

[98]

Sardar Patel University

M. Sc. Pharmaceutical Chemistry, Sixth Semester Examination

Wednesday, 11th April, 2018

02:00 p.m. – 05:00 p.m.

PS06CIGB02: Genetic Engineering

Note:

Max Marks: 70

1. Figures to the right indicate marks.
2. Draw neat and labeled diagram, wherever necessary.

Q-1 Attempt the followings [08 X 01 = 08]

1. The integrated genome in λ phage within the DNA of host cell is called
 - a) Virulent phage
 - b) Temperate phage
 - c) Prophage
 - d) Lysogene
2. Which of the following has the highest carrying capacity?
 - a) Plasmid
 - b) Cosmid
 - c) BAC
 - d) YAC
3. ____ complementarity of homopolymer is basically very stable.
 - a) >10 bp
 - b) >20 bp
 - c) <10 bp
 - d) None
4. Which of the following is most suitable enzyme for radiolabel a DNA strand using P^{32} ?
 - a) Polynucleotide kinase
 - b) DNA Polymerase
 - c) Reverse transcriptase
 - d) Terminal transferase
5. Northern hybridization was invented by ____.
 - a) Edwine & coworkers
 - b) Alwine & coworkers
 - c) Lederberg
 - d) E. M. Northern
6. ____ is a substrate for biotin.
 - a) Ampicillin
 - b) Streptavidin
 - c) Tetracycline
 - d) Nitroblue tetrazolium
7. The pribnow box is an A-T rich sequence located _____ from the start site.
 - a) 10 bp upstream
 - b) 10 bp downstream
 - c) 35 bp upstream
 - d) 35 bp downstream
8. In IBSC, I stands for ____.
 - a) International
 - b) Integrated
 - c) Intellectual
 - d) Institutional

Q-2 Answer the following questions (Any seven). [07 X 02 = 14]

1. Write working mechanism of electroporation.
2. What is transposon?
3. Give diagrammatic representation of pET-22b vector map.
4. Write formula derived by Clarke & Carbon for number of recombinants in gene library construction.
5. Differentiate between probe and primer.
6. What is subcloning?
7. Discuss Nylon membrane in brief.
8. Explain promoter.
9. Give advantages of tagged protein.

(P.T.O.)

- Q-3 (A) Write a note on particle bombardment method of gene transfer. [06]
(B) Give the ideal properties of host and vector. [06]
OR
(B) Describe the genesis of pBR322 vector with suitable diagram. [06]
- Q-4 (A) Discuss ligation strategies in detail. [06]
(B) Describe Okamaya & Berg method for cDNA library construction. [06]
OR
(B) Discuss any 2 methods for screening gene library. [06]
- Q5 (A) Write a note on southern hybridization. [06]
(B) Explain 5' and 3' labeling of probe in detail [06]
OR
(B) Give a detailed account on chromosome walking. [06]
- Q6 (A) Explain oligonucleotide directed site directed mutagenesis with suitable [06]
example.
(B) Discuss risk associated with recombinant product and GM crops. [06]
OR
(B) Discuss the promoters used in expression vectors. [06]
