ST. JOSEPH'S COLLEGE OF ARTS & SCIENCE (AUTONOMOUS)

PG & RESEARCH DEPARTMENT OF BIOCHEMISTRY

PBC805S –MOLECULAR BIOLOGY

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PG & RESEARCH DEPARTMENT OF BIOCHEMISTRY

SUBJECT: MOLECULAR BIOLOGY

SUB CODE: PBC805S

CLASS: I M.Sc BIOCHEMISTRY
STAFF INCHARGE: Dr.P.MARIE AROCKIANATHAN & Ms. R.ANITHA

SECTION A

I. ANSWER IN ONE SENTENCE

1. What is the central dogma of molecular biology?

2. What is gene amplification?

3. Define translation.

4. What is cot value?

5. What are split genes?

6. What is tra genes?

7. What is gene amplification?

8. Define transcription.

9. What is c value?

10. Define genetic code

11. What is operon?

12. Give factors of DNA damage

13. What is palindromic sequence?

14. What is c value paradox?

15. What is euchromatin?

16. Define satellite DNA?

17. What are Okazaki fragments?

18. What are repressors?

19. Mention the role of peptidyl transferase

20. What is SRP?

21. Define heterochromatin?

22. Name the inhibitors of transcription?

23. What are repressors?

24. Mention the role of peptidyl transferase

25. Define conjugation

26. Define transformation competence?

27. Explain discontinuous replication?

28. What are ribosomes?

29. What is an operon?

30. What is SNAPs

31. What is the range of DNA content in nucleosomes?

32. Write the base sequence of -35 sequence.

33 Write the base sequence of shine-Dalgarno sequence.

34. What is photo reactivation?

35. What is the function of DNA ligase in Replication?

36. What is SSB?

37. Write the role of sigma.

38. What is attenuation?

39. What are Rf factors?

40.Define gyrase

SECTION B

II. ANSWER THE FOLLOWING

1. Explain the post transcriptional processing of t RNA
2. Explain trp operon in detail
3. Explain wobble hypothesis
4. Write a note on termination of transcription.
5. Explain the mode of action of inhibitors in translation process
6. Write short notes on eukaryotic chromosome organization
7 Give an account on mitochondrial DNA

8. Elaborate the factors involved in prokaryotic DNA replication

9. Explain rolling circle replication

10 Describe RNA splicing for group II introns

11. Write short notes on prokaryotic and eukaryotic RNA polymerases

12.Whatare codons? Describe the features of genetic code

13. Discuss on inhibitors of protein synthesis

14. What is SNARE? Describe its biological role

15. What are transposons? Explain their types

16. Write a note on DNA dependent RNA polymerase.

17. Give an account on functions of DNA polymerase I.

18. Explain shine-Dalgarno sequence.

19. Explain RNA splicing

20. Brief account on attenuation.

21. Outline the physical and chemical agents of mutagenesis.

22. Explain semiconservative replication with an experiment.

23. Write a note on replication of retro viruses.

24. Briefly discuss on mutations.

25. Explain the structure and functions of tRNA

26. Explain the conjugation method for gene transfer in micro organism.

27. Explain the transduction method.

28. Enumerate the functions of exonuclease activity.

29. Explain the properties of polymerase I & III

30. What is protein targeting? Write a short note on heat shock proteins.

31. Explain the post transcriptional modification.

32. Explain some of the alteration which occur in DNA molecule.

33. Explain the post-translational modification.

34. Explain excision repair.

35. Explain some of the alteration which occur in DNA molecule.

41. Outline the physical and chemical agents of mutagenesis.

42. Write a note on DNA dependent RNA polymerase.

43. Give an account on functions of DNA polymerase I.

56. Write short notes on eukaryotic chromosome organization

57. Give an account on mitochondrial DNA

58. Elaborate the factors involved in prokaryotic DNA replication

59. Explain rolling circle replication

60. Describe RNA splicing for group II introns

SECTION C

III. ANSWER THE FOLLOWING

1. Explain the prokaryotic translation in detail

2. Give an account on DNA repair

3. Explain the post translational modification of proteins

4. DNA as a genetic Material – comment on it.

5. Explain the events of Replication fork.

6. Give an account on i) Inhibitors of transcription **(5)** ii) Antisense RNA **(5)**

7. Explain how the protein Molecule is synthesized from mRNA molecule.

8. Explain the dark repair of Thymine Dimes.

9. Explain the mechanism of Lac-operon & trp operon model

10. Explain the various Eukaryotic transcription factors and their role.

11. Discuss on a) Excision repair b) Fidelity of replication c) Mismatch repair

12. Write an essay on how lactose depresses the operon.

13. Outline the salient features of gentic code.

14. Explain the bio-synthesis of RNA.

15. Write an essay on different types of mutations.

16. Explain the various Eukaryotic transcription factors and their role.

17. Discuss on a) Excision repair b) Fidelity of replication c) Mismatch repair

18. Elaborate the genomes of bacteria and viruses. State the differences between the two genomes.

19. Give a detail account on discontinuous replication, replication of circular DNA and linear DNA.

20. Write the significance of transcriptional modification and differentiate the steps between prokaryotic and eukaryotic transcription.

21. Explain the mechanism of protein targeting into mitochondrial matrix

22. Explain repetitive DNA and its types.

23 Briefly explain the steps involved in mitochondrial replication.

24. Explain chromosomal transfer and the mediation by F plasmid.

25.Explain organization of chromosome in detail.