

M.Tech. Food Technology
II Semester Examination 2022
Paper Title: Research Methodology
Paper Code: MFTC- 201

Time: 3 hours

Max Marks: 75

Attempt all the questions. Marks are mentioned against each question

Q1. Answer any three of the following (5x3)

- Write a note on collection of statistical data.
- Explain simple random and stratified sampling designs with suitable examples.
- Explain what is meant by the term Statistics.
- Differentiate between Experimental and Control Groups.
- Calculate the H.M of the following data.
25, 35, 45, 55, 65, 75

Q2. Answer any three of the following (5X3)

- Calculate range and coefficient of range of the following data.

Marks	10	11	12	13	14	15	16
No. of Candidates	24	201	303	763	509	605	80

- What do you mean by research? Classify different types of research with the help of suitable examples.
- Find regression equation of x on y:

x	1	2	3	4	5
y	2	5	3	8	7

- Calculate the mean and median from the following distribution.

Marks	10-19	20-29	30-39	40-49	50-59
No. of students	3	10	15	20	30

- Calculate the G.M of the data given below.
171, 175, 180, 185, 190, 195

Q3. Answer any three of the following (5x3)

- Discuss the different type of research reports. Elaborate layout of the research report.
- Discuss the characteristics of a good research report.
- Describe the meaning and significance of a research design. Discuss important concepts related to research design.
- "Impact factor, an appropriate metrics of selecting journals for publication". Discuss the statement.
- What is research ethics? What do you mean by good ethical practices?

Q4. Write short notes on the following funding agencies (any three) (5x3)

- AICTE

- b) DST
- c) MOFPI
- d) FSSAI
- e) CSIR
- f) DBT

(5X3)

Q5. Answer any three of the following

- a) A die is thrown 132 times with following results.

Number turned up	1	2	3	4	5	6
Frequency	16	20	25	14	29	28

Is the die unbiased?

- b) A salesman keeps a record of the number of shops he visits each day.

Shops visited	0 - 9	10 - 19	20 - 29	30 - 39	40 - 49
Frequency	7	63	21	60	15

Estimate the mean number of shops visited. Estimate the median. What is the modal class?

- c) Set up an analysis of variance table for the following per acre production data for three varieties of wheat, each grown on 4 plots and state if the variety differences are significant.

Plot of land	Per acre production data		
	Variety of wheat		
	A	B	C
1	6	5	5
2	7	5	4
3	3	3	3
4	8	7	4

F (Tabulated) at 5% level is 4.26.

- d) The sales of a company (in million dollars) for each year are shown in the table below.

x (years)	2005	2006	2007	2008	2009
y (sales)	12	19	29	37	45

- (i) Find the regression line equation.

- (ii) Use the regression line equation as model to estimate the sales of company in 2012.

- e) A random sample of 395 people was surveyed and each person was asked to report the highest education level they obtained. The data that resulted from the survey is summarized in the following table: (Tabulated value required is 7.815)

	High School	Bachelors	Masters	PhDs
Female	60	54	46	41
Male	40	44	53	57

Are gender and education level dependent at 5% level of significance? In other words, given the data collected above, is there a relationship between the gender of an individual and the level of education that they have obtained?