



UNIVERSITY OF NORTH BENGAL
B.Sc. Honours 3rd Semester Examination, 2020

GE3-PHYSICS
MECHANICS

Full Marks: 40

ASSIGNMENT

*The figures in the margin indicate full marks.
All symbols are of usual significance.*

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.

The question paper contains GE3A and GE3B.
The candidates are required to answer any one from two courses.
Candidates should mention it clearly on the Answer Book.

GE3A

MECHANICS

Write short notes on any four of the following topics

10×4 = 40

1. Operations of vector differential operator $\vec{\nabla}$.
2. Conservation principles of a system of particles.
3. Characteristics of motion under central force.
4. Time variation and time average of the kinetic and potential energy of a particle executing simple harmonic motion.
5. Explanation of the stress-strain diagram.
6. Einstein's relativistic addition of velocities.

GE3B

THERMAL PHYSICS AND STATISTICAL MECHANICS

Write short notes on any four of the following topics

10×4 = 40

1. Second law of thermodynamics: principle of increase of entropy.
2. Joule Thomson effect: its importance.
3. Maxwell's thermodynamic relations and Clausius-Clapeyron equation.
4. Maxwell's velocity distribution law and its temperature dependence.
5. Spectral distribution of energy of blackbody radiation at different temperatures: deduction of Planck's law.
6. Fermi-Dirac distribution function and its temperature dependence: Fermi energy at absolute zero.

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