

M.Sc. Sem.-1 Examination

404

Toxicology

January-2024

Time : 2-30 Hours]

[Max. Marks : 70

Q.1A	State down structure, types, and functions of the Endoplasmic reticulum.	7
Q.1B	What is Autolysis and Phagocytosis? Explain in detail.	7
	OR	
Q.1A	Explain the difference between Prokaryotic and Eukaryotic Ribosomes.	7
Q.1B	What is chromatin? Explain different types and roles in DNA packaging.	7
Q.2 A	Discuss various clinical functions of lipids and Classification of fatty acids.	7
Q.2 B	Write about body fluid, its content and compartmentalization. Also explain the endocrine system of water homeostasis.	7
	OR	
Q.2 A	Discuss enzymes classification and enzymes kinetics.	7
Q.2 B	Elaborate all the amino acids along with structures based on their classifications.	7
Q.3 A	Describe the stages of normal erythropoiesis and its significance in toxicological studies.	7
Q.3 B	Write a note on the maturation and development of leukocytes and their role in immune response.	7
	OR	
Q.3 A	Discuss the screening procedure for donors in safe blood transfusion practices.	7
Q.3 B	Write a note on ABO and Rh blood grouping system.	7
Q.4 A	There is a plasmid which carries a mutant gene MX, which you need to replace it with the wild type gene WX, please draw how the mutant plasmid will look and how can you replace it with the wild type gene. MX gene can be digested with the enzyme EcoRI. In order to maintain the orientation of the gene you have to treat it with alkaline phosphates enzyme, please display it at correct position.	7
Q.4 B	Please draw the procedure to generate Knockout Mice.	7
	OR	
Q.4 A	What is the difference between UV light based DNA damage and Reactive oxygen Species (ROS) based DNA damage.	7
Q.4 B	A group of factory workers have presented with the sensitivity against the acetone breathing. Please set up an experiment to identify the markers associated with Genotoxicity.	7
Q.5	Answer the Following Short Questions (Any 7)	14
1	Define hematocrit (PCV) and explain its relevance in toxicological evaluations.	
2	What is Erythrocyte Sedimentation Rate (ESR), and how is it interpreted in toxicology?	

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3	Define anaemia and write its classification.	
4	Define MCV and MCH.	
5	<p>α- amanitin does not inhibit following RNA polymerase.</p> <ol style="list-style-type: none"> RNA polymerase III RNA polymerase I RNA polymerase II RNA polymerase beta 	
6	<p>Transcription Initiation requires several cofactors, which one of the below can not be considered as transcription initiation complex?</p> <ol style="list-style-type: none"> TATA-box RNA pol II PolyA binding protein Promoter region of DNA 	
7	<p>Mammalian Factors required for 3'-Cleavage and polyadenylation are below, please select the one that is not part of the same process.</p> <ol style="list-style-type: none"> Cleavage stimulation factor (CStF) Poly(A) polymerase (PAP) Cleavage and polyadenylation specificity factor (CPSF) TATA box binding protein (TBP) 	
8	What are the molecules found in cell membrane?	
9	Ribosomes attach to ER with the help of a group of proteins, termed as _____.	
10	Golgi complex was discovered by _____	
11	Explain what provides stability to phospholipid in bio membrane.	
12	Explain All amino acids are optically active except glycine.	

