LOYOLA COLLEGE (AUTONOMOUS) CHENNAI – 600 034

U.G. DEGREE EXAMINATION – **ALLIED**

THIRD SEMESTER – **NOVEMBER 2024**

UCH 3403 – BIOCHEMISTRY FOR BIOLOGY

Date: 15-11-2024 Dept. No. Max. : 100 Marks

Time: 09:00 am-12:00 pm

	SECTION A - K1 (CO1)	
	Answer ALL the Questions -	**(10 x 1 = 10)**
1.	**Answer the following**	
a)	What are essential amino acids?	
b)	List any two properties of RNA.	
c)	Mention any two sources of ω-3 fatty acids.	
d)	Define inversion of cane sugar.	
e)	Write any two uses of nicotine.	
2.	**Match the following**	
a)	Aspartic acid - Purine base	
b)	Adenine - Non-essential amino acid	
c)	Linoleic acid - Poppy seeds	
d)	Starch - Unsaturated fatty acid	
e)	Papaverine - Carbohydrate	
	SECTION A - K2 (CO1)	
	Answer ALL the Questions	**(10 x 1 = 10)**
3.	**True or False**	
a)	Fibrin present in blood is a protective protein.	
b)	Nucleotides are the building blocks of nucleic acids.	
c)	Lipids helps in the production of cortisol.	
d)	High concentration of sugar increases mutarotation.	
e)	Coniine turns green on exposure to atmosphere.	
4.	**Fill in the blanks**	
a)	The pH at which the number of positive charges equals the number of negative charges is called as ----------.	
b)	DNA stands for ----------.	
c)	The catalyst used in the hydrogenation of fat is ----------.	
d)	Cellulose is an example of ---------- saccharide.	
e)	Citral is also known as ----------.	
	SECTION B - K3 (CO2)	
Answer any TWO of the following		**(2 x 10 = 20)**
5.	a) List any four functions of proteins. b) Elaborate the mechanism of lock and key model of enzyme action. (4+6)	
6.	a) Discuss the structure of purine and pyrimidine bases in DNA. b) Enumerate the types and functions of RNA. (5+5)	
7.	a) Define the following: (i) Rancidity (ii) Saponification.	

	b) Compare the properties of reducing and non-reducing sugars. (5+5)
8.	a) What are alkaloids? Mention the biological importance of alkaloids in human. b) State isoprene rule and special isoprene rule. (6+4)
SECTION C – K4 (CO3)	
Answer any TWO of the following	**(2 x 10 = 20)**
9.	a) Illustrate the primary structure of protein with a neat diagram. b) Mention the differences between DNA and RNA. (5+5)
10.	a) Specify the role of replication and transcription in DNA. b) Summarize the significance of cephalins and lecithin. (5+5)
11.	a) Define MUFA and PUFA. Write their sources and biological applications. b) Explain mutarotation and discuss any two factors affecting it. (5+5)
12.	a) Point out the various role played by carbohydrates. b) Describe the solvent extraction method of isolation of terpenes. (5+5)
SECTION D – K5 (CO4)	
Answer any ONE of the following	**(1 x 20 = 20)**
13.	a) Explain the factors affecting the activity of enzymes. b) Outline the properties and structure of DNA. (10+10)
14.	a) How are lipids classified? Explain with examples. b) Describe the following tests for carbohydrates: (i) Molish Test (ii) Benedict's Test c) Give the structure and functions of camphor and α-pinene. (10+5+5)
SECTION E – K6 (CO5)	
Answer any ONE of the following	**(1 x 20 = 20)**
15.	a) Describe the C-terminal analysis of proteins. b) Discuss the significance of hydrogen bonding in nitrogenous bases in DNA. c) Describe the classification of fatty acids with examples. (5+5+10)
16.	a) Draw the structures of fructose, maltose, lactose and sucrose. b) Point out the various steps in the isolation of alkaloids. (10+10)
