**SREE NARAYANA COLLEGE, Punalur**

**Fifth Semester B. Sc. Degree Examination, February 2021**

**First Degree Programme under CBCSS PHYSICS (Core Course VI)**

**PY 1542: Statistical Mechanics, Research Methodology and Disaster Management**

Time: 2 Hours Max. Marks: 50

**SECTION -A**

Answer **all** questions in **one or two** sentences**. Each** question carries **one** mark.

1. Write any two objectives of Research.
2. What are the important parts of a research report?
3. What is a phase space?
4. State postulate of equal probability
5. What are dominant errors?
6. What you meant by disaster
7. Write three examples of geophysical events causes disaster.

**SECTION -B**

Answer **any six** questions, **not** exceeding a **paragraph. Each** question carries **two** marks.

1. Research is an art of scientific investigation. Justify.
2. Distinguish between research methods and research methodology.
3. What are the basic postulates of scientific method?
4. Differentiate bosons & fermions
5. What is absolute error & relative error?
6. Explain standard deviation & variance
7. Explain grand canonical ensemble
8. Differentiate macro & micro states

**SECTION -C**

Answer **any *Four*** questions**. Each** question carries **four** marks

1. Explain the purpose of literature survey.
2. Discuss the problems faced by researchers In India.
3. A physical quantity was measured 5 times. If the measurement values are 11,12,12,13 & 11.Find the mean value, deviation and standard deviation
4. Compare the three statistical distributions
5. The readings of the period of oscillations of a simple pendulum are 2.63s,2.56s,2.42s,2.71s & 2.8s.Calculate the relative error
6. Give the rules to determine the number of significant figures. How many significant figures are there in 10.009870 ?

**SECTION -D**

Answer **any one** question **and** carries **fifteen** marks.

1. Explain the classification of natural disasters.
2. Explain Bose Einstein Statistical distribution