

**Sardar Patel University**  
**Semester examination-2016**

**B.Sc VI<sup>th</sup> Semester,**  
**Course no. US06CBNF04,**

**Subject – Genetic Engineering-II**  
**Date - 04.04.16**

**Time – 3hrs**

**Marks-70**

**NOTE- Figure in the right indicates marks**

**All questions are compulsory. Make necessary diagram wherever needed.**

**Q.1. Multiple Choice Question (MCQ). Select correct answer from given MCQ. (10marks)**

- 1.a. Transfer of RNA from agarose gel to nylon membrane is  
 (A) Southern blotting (B) Western blotting  
 (C) Northern blotting (D) All of the above
- 1.b DNA can immobilized an nylon membrane through  
 (A) Baking at 80°C for two hours (B) X ray cross linking  
 (C) Y ray cross linking (D) Formaldehyde treatment
- 1.c. Western blotting can be used for study of  
 (A) Protein-Protein interaction (B) DNA-Protein interaction  
 (C) DNA-RNA interaction (D) DNA-DNA interaction
- 1.d. RAPD stands for  
 (A) Random amplified polymorphic DNA (B) Rapid amplified polymorphic DNA  
 (C) Rapid allele polymorphic DNA (D) Rapid amplified palindromic DNA
- 1.e. Which of the following techniques are examples of molecular markers  
 (A) SSR (B) Minisatellite  
 (C) AFLP (D) All of the above
- 1.f. SNPs are  
 (A) Point mutation in genome (B) Chromosomal mutation in genome  
 (C) Mutation in noncoding sequence only (D) Mutation in coding sequence only
- 1.g. Foreign gene can be transfer in any cell through  
 (A) Vector method only (B) Physical method only  
 (C) Chemical method only (D) All of the above
- 1.h. Successful electroporation depends on  
 (A) Composition of the electroporation buffer (B) Temperature  
 (C) DNA concentration (D) All of the above
- 1.i. Which of the following properties are unique to Stem cell  
 (A) Totipotency (B) Pluripotency  
 (C) Bipotency (D) Unipotency
- 1.j. Gene therapy can be used for treatment of  
 (A) Hereditary disease (B) Infectious disease  
 (C) Metabolic disease (D) Neural disease

**P.T.O**

**Q.2. Short questions (2 marks each) attempt any ten**

**(2x10=20marks)**

- [1] Define hybridization.
- [2] Write short notes on application of probe.
- [3] Write short notes on application of Autoradiography.
- [4] What should be properties of ideal molecular markers?
- [5] What do you mean by DNA fingerprinting?
- [6] Differentiate between mini and microsatellite.
- [7] Enlist various methods of gene transfer in eukaryotic cell.
- [8] Enlist applications of transgenic plants.
- [9] Write notes on application of gene therapy.
- [10] What is antisense gene therapy?
- [11] Write a note on application of site directed mutagenesis.
- [12] What are different classes of stem cell?

Q3.a Explain the process of Southern blotting with neat diagram. [5]

Q3.b. How will you prepared nucleic acid probe by nick translation? Explain. [5]

**OR**

Q.3.a. Explain the process of Northern blotting in detail. [5]

Q.3.b. How will you prepared nucleic acid probe by primer extension method? Explain. [5]

Q.4.a. How RAPD is used as marker? Explain. [5]

Q.4.b. Write short notes on SNPs markers. [5]

**OR**

Q.4.a. Explain various steps required for DNA fingerprinting. [5]

Q.4.b. Write short notes on EST markers. [5]

Q.5.a Explain Microinjection technique of gene transfer in detail. [6]

Q.5.b. Write short notes on application of transgenic Animals. [4]

**OR**

Q.5.a. Explain Particle bombardment method of gene transfer in detail. [6]

Q.5.b. How will you transfer gene through liposomes? Explain. [4]

Q.6. Explain the potential and application of stem cell. [10]

**OR**

Q.6. Describe methods of site directed mutagenesis and their application. [10]

-----X-----