

**LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034****M.Sc. DEGREE EXAMINATION – FOOD CHEMISTRY AND FOOD PROCESSING****SECOND SEMESTER – APRIL 2023****PFP2MC02 – SCIENTIFIC RESEARCH METHODOLOGY**

Date: 04-05-2023

Dept. No. 

Max. : 100 Marks

Time: 01:00 PM - 04:00 PM

**SECTION A – K1 (CO1)****Answer ALL the questions****(5 x 1 = 5)****1. Definitions**

- a) Longitudinal study
- b) Multi-cluster sampling
- c) Test of significance
- d) Plagiarism
- e) Research Methodology

**SECTION A – K2 (CO1)****Answer ALL the questions****(5 x 1 = 5)****2. Match the following**

- a) Pre-test - States that there is no difference between groups
- b) Null Hypothesis - Used to represent degree of correlation
- c) Likert Scale - Assigning individuals in a sample to either an experimental group or a control group
- d) Scatter plot - Measures attitudes, values, or opinions about a subject.
- e) Randomization - A measure taken before the experimental intervention is applied

**SECTION B – K3 (CO2)****Answer any THREE of the following in 300 words****(3 x 10 = 30)**

- 3. Classify the various types of research with suitable example.
- 4. Illustrate the importance of the following in research
  - a. Bibliography - (5 marks)
  - b. Ethics – (5 marks)
- 5. Examine the usefulness of visual representation of data in research.
- 6. Classify informal experimental designs.
- 7. Calculate the correlation between heating of fats/oils on trans fatty acid (TFA) formation

Temp (°C)	150	160	170	180	190	200	210	220
TFA g/100g	1.8	2.1	2.5	2.6	3.2	3.7	4.2	4.5

**SECTION C – K4 (CO3)****Answer any TWO of the following in 500 words****(2 x 12.5 = 25)**

- 8. Illustrate the process of research using a flow diagram.
- 9. Compare and contrast probability sampling and non-probability sampling.

10.	Design a questionnaire with different scales to measurement to identify the consumer preference of chilly flavoured ice-cream.										
11.	Calculate the 't' value for the following HDL-C (mg/dL) levels, before and after the supplementation of Cinnamon powder to women with polycystic ovary syndrome. ( $t_{0.05}=1.833$ )										
	Before	40	36	33	42	30	45	41	45	42	39
	After	44	39	40	45	34	48	48	49	47	45
SECTION D – K5 (CO4)											
	Answer any ONE of the following in 750 words										(1 x 15 = 15)
12.	Assess the applications of research in varied fields of food technology.										
13.	Evaluate the scope and need for the various sections and subsections of a thesis.										
SECTION E – K6 (CO5)											
	Answer any ONE of the following in 1000 words										(1 x 20 = 20)
14.	A food research laboratory is testing the effect of consumption of ultra-processed foods (UPF) on the perceived stress levels ( $n = 5$ ). The data for the stress score is displayed below. Determine if the stress levels of healthy eaters have significant variation compared to ultra-processed food consumers ( $F_{0.05} = 3.88$ )										
	Low consumption of UPF			Moderate consumption of UPF				High consumption of UPF			
	27			32				45			
	18			26				38			
	30			42				44			
	34			39				46			
	20			43				48			
15.	Propose a research idea and write a detailed project proposal for submitting to a research funding agency.										

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