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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST -2 EXAMINATION- OCTOBER 2019

B.Tech Vth Semester

COURSE CODE: 10B11BT513

MAX. MARKS: 25

COURSE NAME: Genetic Engineering

COURSE CREDITS: 04

MAX. TIME: 1Hr 30 Min.

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.

Q1 Do any four of following

1.5x4=6 (CO II CO IV)

- Write three differences between pET 3 and pET11.
- How T7 promoter is regulated in pET vectors?
- How GC content of transgene affect the level of protein expression?
- Name and briefly explain the induction mechanism of any two commonly used regulated promoters.
- What do you understand by expression cassette?

Q.2

3x2=6 (CO II)

- Briefly discuss infection cycle of bacteriophage M13. What is basis of construction of vectors from M 13 genome? Name any three such vectors.
- How cloning and selection is done in YAC vectors? Why recombinant formed by insertion of gene in two short arms and two long arms are not viable?

Q.4 Attempt any Two

3x2=6 (CO IV)

- Discuss different methods used to facilitate purification, assay and solubilization of recombinant proteins. Site suitable examples in each category.
- Enlist different recombinant proteins expression host and discuss transgenic animals as recombinant protein production system.
- You are trying to express two recombinant protein with following characteristics i) it is a small protein, post translation modifications, and folding does not affect the biological activity ii) the protein is large and require proper folding and glycosylation for efficient biological activity. Which expression host would you suggest to express such proteins? Support your answer with argument in favour of your decision.

Q.5

(CO III)

- Define genomic library and principal of their construction. Discuss applications and limitation of genomic libraries. 4
- What factors influence the minimum number of clone to be maintained in genomic library? Discuss the relationships. Calculate the minimum number of clones required in a gene library of *D. melanogaster*? Given genome size 1.2×10^5 MB, fragment size 700 KB, desired probability of finding the fragment 0.95. 3