

[This question paper contains 2 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 259

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Unique Paper Code : 2163010009

Name of the Paper : RESEARCH METHODOLOGY

Name of the Course : **Botany**

Semester : VI

Duration : 2 Hours

Maximum Marks : 60

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Question number **1** is compulsory.
3. Attempt **FOUR** questions in total.
4. **All** questions carry equal marks.
5. **All** parts of a question must be answered together.
6. Draw graphics wherever required.

1. (a) Give one word for (**any five**)

(1x5=5 Marks)

- i. A list of questions, along with the choice of answers, printed or typed in a sequence on a form used for acquiring specific information from the respondents.
- ii. Scale of measurement when the data is grouped into categories with no order or ranking.
- iii. Statistical method used to determine the relationship between independent variable (X) and the dependent variable (Y).
- iv. The unethical practice of presenting someone else's work as one's own.
- v. A specific condition applied to experimental units (participants, subjects, or plots) to measure its effect on a dependent variable.
- vi. A structured blueprint for collecting, measuring, and analyzing data to answer a specific research problem.

(b) Match the following:

(1x5=5 Marks)

i. A free database for biomedical and life sciences literature	a. Heat map
ii. Graphical representation showing percentage	b. Mendeley
iii. Plagiarism detection software	c. Pie chart
iv. Graphical representation of data where values are represented using colors	d. Turnitin
v. A reference management software	e. Pubmed

(c) Define (**any five**)

(1x5=5 Marks)

- i. Hypothesis
- ii. Royalty

P.T.O.

- iii. Empirical Research
- iv. Control
- v. Citation
- vi. Impact Factor

2. Differentiate between (**any three**)

(5x3=15 Marks)

- i. Primary data and Secondary data
- ii. Research paper and Review paper
- iii. Qualitative and Quantitative research
- iv. Patents and Copyright

3. Write short notes on (**any three**)

(5x3=15 Marks)

- i. Data quality
- ii. Experimental Designs
- iii. Acknowledgements in technical research writing
- iv. Ethics in Research

4. (a) Describe different methods of data collection with suitable examples. (7 Marks)

(b) What are citation management tools? Name any two such tools and explain any one in detail. (8 Marks)

5. (a) What are literature sources? Discuss primary, secondary and tertiary sources of literature information with examples. (7 Marks)

(b) Define search engines. Explain the working and applications of at least three search engines. (8 marks)

6. A researcher has tested the effect of microbial inoculants on heavy metal contamination of soil. The percentage reduction in the levels of heavy metal in the soil after microbial inoculation was observed as follows:

S. No.	Heavy metal reduction (%)	Microbial Inoculant (mL/pot)
1	20	28
2	40	42
3	60	57
4	80	69
5	100	81

a) Draw a scatter plot taking microbial inoculant as the independent variable (X-axis) and heavy metal reduction as the dependent variable (Y-axis). (5 Marks)

b) Calculate the Pearson's correlation coefficient (r) and interpret the result. (10 Marks)