

M. Tech Odd Semester Examination, February, 2023

Agricultural Engineering
(1st Semester)

Course No.: 1ST101/MASH-101
(Research Methodology and IPR)

Full Marks: 70

Pass Marks: 28

Time: 3 hours

- Note:**
1. Attempt any five questions.
 2. Begin each answer in a new page.
 3. Answer parts of a question at a place.
 4. Assume reasonable data wherever required.
 5. The figures in the right margin indicate full marks for the question.
 6. All the mathematical symbols and abbreviations have their usual meanings.

1. Write short notes on

- (a) Research
- (b) Hypothesis
- (c) Plagiarism
- (d) Qualitative and quantitative methodology
- (e) Interpretation of data
- (f) Statistics 2x7=14

OR

2. (i) Distinguish between primary and secondary data 7
(ii) What do you mean by research design? Write down its characteristics. 3+4

Turn Over

3. (a) Explain Mean Mode and Median as the measures of central tendency 6
 (b) Calculate mean, median and mode for the given data: 8

Class	Frequency
0-20	14
20-40	16
40-60	20
60-80	25
80-100	18
100-120	05
120-140	02
	N=100

OR

4. Define the terms with proper examples:
 (a) Histogram
 (b) Frequency curve
 (c) Bar diagram
 (d) Ogive 3.5x4=14
5. (a) What is Hypothesis testing? Discuss different types of non-parametric test used in testing of hypothesis? 14

OR

6. What do you mean by random sampling? Write down its merits and demerits of it? 10
7. Explain the term Design of experiment? What is CRD, explain it with suitable example 4+10

OR

8. Write short notes on (any four) 3.5x4=14
 (a) ANOVA (b) Degree of freedom
 (c) Chi square test (d) One-way ANOVA
 (e) Error square

9. Write down the measure of Dispersion with their merits and demerits in details. 14

OR

10. Write down the measure of Skewness and Kurtosis in details. 14
