

Roll No.

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Total No. of Pages : 02

Total No. of Questions : 09

B.Sc. (Non-Medical) (Sem-2)

MECHANICS-II

Subject Code : BSNM-203-18

M.Code : 76301

Date of Examination : 22-06-2023

Time : 3 Hrs.

Max. Marks : 50

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A** is **COMPULSORY** consisting of **TEN** questions carrying **ONE** marks each.
2. **SECTION-B** contains **FIVE** questions carrying **FIVE** marks each and students have to attempt any **FOUR** questions.
3. **SECTION-C** contains **THREE** questions carrying **TEN** marks each and students have to attempt any **TWO** questions.

SECTION-A

1. Write briefly :

- a) Write the principle of GPS.
- b) Define law of Gravitation.
- c) What is an inertial frame of reference?
- d) What are geosynchronous orbits?
- e) What is the difference between Kinetic energy and Potential energy?
- f) Define Quality Factor.
- g) State the two postulates of special theory of relativity.
- h) What do you mean by mass-energy equivalence?
- i) What were the limitations of Michelson Morley experiment?
- j) Define Resonance.

SECTION-B

2. Derive an expression for gravitational energy of a uniform sphere.
3. Calculate the components of velocity in cylindrical coordinates.
4. Discuss different types of Damping in Simple Harmonic Oscillator.
5. Explain the working of a satellite in circular orbit. List some applications.
6. Derive Lorentz Transformations. Show that Galilean transformations are limiting case of Lorentz transformations.

SECTION-C

7. How two body problem can be reduced to one one body problem under central force? Find its solution.
8. Derive Differential equation for a forced oscillator. Explain transient and steady states.
9. Explain in detail the principle, construction and working of Michelson Morley experiment.

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.