

Question Bank

Subject :Physics(Mechanics of Solids)

Branch: Civil

Subject Code:BTPH101-18

Section –A

Q: 1 Define the gradient of a scalar field.

Q: 2 What is physical significance of divergence of vector field?

Q: 3 What is the difference between strong and weak forces?

Q: 4 What do you mean by Central Force?

Q:5 What is difference between Periodic motion and S.H.M?

Q:6 What do you mean by Phase of S.H.M?

Q:7 Define a rigid body.

Q:8 Define Radius of Gyration?

Q:9 What is Limiting Friction?

Q:10 State the expression for the kinetic energy of rotation of a body.

Q:11 State the generalized Hooke's Law.

Q:12 A mass of 1.2kg is attached to a spring of stiffness constant 30N/m. Find the natural frequency.

Q:13 Explain the statement :inertia tensor is symmetric.

Q:14 What are damped oscillations?

Q:15 What is Q-factor?

Section-B

Q16 Discuss spherical polar coordinate system and derive the relation between spherical polar & Cartesian coordinate system.

Q: 17 Prove that average K.E is equal to its average P.E of a harmonic oscillator and each to the half the total energy.

Q:18 Obtain an expression for moment of inertia of a circular ring.

Q:19 Derive Euler's Equation of rotation of a rigid body about a fixed point.

Q:20 Derive an expression for the acceleration of a body sliding down a rough inclined plane

Q:21 Explain axial force, shear force and bending moment.

Q:23 Define the terms angle of Friction and angle of repose. Show that angle of friction is equal to angle of repose.

Q:24 Friction is necessary evil .Justify

Q:25 A cord has original length of 100cm is pulled by a force .the change in length of the cord is 2mm. Determine the strain.

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