

RAGHUNATHPUR COLLGE
DEPARTMENT OF ZOOLOGY
UG SEM V CLASS TEST- 2023
PAPER TITLE: Molecular Biology
PAER CODE: BZOOCCHC501

Full marks : 30

Time: 2 Hrs.

1. Answer any ten questions from the following: 1×10=10

- a) State the Wobble hypothesis.
- b) What is nick translation?
- c) Write the significance of sigma factor in prokaryotes.
- d) What do you mean by intron lariat?
- e) Write the full form of hnRNA, tRNA
- f) What is TATA box?
- g) What do you mean by mono cistronic mRNA?
- h) Why AUG is considered as initiator codon?
- i) What is exon shuffling?
- j) What is glucose effect?
- k) Write the full form of DAM.
- l) What is photoreactivation?
- m) What is linking number?
- n) What is sno RNA?
- o) What is CpG island?

2. Answer any five questions from the following: 2×5=10

- a) What are the two mechanisms responsible for the fidelity of protein synthesis?
- b) What does the 30S translation initiation complex contain in prokaryotic cells?
- c) What do you mean by 5' capping? What happens if the 5' cap is not added?
- d) What is the difference between prokaryotic and eukaryotic translation?
- e) What are Shine Dalgarno and Kozak sequences?
- f) Write two Inhibitors of protein synthesis
- g) Differentiate between inducible and repressible operon
- h) What are the roles of Mut-S, Mut-H and Mut-L in DNA repair mechanism?

3. Answer any two questions from the following: 5×2=10

- a) What is the Cloverleaf model of tRNA? How is tRNA important in translation? 3.5 + 1.5
- b) Describe the mechanism of DNA repair when damage is extensive.5
- c) Using (+) for production and (-) for non-production of the enzymes permease and beta-galactosidase, complete the following table with proper justification. 5

Genotype	Lactose present		Lactose absent	
	Permease	Beta-galactosidase	Permease	Beta-galactosidase
$I^+P^+O^C Z^+Y^- // I^+P^+O^+Z^-Y^+$				
$I^S P^+ O^+ Z^+ Y^+ // I^+ P^+ O^+ Z^+ Y^+$				
$I^S P^+ O^+ Z^+ Y^- // I^+ P^+ O^+ Z^- Y^+$				
$I^- P^+ O^+ Z^+ Y^+ // I^+ P^+ O^+ Z^- Y^-$				
$I^- P^- O^+ Z^+ Y^+ // I^+ P^- O^+ Z^- Y^-$				

