LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

SECOND SEMESTER – **APRIL 2015**

FP 2809 - RESEARCH METHODOLOGY AND BIOSTATISTICS

Date : 23/04/2015   Dept. No.   Max. : 100 Marks
Time : 01:00-04:00

Part A

Answer all the questions.   10 x 2 =20 marks

1. What are dependant variables?
2. Give a situation wherein pie chart is used to represent data.
3. Define primary data.
4. Mention any four objectives of research.
5. What is a research hypothesis?
6. List the types of correlation.
7. Distinguish between nominal and ordinal scale.
8. What is test of reliability?
9. Name four indexed publications used in food technology.
10.   What is meant by measures of variation?

Part B

Answer any eight questions.   8 x 5 = 40 marks

11.   What do you mean by research? Explain its significance in modern times.
12.   Write short notes on the techniques involved in defining a research problem.
13.   Give an account for the major steps followed in planning a research project with a flow chart.
14.   Illustrate the use of questionnaire as a tool for primary data collection and construct a quesionnaire to assess consumer's knowledge, attitude and practice of consuming healthy foods.
15.   How are data processed? Explain each step with an example.
16.   Describe the difference between an experimental and a descriptive research.
17.   How are computers used as a tool in research? Explain giving examples.
18.   What is bibliography? Why is it required?
19.   Compute mode from the following data

X	51-52	52-53	53-54	54-55	55-56	56-57	57-58	58-59	59-60	60-61	61-62
f	10	19	17	16	22	18	19	12	14	13	15

20.   Calculate the first quartile for the following data.

Age	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55
No. of patients	13	29	46	60	112	94	45	21

21.   Find the standard deviation from the following data on tannin content of six varieties of tea samples from various fertile plots.

Tannin content	20-25	25-30	30-35	35-40	40-45	45-50
No.of samples	170	110	80	45	40	35

22. Two laboratories analyzed the antioxidant activity of 10 fruits independently and the data are ranked below. Calculate rank correlation and prove the relationship using probable error.

Laboratory A	6	5	3	10	2	4	9	7	8	1
Laboratory B	3	8	4	9	1	6	10	7	5	2

Part C

Answer any four questions. 4 x 10 = 40 marks

23. What do you mean by sampling design? Why is probability sampling generally preferred in comparison to non-probability sampling?
24. Explain and illustrate the informal research designs.
25. Discuss the major steps followed in writing a thesis with an illustrative layout.
26. The data given below is about a group of 250 patients suffering from cardiovascular disease. State whether the new treatment with herbal drug is superior to the conventional pharmaceutical treatment. ($\chi^2_{0.05}$=3.84)

Treatment	Favorable results	Not favorable results	Total
Herbal drug	140	30	170
Conventional drug	60	20	80
Total	200	50	250

27. Ten fish samples were evaluated for its moisture content before and after curing with spices. By applying the t-test, can it be concluded that the samples reduced in moisture content after curing? ($t_{0.05}$ = 2.262)

Before Curing	25	20	35	15	42	28	26	44	35	48
After Curing	26	20	34	13	43	40	29	41	36	46

28. To test the significant variation of the retail prices of organic millet in three principle cities, Chennai, Kolkata, Delhi, four organic shops were chosen at random from each city. The prices obtained in rupees are as follows. Does the data indicate that the prices in the three cities are significantly different? ($F_{0.05}$= 4.26)

Chennai	Kolkata	Delhi
16	14	4
8	10	10
12	10	8
14	6	8

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