

SEAT No. _____

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[501A19]

Sardar Patel University

B.Sc. Semester VI

Microbiology

US06CMIC02 – (Tools and Techniques in Molecular Biology)

Wednesday, 28th March 2018

Time: 10:00am to 01:00pm

Total marks: 70

Q.I

Multiple choice questions:

(10)

- 1 What is the role of Guanidium thiocyanate in isolation of RNA?
a) Inactivation of DNase c) Breakdown cell membrane
b) Inactivation of RNase d) Precipitate RNA
- 2 Homopolymer tailing is the method to ligate _____.
a) Two cohesive ended DNA c) Sticky ends with Blunt ends
b) Two blunt ended DNA d) None of above
- 3 Which of the following is used in Sanger's method of DNA sequencing?
a) Hydrazine c) DMSO
b) Piperidine d) Dideoxynucleotides
- 4 Which of the following is the essential feature of a vector?
a) Origin of replication c) Multiple cloning site
b) Selective Markers d) All of the above
- 5 The Purpose cloning vectors is to _____.
a) Increase the copy number of gene of interest
b) obtain protein from gene of interest
c) Sequence the gene of interest
d) All of the above
- 6 In *pUC18* multiple cloning sites (MCS) is present in which of the following region?
a) oriC c) *Lac Z* gene
b) Amp^R d) Tet^R
- 7 Which of the following method is the physical method for introduction of DNA in host?
a) Particle gun c) Transfection
b) Transformation d) Both a and c
- 8 The promoter sequence of DNA could be known by _____.
a) DNA fingerprinting c) Southern blotting
b) DNA foot printing d) Western Blotting
- 9 Which of the following is the non-PCR based method of molecular markers?
a) RAPD c) RFLP
b) AFLP d) SNP
- 10 At 52°C primer hybridization will take place at which step?
a) Denaturation c) Amplification
b) Annealing d) None of the above

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(P.T.O.)

Q.II Answer the following (Any 10) (20)

1. Enlist the chemical used in isolation of DNA with their function.
2. Write down the properties of type II restriction endonucleases.
3. Differentiate cohesive and blunt ended DNA.
4. Write down the properties of a good host.
5. Differentiate: cloning and expression vectors.
6. Enlist various selective markers used in vectors.
7. What is marker inactivation?
8. Briefly differentiate: southern and northern hybridization.
9. What is the role of alkaline treatment in colony hybridization?
10. What are the properties of a probe?
11. Enlist the various reagents and enzymes used in PCR.
12. Differentiate: Microsatellites and Minisatellites.

Q.III (a) Explain in detail c-DNA library preparation. (06)

(b) Write a note on linkers and adaptors used for cohesive ligation. (04)

OR

(a) Explain Sanger's method of DNA sequencing. (10)

Q.IV (a) Explain salient features of cloning vectors. (06)

(b) Write a note on cosmids. (04)

OR

(a) Write detail note on Yeast Artificial Chromosome. (07)

(b) Write in brief about pUC 18. (03)

Q.V (a) Enlist various methods of introduction of DNA into host. Explain any one of the method in detail. (07)

(b) Write a brief note on GFP. (03)

OR

(a) Explain colony hybridization. (05)

(b) Describe DNA foot printing in detail. (05)

Q.VI (a) What are molecular markers? Explain RAPD in detail. (06)

(b) Define Microarray. Explain it in briefly. (04)

OR

(a) Explain in detail PCR. (10)

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