[33/A2~2]

Sardar Patel University
B.Sc Biotechnology Sixth Semester
Monday, 26th March 2018
10:00 a.m to 1:00 p.m
US06CBIT01 (rDNA technology and applications)

Total Marks: 70

Note: Figures to the right indicates marks.

Q.I **Multiple Choice Questions** [10]

1) Which of the following was the most important discovery that lead to the development of rDNA technology?
   a) Double helix DNA   b) Restriction enzymes
   c) Plasmids   d) Ligase

2) _____ is used for removal of nucleotides from the 5' end during modification of cut ends.
   a) λ exonuclease   b) Endonuclease
   c) E.coli exonuclease III   d) Ligase

3) Type II restriction enzyme require _____ ions cleavage
   a) Mn^{+2} b) Mg^{+2}
   c) Ca^{+2} d) Fe^{+2}

4) _____ are most suitable and attractive vectors for construction of genomic library.
   a) Cosmid   b) Phagemid
   c) BAC   d) Phasmid

5) All vectors used for propagation of DNA inserts in a suitable host are called _____.
   a) Cloning vectors   b) Co integrate vectors
   c) Replacement vectors   d) Binary vectors

6) Bacteriophages are viruses that attack _____.
   a) Viruses   b) Fungi
   c) Bacteria   d) Insects.

7) CEN sequence is present in _____.
   a) YCp   b) YEp
   c) YRp   d) YIp

8) The plasmid containing disarmed T-DNA is called _____.
   a) Mini Ti   b) Micro Ti
   c) Macro TI   c) Both a & b

9) "gi" stands for _____.
   a) Gene information   b) Gene identification
   c) Genome identification   d) General information

10) EMBL is situated in _____.
    a) NCBI   b) EBI
    c) SIB   d) EIB

P.T.O

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Q.II   Answer the following questions in short.(Attempt any 10)   [20]
a)   Define rDNA technology and list out the steps involved in it.
b)   What are Klenow fragments?
c)   Give the functions of DNase I.
d)   Why the helper vector is said to pseudo type of recombinant?
e)   What are the two main limitations in constructions of λ phage vector?
f)   Enlist the advantages of BAC's over YACs.
g)   What is shuttle vector?
h)   What are pTi, pRi and T-DNA?
i)   Give the functions of minichromosomes vector.
j)   Define bioinformatics.
k)   What is annotation?
l)   Write the functions of biological databases.

Q.III a)   Write a detail note on DNA ligase.   [05]
b)   Explain functions and applications of enzyme alkaline phosphatase.   [05]

OR

a)   Enlist various enzymes used in end labeling and explain any one in detail.   [05]
b)   Write a detail note on origin and properties of polynucleotide kinase enzyme.   [05]

Q.IV a)   Describe the various vectors based on λ bacteriophage.   [06]
b)   Write a brief note on phagemid.   [04]

OR

Q.IV a)   Explain in detail cosmid.   [05]
b)   Write a brief note on BAC.   [05]

Q.V a)   Give an account on SV40 vector.   [06]
b)   Discuss retroviral vector in detail.   [04]

OR

Q.V   Write a short note on co-integrated and binary vectors   [10]

Q.VI a)   Explain in detail classification of biological databases.   [06]
b)   Write a note on Genbank.   [04]

OR

Q.VI a)   Explain PIR as protein sequences databases.   [05]
b)   Give a brief note on EMBL.   [05]

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