SC

[A-39]

No. of Printed Pages: 02

Sardar Patel University
M. Sc. Int. Biotechnology, Tenth Semester Examination
Tuesday, 29th March, 2016
10:30 a.m. – 01:30 p.m.
***PS10CIGGB1*: Microbial Genetics**

Note:

1. Figures to the right indicate marks.
2. Draw neat and labeled diagram, wherever necessary.

Q-1 Attempt the followings [08 X 01 =08]

1. Mutations are:
   a) Permanent changes in the DNA sequence or structure
   b) Producing allelic variation
   c) More likely to be harmful than beneficial Frameshift mutation
   d) All of the above
2. PBR 322 is most commonly used
   a) Plasmid b) Cosmid c) Bacteriophage d) Phage
3. A small pore Embedded at the base of the blebs is a protein which specifically binds to the base pair sequence of DNA is
   a) 5'-AAGTGCGGTCA-3' b) 5'-AAGTTCGGTCA-3'
   c) 5'-AAGTGCGGTAA-3' d) 5'-AAGTGCCGTCA-3'
4. The viral infection cycle that will cause the viral DNA to become integrated into the bacterial DNA is called the _____ cycle.
   a) Lytic b) Lysozyme c) Lysogenic d) All
5. The size of F (fertility) plasmid is
   a) 33kb b) 100kb c) 100 bp d) 200-800 kb
6. A set of virulence genes (*vir* genes), located in the *Agrobacterium Ti*-plasmid, is activated by
   a) Octopine b) Nopaline c) Acetosyringone d) Auxin
7. Sac like structure called ascus contain _____ spores
   a) Haploid b) Diploid c) Triploid d) Tetraploid
8. The transposon excises from the donor replicon and inserts into the target replicon is called
   a) Replicative b) Conservative
   c) Excisive d) Retrotransposition

Q-2 Answer the following questions (Any seven). [07 X 02 = 14]

1. Mention the effect of methylating agent.
2. What is photoreactivation?
3. Write the importance of autolysin in transformation.
4. Differentiate between *S. pneumoniae* and *H. Influanzae* transformation.
5. Write a note on Electroporation.
6. Write a note on Abortive transduction.
7. Enlist salient features of Type II restriction modification system.
8. Differentiate between necrosis and apoptosis.
9. What is retroposons?

Q-3	(A)	Discuss the mechanism of DNA damage due to deamination of bases.	[06]
	(B)	Describe the mechanism of nucleotide excision repair in detail.	[06]
		OR	
	(B)	Giving suitable example, discuss the mechanisms of adaptive response.	[06]
Q-4	(A)	Discuss the mechanism of Interkingdom gene transfer of *Agrobacterium tumefaciens*.	[06]
	(B)	Explain *recBCD* Pathway of Homologous Recombination.	[06]
		OR	
	(B)	Discuss *MPF* (mating pair formation) and *Dtr* (DNA transfer and replication) mechanism for conjugation of *Hfr* cell to the recipient cell.	[06]
Q5	(A)	Discuss the mechanism of *Haemophilus influenza* transformation in detail.	[06]
	(B)	Discuss the importance and mechanism of genetic mapping in bacteria by transformation.	[06]
		OR	
	(B)	Explain the mechanism of specialized transduction in phage λ.	[06]
Q6	(A)	Discuss the different stages of tumor development in detail.	[06]
	(B)	Discuss the transposition pathway of Tn7.	[06]
		OR	
	(B)	Calculate the map distance. If two factor-cross that yields 112PD, 4NPD and 24 TT.	[06]

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