

**Code No: 151AB****JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B.Tech I Year I Semester Examinations, September/October - 2021****ENGINEERING PHYSICS****(Common to CE, ME, MCT, MMT, AE, MIE, PTM)****Time: 3 Hours****Max. Marks: 75****Answer any five questions  
All questions carry equal marks**

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- 1.a) Explain form invariance of Newton's second law.  
b) Explain solving of Newton's equations using polar coordinates. [7+8]
2. Explain problems including constraints and friction and extend to spherical coordinates. [15]
- 3.a) Explain phasor representation of simple harmonic motion.  
b) Give an account of mechanical and electrical impedance. [7+8]
- 4.a) Write short notes on steady station motion of forced damped harmonic oscillator.  
b) Discuss about power observed by oscillator. [7+8]
- 5.a) Derive an expression for wave equation on a string.  
b) Give an account of standing waves and their Eigen frequencies. [7+8]
- 6.a) Discuss about longitudinal waves and obtain equations for them.  
b) Write short notes on transverse waves. [7+8]
- 7.a) Obtain expressing for fringe width in Young's double slit experiment.  
b) Write short notes on Huygen's principle. [7+8]
- 8.a) Explain properties and working of step and graded index fibers.  
b) Discuss about applications of optical fibers. [7+8]

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