

(A-11) Seat No: _____

No. of Printed Pages : 3 SC

SARDAR PATEL UNIVERSITY
5th semester, B.Sc. (NC)
Microbiology
Fundamentals of Molecular Biology
US05CMIC01

Date: 09/05/2016, Monday

Time: 10:30 a.m. to 01:30 p.m.

Total Marks: 70

Note: (1) Figures on the right indicates marks
(2) All the questions are compulsory

Q. 1 Select the right answer from the options given below

10

- The base thymine is always paired with _____.
(A) Adenine
(B) Guanine
(C) Cytosine
(D) Urasil
- The chemical bond in DNA by which the sugar components of adjacent nucleotides are linked through the phosphate group are called as _____ bonds.
(A) Hydrogen
(B) Hydrophobic
(C) Phosphodiester
(D) Ionic
- Total amount of purines is equal to total amount of pyrimidines was given by _____.
(A) James D. Watson
(B) F.Griffith
(C) Erwin Chargaff
(D) R.Franklin
- 3'→ 5' exonuclease activity of DNA polymerase I
(A) Removes ribonucleotides
(B) Adds deoxiribonucleotides
(C) Corrects errors in replication
(D) Hydrolyses DNA into mononucleotides
- The unwound strands of DNA are held apart by _____.
(A) Single strand binding proteins
(B) Double strand binding proteins
(C) Rep proteins
(D) dna A proteins
- Direction of DNA synthesis is _____.
(A) 3'→ 5'
(B) 5'→ 3'
(C) Both of the above
(D) None of the above

(1)

(P.T.O)

7. _____ subunits of RNA polymerase is responsible for the recognition of the promoter sequence.
- (A) α
 (B) β
 (C) β'
 (D) σ
8. The termination site for transcription is recognized by _____.
- (A) α - subunit of DNA dependent RNA polymerase
 (B) β - subunit of DNA dependent RNA polymerase
 (C) σ factor
 (D) Rho factor
9. The first aminoacyl t-RNA which initiates translation in prokaryotes is _____.
- (A) Methionyl t- RNA
 (B) Formylmethionyl t-RNA
 (C) Tyrosinyl t-RNA
 (D) Alanyl t- RNA
10. Pribnow box is present in _____.
- (A) Prokaryotic promoters
 (B) Eukaryotic promoters
 (C) Introns
 (D) Exons

Q.2 Write short answer of following questions (Any Ten)

20

1. Define: (i) Nucleoside (ii) Nucleotide
2. Enlist the features of Z- DNA
3. Draw the structure of any one purine and any one pyrimidine
4. Enlist the events occurring at DNA replication fork
5. What is the function of DNA gyrase and RNA primer in DNA replication?
6. What are the salient features of rolling circle model of DNA replication?
7. What is spliceosome?
8. Define: (i) Operon (ii) Pribnow box
9. RNA polymerase is a holo enzyme: Justify
10. What are ribosomes? Draw labelled structure of bacterial ribosome
11. Justify: Genetic code is nearly universal
12. What are the different initiation factors and their functions?

(2)

- Q. 3**
(A) Differentiate between different forms of DNA 06
(B) How did Griffith prove DNA as genetic material? 04

OR

- Q. 3**
(A) Use of radioactive phosphorus and sulphur proved that DNA as genetic material. Justify 04
(B) Write a note on m-RNA and t-RNA 06

- Q. 4** Explain the molecular mechanism of prokaryotic chromosome replication 10

OR

- Q. 4**
(A) Enlist the different modes of DNA replication and explain Cairns model for replication of DNA 04
(B) Write a note on replication of DNA in eukaryotes 06

- Q. 5**
(A) Discuss the chain elongation and termination during transcription 06
(B) Write a note on splicing of group – I and group – II introns 04

OR

- Q. 5** Discuss in detail the role of operator, promoter, repressor and regulatory genes in lactose operon 10
Q. 6 Discuss the various features of genetic code in detail and how was genetic code deciphered? 10

OR

- Q. 6** Discuss the molecular mechanism of translation in prokaryotes 10

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