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SEAT No. _____

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SARDAR PATEL UNIVERSITY
T.Y.B.Sc EXAMINATION, Vth Semester
Wednesday, 24th October 2018, 10.00a.m to 01.00p.m
Genetics: US05CGEN02, [Molecular and Microbial genetics]

NOTE- Figures in the right indicate full marks.

Maximum Marks-70

Q.1. Multiple Choice Questions (10 marks- One Mark for Each MCQ) [10]

1. If the F factor attached to the bacteria genome the donor is called as
a) F⁺ b) F⁻ c) Hfr d) F⁺ Super strain
2. Specialized transduction is mediated by
a) Lytic phage c) T4 phage
b) Lysogenic phage d) T7 Phage
3. A prophage is involved in
a) lytic cycle b) oncogenesis c) transposition d) lysogeny
4. Transposable element has
a) specific target site c) transposase gene
b) terminal repeat d) all the above
5. ALL of the following are involved in general (homologous) recombination EXCEPT:
a) Chi sequence b) Dam methylase c) RecA d) RecBCD
6. Cot value is
a) Higher for repetitive DNA. c) Higher for moderate repetitive DNA.
b) Higher for Unique DNA. d) Higher for chromosome
7. DNA_i is
a) priming replication reaction
b) small DNA fragment for recombination.
c) recombinant DNA for chimera synthesis
d) for the synthesis of iRNA
8. The process in which ribosomes engage is:
a) replication b. translation c. cell division d. translocation
9. Which of the following pairs is not correctly described?
a) 5' splice site: begins with GU, marks 5' end of intron
b) Branch site: contains A that binds U2; branch site of lariat.
c) 3' splice site: begins with AG, marks 3' end of intron.
d) All of these are correctly matched
10. The amino acid is the signal sequence in any polypeptide chain for _____
a) Site for lipid addition c) Proteolytic site
b) Glycosylation site d) Site for its action

(1)

(P.T.O.)

Q.2. Short Question (any 10 question X 2 marks each)

[20]

1. Describe the cross between the F^+ and F^- .
2. Discuss difference episome and plasmid.
3. Describe the importance of phage in microbial genetic recombination.
4. Classify the transposable element on the basis of autonomy.
5. What is function of methyl transferase in DNA repair.
6. Discuss the importance of Rec BCD protein in recombination.
7. What is C-value of a genome?
8. Describe chloroplast genome with a map.
9. Describe the termination of eukaryotic replication.
10. Discuss the promoter for rRNA .
11. What is proteolytic cleavage?
12. Describe the termination of transcription of tRNA.

Q.3.a. Discuss about specialized transduction with a neat diagram.

[5]

Q.3.b. Describe the molecular mechanism of Transformation.

[5]

OR

Q.3.a. Discuss the classification of Virus with examples.

[5]

Q.3.b. Describe the cross between the Hfr and F^-

[5]

Q.4.a. Describe the Holliday model of recombination with its significance.

[5]

Q.4.b. Describe the retrovirus like element with a neat map.

[5]

OR

Q.4.a. Describe the SOS repair mechanism for DNA.

[5]

Q.4.b. Describe the transposable element of maize.

[5]

Q.5.a. Describe the elongation of eukaryotic Replication.

[5]

Q.5.b. Describe the mitochondrial genome for plant cell with its map.

[5]

OR

Q.5.a. Derived the equation for Cot value of the highly repetitive DNA.

[5]

Q.5.b. Describe the reassociation kinetics for the unique DNA.

[5]

Q.6.a Describe the splicing of group III intron with neat diagram.

[5]

Q.6.b. Describe the initiation of eukaryotic translation.

[5]

OR

Q.6.a. Describe the initiation for mRNA transcription.

[5]

Q.6.b. Describe the any five post translational modification of a protein.

[5]

—X—

(2)