



UNIVERSITY OF NORTH BENGAL
B.Sc. Honours 1st Semester Examination, 2020

GE1-PHYSICS

Full Marks: 40

ASSIGNMENT

*The figures in the margin indicate full marks.
Candidates should answer in their own words and adhere to the word limit as practicable.
All symbols are of usual significance.*

The question paper contains GE1A and GE1B. Candidates are required to answer any *one* from the *two* courses and they should mention it clearly on the Answer Book.

*For each question, the candidates will be graded according to the quality of the presentation of the topic (8 marks and originality of language (2 marks).
Maximum word limit of each topic is 400*

GE1A-PHYSICS

MECHANICS

Write short notes on any *four* of the following topics

10×4 = 40

1. Vector derivatives and their applications
2. Motion of a particle in a central force field
3. Conservation laws of a system of particles
4. Potential, kinetic and total energy of a particle executing simple harmonic motion
5. Twisting couple of a cylinder and torsional rigidity
6. Lorentz transformation: time dilation and length contraction.

GE1B-PHYSICS

THERMAL PHYSICS AND STATISTICAL MECHANICS

Write short notes on any *four* of the following topics

10×4 = 40

1. Second law of thermodynamics and concept of entropy

2. Specific heat at constant pressure (C_P) and at constant volume (C_V)
3. Maxwell's relations in thermodynamics
4. Laws of equipartition of energy and its application
5. Spectral distribution of energy of black body radiation: consequence
6. Fermi-Dirac distribution law with its application to electron gas.

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