MARRI LAXMAN REDDY
INSTITUTE OF TECHNOLOGY AND MANAGEMENT
(AN AUTONOMOUS INSTITUTION)
(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)
Accredited by NBA and NAAC with 'A' Grade & Recognized Under Section2(f) & 12(B)of the UGC act,1956

I B.Tech I Sem Supply End Examination, November2020
ENGINEERING PHYSICS
(CIVIL, MECH)

Time: 2 Hours.   **Max. Marks: 70**

Note: 1. Answer any FIVE questions.
     2. Each question carries 14 marks and may have a, b as sub questions.

1 a)	Show that Newton's laws of motion are invariant.	7M
b)	Derive Newton's laws of motion in polar coordinates.	7M
2	Define scalar and vector. Derive the transformation of vector component under rotation.	14M
3 a)	Deduce the equation of motion of a damped harmonic oscillator. What are the conditions for under damped, critically damped and over damped motions?	7M
b)	Show that the power absorbed by a driven oscillator from the driving force is maximum at resonance.	7M
4	Discuss about the reflection of a wave on a sting at i) fixed end and ii) at a free end. What is impedance matching and its importance.	14M
5 a)	Mention the three elements of a mechanical oscillator and electrical analogies for electrical oscillations.	7M
b)	What are standing waves and explain Eigen frequencies.	7M
6	Describe construction and working of Michelson's interferometer. What are the different types of fringes formed in it? Explain how this interferometer can be used to determine wavelength of a monochromatic source of light?	14M
7 a)	Explain the diffraction at a single slit. Derive the equation for the intensity of light in it.	7M
b)	Describe the construction and working of ruby laser with necessary energy level diagrams.	7M
8	Explain the classification of fibres. Derive the equations for acceptance angle and numerical aperture of fiber.	14M

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