(A-10)

No. of Printed Pages: 02

( ) Sardar Patel University

M. Sc. (Integrated Biotechnology), Fifth Semester
Theory examination, April-2016
Wednesday, 13th April, 2016; Time: 10:30 a.m. to 01:30 p.m.
Subject: PS05CIGB02: Recombinant DNA Technology
Total Marks: 70

Notes: - 1) Figures to the right indicate marks.
2) Draw neat and labelled diagram, wherever necessary.

Q.1 Choose the Correct Answers of the Following. **[08]**

1. _____ is utilized to neutralize genomic DNA during isolation procedure.
   a) SDS b) Sodium acetate c) $CaCl_2$ d) CTAB
2. _____ DNA can not be cut by restriction enzyme.
   a) Methylaed b) Neutralized c) Circular d) Suspended
3. Inverse PCR, FP attached at _____ end, and RP attached at _____ end.
   a) 3' and 5' b) 5' and 3' c) 3' and 3' d) 5' and 5'
4. Differential expression of m-RNA is quantified by _____ technique.
   a) Q-PCR b) RT-qPCR c) RT-PCR d) nested PCR
5. _____ enzyme was applied for sequencing by Sangar with ssDNA template.
   a) Taq Pol b) Sequenase c) Pfu d) *E. coli* DNA polymearse
6. Molecular breeding involved _____ techniques.
   a) DNA fingerprinting b) DNA sequencing c) DNA modification d) cloning
7. GFP is isolated from _____ source.
   a) bacterial b) jelly fish c) plant d) algal
8. Isolation of DNA from water sample is called _____ DNA.
   a) metagenomic b) amplified c) cloned d) isolated

Q.2 Answer the following in short. (Attempt Any Seven) **[14]**

1. What is a significant of vector and host in cloning?
2. Give a difference between gDNA and cDNA library?
3. Enlist criteria of primer designing.
4. Give example of proofreading thermostable DNA polymerase used in PCR.
5. What is multiplex PCR how it difference from normal PCR.
6. Explain technique of Simple Sequence Repeat (SSR).
7. What is a principle and application of SCAR.
8. Give example of metabolic engineering.
9. Give name of the diseases treated by gene therapy.

Q.3 **[06]**

(A) Explain the steps involved in plant DNA isolation procedure.

(B) Give difference between DNA polymerase, Klenow fragment, T7 DNA polymerase and sequenase. **[06]**

OR

(B) Explain steps involved in genomic DNA library construction. **[06]**

Q.4

(A) Explain principle and application of nested PCR. [06]

(B) Explain technique of inverse PCR in detail. [06]

OR

(B) What are the applications of PCR? [06]

Q.5

(A) Explain procedure, principle and application of DGGE. [06]

(B) Give details about pyrosequencing. [06]

OR

(B) Explain methodology of RFLP. [06]

Q.6

(A) What are the different types of gene therapy? [06]

(B) Explain various techniques applied in molecular diagnostics. [06]

OR

(B) Explain molecular pharming with examples. [06]

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