



GAZ-461

Seat No. _____

B. Sc. (Sem. VI) Examination
March / April - 2017
Biotechnology : Paper - XII
(CC-I-12 : Genetic Engineering)

Time : 3 Hours]

[Total Marks : 70

1 (A) MCQ and very short questions **15**

(1) E.coR I, Bam HI are enzymes of which type of restriction and modification system?

- (A) Type I
- (B) Type II
- (C) Type III
- (D) Type II S

(2) Identify natural plasmid

- (A) pBR 322
- (B) pUC
- (C) Ti
- (D) YAC

(3) Homopolymer tail can be introduced by

- (A) Polynucleotidyl transferase
- (B) Terminal nucleotidyl transferase
- (C) Ligase
- (D) Alkaline phosphatase

- (4) Dideoxy ribonucleotide lacks hydroxyl group on _____ and _____ carbon of sugar.
- (A) 2 and 3
 - (B) 2 only
 - (C) 3 only
 - (D) 1 and 3
- (5) A bacteriophage transfers specific genes of bacterial genome during its lysogenic life cycle it is termed as _____.
- (A) Specialized transduction
 - (B) Generalized transduction
 - (C) Conjugation
 - (D) A and B both
- (6) Which radio active isotope was used by Sanger in his original method of DNA sequencing?
- (A) P^{32}
 - (B) S^{32}
 - (C) P^{35}
 - (D) S^{35}
- (7) A scientist in his cloned a human therapeutic gene in bacterial expression vector and has selected few potential recombinants expression foreign gene which of the following method is helpful in confirming production of final product in bacteria?
- (A) Southern blotting
 - (B) Northern blotting
 - (C) Western blotting
 - (D) None

- (8) During DNA polymerization dNTP is substrate. Incorporation of dNTP results into release of last two phosphates as a single group. Which of the following DNA sequencing method is based on detection of this group ?
- (A) Micro array sequencing
 - (B) Pyro sequencing
 - (C) Sanger's method of sequencing
 - (D) All
- (9) Which of the following method specifically does concentrate on markers based upon variation in single nucleotide ?
- (A) RFLP
 - (B) AFLP
 - (C) SNP
 - (D) B and C both.
- (10) Which of the following vector is shuttle vector ?
- (A) pBR322
 - (B) pUC
 - (C) pYAC
 - (D) pBAC
- (11) Give full form of RFLP
- (12) Define plasmid.
- (13) What is cDNA?
- (14) Define autoradiography
- (15) Define transformation

2 Give short note on any **five** of the following **25**

- (1) Conjugation as mode of gene transfer.
- (2) Microarray based DNA sequencing.
- (3) Gene therapy.
- (4) Use of adapter and linker to facilitated cloning procedure.
- (5) Creation and applications of genomic library.
- (6) Bacteriophage lamda based cloning vectors.
- (7) Western blotting.

3 Give detailed note on any three **30**

- (1) Discovery Polymerase Chain Reaction (PCR) has brought revolution to rDNA technology- Give your detailed view on this statement.
- (2) Give a detailed account on detection of specific DNA fragment after separating it by agarose gel electrophoresis.
- (3) Plasmid based cloning vectors.
- (4) Give an account on RAPD and RFLP.