

Register Number.....

B.TECH. DEGREE EXAMINATIONS: NOV/DEC 2012

Fifth Semester

BIO TECHNOLOGY

BTY112: Genetic Engineering

Time: Three Hours

Maximum Marks: 100

Answer All Questions:-

PART A (10 x 1 = 10 Marks)

1. 16S rRNA is present in the following microorganism
a) Yeast b) Fungi c) Bacteria d) Bacteria and yeast
2. Most commonly used restriction endonuclease (RE) for cloning is
a) RE I b) RE II c) RE III d) RE I & III
3. pBR322 is used as vector in
a) Bacteria b) Yeast c) Plants d) Animals
4. Which of the following is used for sequencing?
a) YAC b) M13 c) Phagemid d) pUC18
5. cDNA library construction is preferred for the following organism
a) *E. coli* b) *B.subtilis* c) Animal cells d) *Pseudomonas* sp.
6. An ideal probe used for nucleic acid hybridization contain base pairs
a) 25-30 b) 30-50 c) 50-100 d) 100-250
7. RAPD finds its application in
a) Gene cloning b) Protein identification
c) Molecular characterization d) Sequencing
8. Northern blotting is done to identify
a) RNA b) DNA c) Both RNA & DNA d) Protein
9. Totipotency is more common in cells
a) Plant b) Animal c) Both plant and animal d) None
10. The apex body in India which regulate the commercialization of GMOs is....
a) GEAC b) RDAC c) RCGM d) IBSC

PART B (10 x 2 = 20 Marks)

11. List out the disadvantages of electroporation method of introducing DNA molecules in host cells
12. What is the use of exonuclease in cloning?
13. Define shuttle vector with example
14. Draw a neat sketch of an prokaryotic expression vector indicating all genetic elements required for recombinant protein expression.
15. Write the principle of the chromatographic technique that is used to purify the recombinant proteins.
16. List out the differences between cDNA library & genomic library.
17. How does site-directed mutagenesis differ from chemical mutagenesis?
18. List out various types of molecular markers and their applications.
19. Differentiate between Bt cotton and wild cotton.
20. What is RNAi?

PART C (5 x 14 = 70 Marks)

21. a) (i) Write short notes on eukaryotic gene structure (7)
(ii) Outline the methodology to create recombinant DNA molecule (7)
(OR)
- b) (i) Classify the restriction endonucleases with suitable examples (7)
(ii) How are recombinants selected by different methods? (7)
22. a) Write short notes on the salient features of the following vectors
(i) Lambda phage vector (7)
(ii) Cosmids (7)
(OR)
- b) (i) How is Ti-plasmid used as plant transformation vector? (7)
(ii) Write short notes on yeast artificial chromosome (YAC) (7)
23. a) (i) Describe the cloning strategy using PCR (7)
(ii) How are probes for nucleic acid hybridization constructed or prepared? (7)
(OR)

- b) (i) How are immunochemical screening methods used to screen recombinants? (7)
(ii) How are foreign genes over-expressed using vectors? (7)
24. a) (i) Write principle and steps in western blotting (7)
(ii) Write short notes on AFLP (7)
- (OR)**
- b) Describe Maxam-Gilbert method for nucleic acid sequencing.
25. a) (i) Discuss in detail on gene knock-out techniques
- (OR)**
- b) (i) List out the applications of genetically modified organisms in medicine (7)
(ii) What are guidelines to be followed to release GMOs in India? (7)