JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST -2 EXAMINATION- 2024
B.Tech-V Semester (BT)

COURSE CODE (CREDITS): 1811BT512 (4)   MAX. MARKS: 25
COURSE NAME: Genetic Engineering
COURSE INSTRUCTORS:Dr Anil Kant   MAX. TIME: 1 Hour 30 Minutes

Note: (a) *All questions are compulsory.*
(b) *The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems*

Q.No	Question	CO	Marks
Q1	a. Why should vectors be less than 10Kb in size in general? b. How does codon usage or GC content differences between transgene and and host affect level of expression? c. Categories plasmids on the basis of their ability of conjugation and along with their *cis* and *trans* elements responsible for the same. d. Interpret how ampicillin and ampicillin resistance gene act as selection agents/selection marker in transformation experiments.	CO-2,4	4
Q.2	Demonstrate your understanding about positive and negative selection with help of one suitable example in each case.	CO-2	3
Q.3	a. Recognise the problems in cloning of PCR products and value the advantages TA cloning offer over routine cloning of PCR products. 2.5 b. Distinguish TOPO TA cloning from TA cloning, mention an added advantage. 1.5		4
Q.4	Identify functional modules and their role and outline procedure of cloning and selection strategy of pUC series vectors	CO-2,5	4
Q.5	Draw a labeled diagram of YAC vectors, appraise the characteristics of strains used with YAC vectors and basis of red and white selection strategy.		4
Q.6	a) Draw labeled diagram of pET 11 expression vector and Elaborate on the functional modules and their specificities. 3.0 b) Summarize series of events that keep recombinant protein production off during growth phase and induce its synthesis during production phase.Draw suitable diagram. 3.0	CO-3,5	6