

Roll No. 

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

Total No. of Pages : 02

Total No. of Questions : 16

**B.Tech. (Ind. Engg. & Mgt. (TQM) (Sem.-1)**

**APPLIED PHYSICS**

**Subject Code : IEM-103**

**M.Code : 61003**

**Time : 3 Hrs.**

**Max. Marks : 40**

**INSTRUCTIONS TO CANDIDATES :**

1. Attempt All EIGHT Questions from SECTION-A carrying TWO marks each.
2. Attempt any SIX questions out of EIGHT from SECTION-B carrying FOUR marks each.

**SECTION-A**

- 1) Write dimensional formulae for angular momentum and impulse.
- 2) It is easier to pull than to push a lawn roller. Why?
- 3) What are elastic and inelastic collisions?
- 4) State and explain Hook's law.
- 5) Explain viscosity and coefficient of viscosity.
- 6) State Faraday's law of electromagnetic induction.
- 7) Define transverse wave motion and discuss its propagation.
- 8) Differentiate between intrinsic and extrinsic semiconductors.

**SECTION-B**

- 9) State and explain Newton's laws of motion and show how you obtain from the first law a definition of force and from second law a measure of force.
- 10) Prove and discuss the work energy theorem.
- 11) What do you understand by Potential energy? Show that it is a function of position whose negative gradient gives the conservative force.

- 12) Define young's modulus, bulk modulus and Poisson's ratio and derive the relation between them.
- 13) Define surface tension. How it is related to surface energy? State its units and give its significance.
- 14) Derive an expression connecting the object and image distances, when refraction of light takes
- 15) Derive an expression connecting the object and image distances, when refraction of light takes place at a spherical surface separating two mediums.
- 16) Obtain an expression for the potential due to a uniformly charged sphere at an external and internal point.

**NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.**