Register Number: ……..

M.TECH DEGREE EXAMINATIONS: JUNE/ JULY 2013

Second Semester

BIO TECHNOLOGY

BTY507: Advanced Molecular Biology and Genetic Engineering

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 2 = 20 Marks)

1. List out the characteristic features of different forms of DNA
2. Expand and explain SOS repair.
3. Define RNA editing
4. Explain wobble hypothesis
5. List out the features of ideal cloning vector
6. Explain shuttle vectors with a suitable example
7. Give an example for prokaryotic and eukaryotic expression vector
8. Define reporter gene with an example
9. Compare and contrast probe and primer
10. List out any two transgenic plants and their applications.

PART B (5 x 16 = 80 Marks)

11. a) Discuss in detail about eukaryotic DNA replication (16)

(OR)

b) Write short notes on

i) Nucleotide Excision repair

ii) Photo-reactivation

iii) Rolling circle mode of replication

iv) Draw the structure of tRNA (4 x 4 = 16)

12. a) Explain in detail about transcription mechanism of eukaryotic mRNA and role of different transcription factors.

(OR)

b) Elucidate post-translational modifications with suitable examples and significance.

13. a) What is southern transfer? How will you detect the presence of a particular DNA fragment in a given sample using radioactively labeled DNA probe?

(OR)

b) Write short notes on (4x4 =16)

i) Transfection

ii) Selectable markers

iii) T4 DNA ligase

iv) Applications of PCR

14. a) i) Discuss about prokaryotic and eukaryotic expression vectors (8)

ii) Discuss about foreign gene expression problems (8)

(OR)

b) What is the principle of dideoxy method of nucleic acid sequencing? Elaborate on Sangers method of DNA sequencing. (8)

(8)

15. a) (i) Discuss on various methods of gene transfer to animal cells? (8)

(ii) List out potential applications of transgenic animals in medicine. (8)

(OR)

b) (i) What is binary vector? How will you introduce a foreign gene into plant cell through *Agrobacteruim* mediated transformation. (8)

(ii) Discuss about national and international regulations with respect to rDNA research. (8)

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