LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – **FOOD CHEMISTRY AND FOOD PROCESSING**

FIRST SEMESTER – **NOVEMBER 2022**

PFP1MC01 – CHEMISTRY OF MACRO AND MICRONUTRIENTS

Date: 23-11-2022 Dept. No. Max. : 100 Marks

Time: 01:00 PM - 04:00 PM

	SECTION A		
Answer ALL the Questions			
1	**Define the following**		**(5×1 = 5)**
a)	Hysteresis.	K1	CO1
b)	Retrogradation.	K1	CO1
c)	Solubility.	K1	CO1
d)	Saponification value.	K1	CO1
e)	Turbidity point of lipids.	K1	CO1
2	**Multiple Choice Questions**		**(5×1 = 5)**
a)	The activity value of pure water is a. 0 b. 1.0 c. 0.1	K2	CO1
b)	An example of trisaccharide is _____ a. sucrose b. maltose c. raffinose	K2	CO1
c)	Cephalin is an example for a _____ a. compound lipid b. unsaturated fatty acid c. derived lipid	K2	CO1
d)	An essential amino acid is _____ a. asparagine b. threonine c. glutamine	K2	CO1
e)	The secondary lipid oxidation product is _____ a. aldehyde b. alcohols c. ethers	K2	CO1
	SECTION B		
	Answer any THREE of the following in 500 words		**(3×10 = 30)**
3	Demonstrate the adsorption and desorption isotherms with a neat diagram.	K3	CO2
4	Illustrate gelatinization and factors affecting gelatinization with a suitable flowchart.	K3	CO2
5	Elaborate on Lowry-Bronsted and Lewis acid-base theory.	K3	CO2
6	a) Explain the primary and secondary structural analysis of protein. b) Modify the structure of protein by alkylation and acylation reaction. **(5+5)**	K3	CO2
7	Describe the various changes that occur due to effect of frying fats.	K3	CO2
	SECTION C		

Answer any TWO of the following in 500 words			**(2×12.5 = 25)**
8	Illustrate the viscous property and stability of polysaccharides and their influence in food and beverages.	K4	CO3
9	Outline the factors that affect the solubility of minerals in aqueous medium.	K4	CO3
10	Classify lipids. Describe the hydrolysis and oxidation reaction of lipids.	K4	CO3
11	a. Explain the three different types of enzyme catalysed inhibition reactions. b. Analyse the effect of temperature on protein denaturation. **(9 + 3.5)**	K4	CO3
SECTION D			
Answer any ONE of the following in 1000 words			**(1×15 = 15)**
12	Write the preparation and applications of native and modified starches in food products.	K5	CO4
13	Compare the advantages and disadvantages of endogenous enzymes in food processing industries with any three examples.	K5	CO4
SECTION E			
Answer any ONE of the following in 1000 words			**(1×20 = 20)**
14	a. Explain the types of antioxidants and the quenching mechanism in lipids. b. Derive Michaleis -Menten equation for the determination of kinetics of enzyme catalysed reaction. **(10+10)**	K6	CO5
15	Summarize the sources, functions, deficiency, stability and mode of degradation of Riboflavin.	K6	CO5

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