

Roll No.

Total No. of Pages : 02

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Ph.D Course work
RESEARCH METHODOLOGY (MATHEMATICS)

Subject Code : MPHM-101

M.Code : 78001

Time : 3 Hrs.

Max. Marks : 100

INSTRUCTIONS TO CANDIDATES :

1. Attempt any FIVE questions out of EIGHT question.
2. Each question carry TWENTY marks.

1. a) Differentiate between Research Methods and Methodology.

b) Explain research process in a flow chart.

2. a) Write the following polynomial in LATEX code.

a. $\log k$

b. $\frac{1 \cdot X^2}{2 \cdot Y^2 + 1 \cdot a^2}$

c. $\sqrt[x]{a}$

d. $\int \sqrt{\sin d}$

b) Write the steps to add cross references in LATEX.

3. Write short note on :

a) Curve fitting toolbox of MATLAB.

b) Installation process of MATHEMATICA.

4. a) What are the basic of importing and exporting data in origin?

b) Write an example code for plotting a 2D graph in origin.

5. a) What is standard error? Describe utility of standard error.

b) The area of the cross section of a rod is desired up to 0.2%. How accurately should the diameter be measured?

6. a) In the following estimation of regression equation of two variable X and Y results were obtained as follows :
- $\sum X = 900$,
 $\sum Y = 700$, $n = 10$,
 $\sum x^2 = 6360$, $\sum y^2 = 2860$,
 $\sum xy = 3900$ where X and Y are derivations from respective means. Obtain the two regression equations.

b) Calculate the mean for the following frequency distribution :

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70
No. of students	6	5	8	15	7	6	3

7. a) Differentiate between simple, partial and multiple correlation analysis.
 b) Describe in detail multiple discriminant analysis.
8. a) Write the following polynomial in LATEX code :
- $$3x^3 + 4x^2 + 5x + 6 = 0$$
- b) Write an example code to multiply two 3×3 matrices in MATLAB.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.