Register Number……

B.TECH. DEGREE EXAMINATIONS: APRIL / MAY 2010

Fourth Semester

BIOTECHNOLOGY

U07BT405: Molecular Biology

Time: Three Hours **Maximum Marks: 100**

Answer ALL the Questions:-

PART A (10 x 1 = 10 Marks)

1. The bacterium used by Griffith for his experiment is

a) Streptococcus pneumoniae b) Staphylococcus aureus

c) Methanococcus sp. d) Streptococcus mutans

2. Which one of the following chemical is used to increase competence?

a) $CaCl_2$ b) $CaCo_3$ c) SDS d) EtBr

3. tRNA contains _____ number of loops.

a) 4 b) 6 c) 3 d) 5

4. The following are associated with transcription except ---------

a) 3'-5' sequence b) promoter c) Pribnow box d) spacer

5. Specialized transduction is restricted to the ----------

a) gal or bio genes b) gal or mal genes c) lac operon d) gal or lac genes

6. The initiator tRNA in prokaryote is ----------

a) N-formyl $tRNA^{mct}$ b) N-formyl $tRNA^{mct}$

c) N-formyl $tRNA^{ala}$ d) N-formyl $tRNA^{cys}$

7. Eukaryotic mRNA is ----------

a) Monocistronic b) Polycistronic c) tricistronic d) dicistronic

8. Plasmid having cos site is referred as _____

a) Phagemid b) cosmid c) phage d) transcript

9. The initiator amino acid is ---------

a) cysteine b) methionine c) histidine d) valine

10. The code defines a mapping between tri-nucleotide sequences ----------

a) degeneracy b) redundancy c) codons d) nucleotides

PART B (10 x 2 = 20 Marks)

11. Define Plasmid copy number.

12. What is meant by dispersive replication?

13. Define telomeres.

14. Write about the function of topoisomerase.

15. What is meant by Primary transcript?
16. Define ribozyme.
17. Mention the different classes of suppressor mutation.
18. Name the three structural genes present in the Lac operon.
19. Define Cot value.
20. What is D – loop replication and in which organelle this type of replication is carried out?

PART C (5 x 14 = 70 Marks)

21. (a) Explain in detail about the process of conjugation and transduction taking place in bacteria?

(OR)

(b) Explain the following experiment with illustrations?

(i) Avery–MacLeod–McCarty (ii) Hershy and chase

22. (a) Explain the structure of DNA with a neat sketch.

(OR)

(b) Describe in detail about replication of DNA in eukaryotes?

23. (a) Describe in detail about the transcription in prokaryotes.

(OR)

(b) Explain the RNA splicing mechanism with a neat sketch.

24. (a) Brief about post translational modification.

(OR)

(b) Write in brief about translation in eukaryotes.

25. (a) Explain lac and trp operon in detail with neat sketches.

(OR)

(b) Give an account on DNA repair mechanism?

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