

B.TECH DEGREE EXAMINATIONS: APRIL/MAY 2011

Sixth Semester

BIOTECHNOLOGY

U07BTE02: Plant Biotechnology

Time: Three Hours

Maximum Marks : 100

Answer ALL Questions

PART A (10 x 1= 10 Marks)

1. Stretch of DNA that codes for one mRNA molecule is
 - a) Translation unit
 - b) Transcription unit
 - c) Post-translation unit
 - d) Template unit
2. Highly complex structure with several levels of organization is
 - a) Nucleus
 - b) Chromatin
 - c) Chromosomes
 - d) Chromatin fibres
3. The presence of DNA in chloroplast was first demonstrated by
 - a) Gamburg & Co
 - b) Smith & Van
 - c) Ris & Plaut
 - d) Watson & Crick
4. Photosynthetic pigments are embedded in the
 - a) Thylakoid membrane
 - b) Xanthophylls membrane
 - c) Carotenoid membrane
 - d) Both b& c
5. Nodulins 23, 24, 26 and 36 contain
 - a) Amino acid
 - b) Structural polypeptide
 - c) Gal gene
 - d) Uricase
6. Urides are connected into amino acids for
 - a) Nitrogen fixation
 - b) Reduction of nitrogen
 - c) Chromosomal DNA
 - d) Cluster formation
7. *Agrobacterium tumefaciens* causes
 - a) Hair root disease
 - b) Crown gall disease
 - c) Tumours in root
 - d) Tumours in shoot
8. Retrovirus passes through their life cycle as
 - a) Double stranded RNA
 - b) Single stranded RNA
 - c) Single stranded DNA
 - d) Double stranded DNA
9. Which one of the molecule is released by the pathogens into the plant?
 - a) Elicitor
 - b) Resistance gene
 - c) Avr gene
 - d) Gal gene
10. The term plantibodies was first cited in
 - a) 1987
 - b) 1989
 - c) 1985
 - d) 1993

PART B (10 x 2 = 20 Marks)

11. Define translation.

12. Draw the structure of nucleosome and label its parts.
13. What do you mean by cytoplasmic male sterility?
14. Define Calvin cycle.
15. What are bacterioids?
16. Comment on nod genes.
17. Write a short note on Gemini virus.
18. Define pathogen.
19. What is golden rice?
20. Define totipotency.

PART C (5 x 14 = 70 Marks)

21. a) Write a brief account on the termination of transcription. Add a note on the role of rho factor in transcription.

(OR)

- b) Describe the genome organization in plants.

22. a) Detail the structure and function of chloroplast with a neat diagram.

(OR)

- b) Explain in detail the import of proteins into mitochondria.

23. a) Give a detailed account of the mass cultivation of *Rhizobium* and its use as biofertilizer.

(OR)

- b) Write short notes on the following:

- | | |
|-----------------------|-----|
| (i) Nodulin gene | (7) |
| (ii) Nif gene cluster | (7) |

24. a) (i) Explain the salient features of Ti plasmid. (10)
- (ii) Comment on crown gall disease. (4)

(OR)

- b) (i) With a neat labeled sketch elaborate the process of *Agrobacterium* mediated transformation in plants (9)
- (ii) Write a note on the usage of viral vectors in transformation studies. (5)

25. a) (i) Write an essay on molecular pharming. (8)

(ii) Give an account on edible vaccine as system of medicine. (6)

(OR)

b) (i) How is herbicide resistance engineered in plants? (6)

(ii) Describe transgenic plants and its applications. (8)
