cleavage of RNA
- C. catalytic cleavage of DNA
- D. Translation of RNA

17 First company who developed first commercial scale food produc.
- A. Monsato
- B. Bharat serum
- C. Calgene
- D. Eppendorf

18 White and pink flower obtained by which gene
- A. PG gene
- B. ACC gene
- C. SAM gene
- D. Chalcone synthase egen

19 Gene responsible for restoration of male fertility
- A. Barnase
- B. Barstar
- C. Both
- D. None of above

20 Full form of GGPP
   A. Geranyl Geranyl diphosphate
   B. Geranyl Glyco diphosphate
   C. Geranyl Glycerol diphosphate
   D. None of above

Section-II (Total Marks - 40)

Q.1 Short Notes (attempt all four compulsory – 3 marks each) **12**

A. Plant act as bioreactor for carbohydrates
B. Mention classification of gene transfer methods
C. Transgenic for male sterility
D. Describe: Opine synthase marker gene

Q.2 Detail questions (attempt any four– 7 marks each) **28**

A. Explain different herbicide resistance strategies develop in transgenic plant
B. Explain in details about BT gene, its mode of action and application in transgenic crop
C. Justify "*A. tumefaciens* is called as natural genetic engineer"
D. Define selectable marker & its characteristics with any three suitable example
E. Give an account on transgenic plant for improved self life with suitable example

*******All the Best ********