Q. Code: 718504

M.E / M.TECH DEGREE EXAMINATIONS, DEC 2020 (Held during April, 2021)

First Semester

BY18007-Plant Biotechnology

(Biotechnology)

(Regulation 2018)

Time: Three hours Maximum : 80 Marks

Answer **ALL** questions

PART A - (8 X 2 = 16 marks)

1. Which of the following peptide cleavage results in formation of phosphinothricin

   A. Cys-Cys B. Ala-Ala C. Met-Met D. Tyr-Tyr

2. Arrange the events in order 1. Interaction of receptors in border membrane 2. Protein ingestion by pest 3. Flow of cations 4. Proteolytic cleavage to active peptide 5. Pore formation

   A. 1,2,4,3,5 B. 2,4,1,5,3 C. 2,3,1,4,5 D. 1,4,2,3,5

3. Which of the following is the free living nitrogen fixing organism?

   A. Rhizobium B. Azotobacter C. Rhodospirillum D. Clostridium

4. Why lipofection cannot be used to transect plant cells?

   A. Plant Cells are constrained by cell walls B. Plant Cells have cell membrane

   C. Plant cells are too large D. None of the above

5. Differentiate nitrogen fixation from denitrification.
6. Give examples for 2 plant secondary metabolites and their application.
7. Draw the structure of Ti plasmid and explain the genetic content present in it.
8. What is the reason behind the blue color development in engineered plant tissues?

PART B - (4 X16 = 64 marks)

9. (a) Explain in detail about the organization of plant genome and emphasize on genome complexity. **(16)**

(OR)

(b) How does prokaryotic and eukaryotic transcription differ? Explain in detail with schematic diagram. **(16)**

10. (a) Explain about the endosymbiotic theory and relate them to the structure of chloroplast and mitochondrial genome. **(16)**

(OR)

(b) Explain carbon fixation mediated by different photosystems. Add a note on Calvin cycle. **(16)**

11. (a) Describe how the biological nitrogen fixation takes place with the help of rhizobium and free living microbes. **(16)**

(OR)

(b) Explain about the functions of flavonoids. Write about metabolic engineering of tomato for improving flavonoid production. **(16)**

12. (a) Write in detail about the genome structure of plant viral vectors and its application in engineering transgenic plant. **(16)**

(OR)

(b) Justify that molecular pharming approach helps in the production of the high value products and therapeutics, explain about them with case studies. **(16)**