

(37 & A-29) Seat No.:

No. of Printed Pages : 2

SARDAR PATEL UNIVERSITY

B.Sc (VIth SEM) (CBCS) EXAMINATION

Monday, 27th March -2017

US06CBIT01: Recombinant DNA Technology and Applications

TIME – 10.00 am TO 01.00 pm

Total Marks – 70

Note: Figures to the right indicate full marks

Q-1 Multiple Choice Questions (Each question of one mark) [10]

- 1) For ligation process DNA ligase requires
(a) ATP (c) Both a & b
(b) NAD⁺ (d) None of above
- 2) Among the following which one is metalloenzyme
(a) Reverse transcriptase (c) DNA Ligase
(b) Polynucleotide Kinase (d) Alkaline phosphatase
- 3) Gene of interest can be selected from a genomic library by using
(a) Cloning vector (c) Restriction enzymes
(b) DNA probes (d) gene targets
- 4) Expression vectors differs from a cloning vector in having
(a) An origin site (c) Suitable marker gene
(b) Restriction site (d) Regulatory element
- 5) In BAC the recombinant DNA molecules are introduced into host by
(a) Gene gun (c) Microinjection
(b) Electroporation (d) Direct gene injection
- 6) Prokaryotic expression vectors contains ----- type of promoters
(a) Inducible (c) Both a & b
(b) Constitutive (d) None of above
- 7) Which organism are widely being exploited for introducing DNA into plants
(a) *A. tumefaciens* (c) *E. coli*
(b) *Bacillus sps* (d) Both a & b
- 8) ----- region is used to insert the foreign DNA intumor inducing plasmid
(a) F-DNA (c) unique site
(b) T-DNA (d) M-site
- 9) Which of the following is a Protein Sequence Databases
(a) Genbank (c) EMBL
(b) PIR (d) DDBJ
- 10) Which of the following is not a nucleotide sequence database
(a) IMGT database (c) Gene bank
(b) PDB (d) None of above

Q-2 Attempt any ten short questions (Each question of 2 marks) [20]

- A Write the applications of methylases
- B List the enzyme of RNases and DNases
- C Define Klenow fragment
- D Give the significance of cos site in lambda phage
- E Define: Phagemid vector
- F What are Chimeric vectors and why it is constructed?
- G Define Shuttle vectors and give its example
- H Give the examples of recombinant proteins produced by yeast expression vectors
- I Why is eukaryote yeast system required?
- J Define: databases
- K Give the full form of NCBI, EBI, PIR
- L Define: accession code

Q-3

- (a) Discuss the structure and function of DNA Pol-I enzyme [06]
- (b) Describe the properties of polynucleotide kinases [04]

OR

- (a) Give an account on DNA ligase [06]
- (b) Give the significance of exonucleases in recombinant DNA technology [04]

Q-4

- (a) Describe the structure of Bacteriophage lambda vector [06]
- (b) Differentiate between insertional and replacement vectors [04]

OR

- (a) Write in detail the structure and function of bacterial artificial chromosome [06]
- (b) Discuss the replacement vector with one example [04]

Q-5

- (a) With neat labeled diagram discuss YE_p and YC_p yeast cloning vectors [05]
- (b) Explain how the recombinant Ti plasmid is constructed and used for plant transformation [05]

OR

- (a) Write a note on (MAC) mammalian artificial chromosome [05]
- (b) Explain the construction of binary vector system and give its significance [05]

Q-6

- (a) Write a detail note on Nucleotide sequence databases [10]

OR

- (a) Explain in detail the Protein sequence databases [10]