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[38/A-19]

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SEAT No._____

Sardar Patel University

B. Sc Biotechnology Sixth Semester

Monday, 25th March 2019

10:00 a.m. to 1:00 p.m.

US06CBIT01 (rDNA technology and its applications)

Total Marks: 70

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

1) Which of the following is the most important discovery that leads to the development of rDNA technology?
   a) Discovery of double helix model by Watson and Crick.
   b) Discovery of DNA as genetic material.
   c) Discovery of restriction enzymes
   d) All of these.

2) Which of the following can be termed as a restriction modification system?
   a) Restriction endonuclease + Methylase b) DNA ligase + Methylase
   c) Restriction endonuclease + Acetylase d) DNA ligase + Acetylase

3) Which of the following chemical is added to make recombinant plasmid permeable to DNA molecules?
   a) $MgCl_2$ b) NaCl
   c) $CaCl_2$ d) HCl

4) The deletion region of λ - vector is oftenly called as _____.
   a) Restriction fragment b) Klenow fragment
   c) Stuffer fragment d) Amplified fragment

5) _____ vectors are stable, more use friendly and do not suffer from the problem of chimerism
   a) BAC b) MAC
   c) YAC d) None of them.

6) Which vectors have been used to study transcriptional RNA processing and stability?
   a) Early region replacement vectors b) SV40 transduction vectors
   c) Late region replacement vectors d) SV40 plasmid vectors

7) The DNA copy integrates into the host genome to become a _____.
   a) Phage b) Provirus
   c) Infectious DNA d) None of these

8) Which of the following statement/s is/are true for agrobacterium mediated gene transfer?
   a) Vir genes are essential for a gene transfer
   b) T-DNA borders are essential for gene transfer
   c) Both a and b.
   d) None of these

9) The information retrieval tool of NCBI GenBank is _____.
   a) Entrez b) Seqln
   c) STAG d) Text search.

10) The first secondary database developed was _____.
   a) PRINTS b) PDB
   c) PROSITE d) PIR

Q.II	**Answer the following questions in short. (Attempt any 10)**	**[20]**
a)	Write a brief note on RNase.	
b)	Define exonuclease and write about it.	
c)	What do you mean by Klenow fragment?	
d)	Write advantages of phage vectors over plasmid vectors.	
e)	Define the terms Insertional vectors and Replacement vectors.	
f)	Write typical features of cosmid.	
g)	Give a brief note on YIp vectors.	
h)	Why yeast centromeric plasmid vectors are called mini chromosome vectors?	
i)	What do you mean by disarming of T-DNA?	
j)	Enlist significances of bioinformatics.	
k)	Define biological databases.	
l)	Give full form of EMBL, BLAST, NCBI, DDBJ	
Q.III	Define rDNA technology. Give detail note on enzymes used in r-DNA technology with their functions.	**[10]**
	OR	
Q.III a)	List out DNA modifying enzymes with their mode of actions.	**[05]**
b)	Discuss restriction enzymes in detail.	**[05]**
Q.IV a)	Explain λ phage as a vector. Why λ phage wild type is not used as vector? Give its solution to overcome it.	**[06]**
b)	Write a short note on bacterial artificial chromosome.	**[04]**
	OR	
Q.IV a)	Explain phagemid vectors.	**[06]**
b)	What do you mean by prokaryotic cloning and expression vectors? Give the difference between them.	**[04]**
Q.V a)	Give a detail note on YEp vectors.	**[05]**
b)	Explain in detail MAC.	**[05]**
	OR	
Q.V a)	Give an account on SV40 replacement vectors.	**[06]**
b)	Discuss in detail co-integrated vectors.	**[04]**
Q.VI	Give a detail note on DDBJ.	**[10]**
	OR	
Q.VI a)	Give the roles of NCBI and explain its tools and resources.	**[05]**
b)	Differentiate databases based on data sources	**[05]**

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