



# TEERTHANKER MAHAVEER UNIVERSITY

(Established under Govt. of U. P. Act No. 30, 2008)

Delhi Road, Moradabad (U.P.)

## SAMPLE QUESTION PAPER FOR RESEARCH APTITUDE TEST IN PHYSICS

**Max. Marks: 100**

**Time: 2.00 Hrs**

**Note:**

1. The question paper is divided into two parts viz. Part-A and Part-B, carrying 50 marks each.
2. **Part-A** consists of 50 multiple choice questions carrying one mark each. All questions are compulsory. There shall be no negative marking. The answers are to be marked on the OMR sheet with black pencil.
3. **Part-B** consists of 9 descriptive type questions, out of which any 5 questions are to be answered. Each question shall carry 10 marks. A candidate is expected to limit his answer in about 200 words for each question.

### **Part (A)**

**Total Marks: 50 X 1 = 50**

- Q1. Who said that members of the same species are not alike?
- (a) Darwin
  - (b) Herbert Spencer
  - (c) Best
  - (d) Good
- Q2. A statistical measure based upon the entire population is called parameter while measure based upon a sample is known as
- (a) Sample parameter
  - (b) Inference
  - (c) Statistic
  - (d) None of these
- Q3. Generalized conclusion on the basis of a sample is technically known as
- (a) Statistical inference of external validity of the research
  - (b) Data analysis and interpretation
  - (c) Parameter inference
  - (d) All of the above
- Q4. A researcher selects a probability sample of 100 out of the total population. It is
- (a) A cluster sample
  - (b) A random sample
  - (c) A stratified sample
  - (d) A systematic sample
- Q5. A researcher divides the population into Postgraduates, graduates and 10+2 students and using the random digit table he selects some of them from each. This is technically called
- (a) stratified sampling
  - (b) stratified random sampling
  - (c) representative sampling
  - (d) none of these

## Part (B)

Total Marks: 5 X 10 = 50

- Q1. Define analytic function  $u = e^x ( X\cos y - Y\sin y )$  then find analytic function  $f(z)=u +iv$ .
- Q2. Drive Cauchy's integral theorem?
- Q3. How MOSFET is different from JFET? Explain.
- Q4. Define Meissen effect? Explain type I and type II super conductor.
- Q5. Give some basic ideas of BCS theory.
- Q6. Outline the free electron model of metal.
- Q7. Describe the powdered crystal method of studying crystal structure.
- Q8. Explain the liquid drop mode to understand the nature of forces acting of forces acting inside the nucleus.

**Caution: Please note that the questions appearing above in this sample paper are only for the guidance of the candidates.**