Roll No. ⬜⬜⬜⬜⬜⬜⬜⬜⬜⬜⬜          Total No. of Pages : 01

Total No. of Questions : 08

**M.Tech.(ECE) (2016 Batch)/(Emb Sys)/(EPDT/VLSI D) (2016 & Onwards)
(Sem.–1)**

# RESEARCH METHODOLOGY
## Subject Code : MTRM-101
## M.Code : 74130

Time : 3 Hrs.                                             Max. Marks : 100

**INSTRUCTION TO CANDIDATES :**
1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carries TWENTY marks.

1. Explain all the steps involved in a Research Process.

2. Distinguish and explain Historical, Descriptive and Experimental Research.

3. The table given below shows the data obtained during outbreak of smallpox :

| | Attacked | Not Attacked | Total |
|---|---|---|---|
| **Vaccinated** | 31 | 469 | 500 |
| **Not Vaccinated** | 185 | 1315 | 1500 |
| **Total** | 216 | 1784 | 2000 |

Test the effectiveness of vaccination in preventing the attack from smallpox. Test your result with the help of $\gamma^2$ at 5 percent level of significance.

4. Explain the various techniques of measuring dispersion.

5. What are the various techniques involved in the formulation of research problem.

6. The lines of regression for a bivariate distribution are given by $X + 9Y = 7$ and $Y + 4X = \dfrac{49}{3}$

   i. Calculate the correlation coefficient

   ii. Calculate $\overline{X}$ and $\overline{Y}$

7. Elucidate the process of formulation of Hypothesis along with the two kinds of errors in the process of Hypothesis testing.

8. Draw and explain the randomized block designs.

**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.**