Department of Microbiology

II B.Sc Microbiology Honours- IV SEMESTER

COURSE -9: MOLECULAR BIOLOGY AND MICROBIAL GENETICS

Model Question Paper

Time:2.30 Hrs **max. marks:50**

Section-A **5X8=40**

(Answer all the questions. Draw the labelled diagrams when necessary.)

Unit	Q. N	Questions	Marks	BL	CO	PO
I	1	Interpret the experimental evidences that established DNA as a Genetic material.	8	3	1	4
	2	Explain General characters of Plasmids and Transposons	8	2	3	4
	3	Explain the mechanism of DNA replication in Prokaryotes	8	2	2	4
II	4	Conclude and contrast the Classical concept of Gene	8	4	4	4
	5	Generalise the modern concept of gene in detail	8	3	4	4
	6	Illustrate the Mechanism of Transcription	8	2	4	4
III	7	List the salient features of Genetic code	8	1	5	4
	8	Outline the process of Translation in Prokaryotic organisms	8	2	5	4
	9	Evaluate the Gene expression in E. Coli by Lac operon concept	8	4	5	4
IV	10	Define Mutations. Describe different types of physical and chemical mutagens	1+7	1& 3	6	4
	11	Demonstrate the molecular basis of mutations in detail	8	4	6	4
	12	Give outlines of different DNA repair mechanisms	8	2	6	4
V	13	Differentiate F factor and Hfr strains. Explain the mechanism of Conjugation in Bacteria	8	4& 2	7	4
	14	Explain the mechanism of Translation and illustrate few applications of Transformation	4+4	2& 3	7	4
	15	Interpret the Lederberg and Zender experiment and explain mechanism of Transduction	4+4	3& 2	7	4

Section -B

Answer the following questions. Each question carries one mark.

1. Give an example of a Microorganism having RNA as a Genetic material
2. Messelson – Stahl Experiment is to prove that the DNA replication is by Semiconservative method. (TRUE/FALSE)
3. SSB protein function is to bind the Double stranded DNA during Replication (TRUE/FALSE)
4. Function of Enzyme Gyrase----------
5. Short length of DNA synthesized on Lagging strand are called----------
6. One-gene one enzyme concept was given by----------

7. Who gave the definition of Gene?
8. What is Recon?
9. Intron denote non coding regions and exons denotes coding regions (TRUE/FALSE)
10. ---------- region is the recognition site for RNA Polymerase during transcription.
11. mRNA splicing takes place in only in Eukaryotes (TRUE/FALSE)
12. Genetic code may be overlapping ((TRUE/FALSE)
13. What is wobble hypothesis?
14. What are the termination Codons?
15. Tetracycline is an inhibitor of protein synthesis. (TRUE/FALSE)
16. Define frame shift mutation--------
17. What is SOS repair?
18. Ethydium bromide is an alkylating agent (TRUE/FALSE)
19. UV radiation is a physical mutagen. (TRUE/FALSE)
20. What is transformation?
21. Grifith's experiment on Pneumococci leads to discovery of Transformation (TRUE/FALSE)
22. Bacterial conjugation was first described by---------
23. Integration of F plasmid in the recipient Bacteria is called Episome. (TRUE/FALSE)
24. What is abortive transduction?
25. ---------- ion enhance the competency during transformation.