

ME3351 ENGINEERING MECHANICS

IMPORTANT QUESTION

UNIT – I STATICS OF PARTICLES

2 – Mark

1. Define Engineering Mechanics,
2. Define Force.
3. State law of parallelogram of vectors.
4. State the principle of transmissibility of force.
5. Define space and time.
6. Discuss about equilibrium of a particle.
7. State Newton's first law of motion.

13 – Mark

1. Describe the various methods of problem solution.
2. Explain particles method.
3. Give detailed explanation for rectangular components of a force.
4. Explain equilibrium of a particle in space

UNIT – II EQUILIBRIUM OF RIGID BODIES

2 – Mark

1. 1. State and prove Varignon's theorem. or State the principle of moments.(June 2001) (Dec2005) (Dec2006) (May 2004) (May 2009) (Dec2009) (May 2010) (Dec2010) (May2011) (Dec2012) (Dec2013)
2. State the necessary and sufficient conditions for equilibrium of rigid bodies in two dimensions. (Nov 1997) (Dec 2002) (May 2006) (Dec 201 1)

3. The position vector and force are $2\mathbf{i} - 3\mathbf{j} + 4\mathbf{k}$ and $120\mathbf{i} - 260\mathbf{j} + 320\mathbf{k}$ respectively. Find the moment of the Force about the origin And also find the scalar quantity of the moment.
4. In the above problem, find the angles made by the moment along x, y and z axes
5. Define the term couple.

13 – Mark

1. Explain vector product of two vectors.
2. Describe resultant of force
3. What are the reactions at supports and connection.

UNIT – III DISTRIBUTED FORCES

2 – Mark

1. What is meant by centre of gravity?
2. What is meant by centroid?
3. What is centre of mass?
4. What is meant by reference axes?
5. What is meant by centroidal axis?
6. What is parallel axes theorem for moment of inertia?
7. What is parallel axes theorem for moment of inertia?

13 – Mark

1. Explain centroids of lines and areas.
2. Describe determination of centroids by integration.
3. State the theorems of Pappus-Guldinus.
4. Give detailed explanation for moments of inertia of a mass.

UNIT – IV FRICTION

2 – Mark

1. Define Friction
2. What are the types of Friction?
3. Write about dry friction and its types.
4. Tell us about the Sliding friction and Rolling friction.
5. Define limiting friction.
6. Define Co-efficient of friction

13 - Mark

1. State the law of dry friction.
2. Explain coefficients of friction.
3. Write the detailed about angles of friction.
4. Describe wheel friction.
5. Explain ladder friction.

UNIT – V DYNAMICS OF PARTICLES

2 – Mark

1. State D' Alembert's principle. (AU May/June 2016, May/June 2013, Nov/ Dec 2010, May /June 2010, May /June 2007)
2. What happens if two perfectly elastic bodies are in impact? (AU May/June 2016)
3. What is dynamic Equilibrium? (AU Jan 2016)
4. What is impulsive force? (AI Jan 2016)
5. Distinguish between perfectly plastic impact and perfectly elastic impact. (AU April/May 2015)

13 – Mark

1. Explain kinematic.
2. Describe motion and curvilinear motion of particles

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Notes

Syllabus

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3. State equations of motions.
4. Explain kinetic energy of a particle.
5. State principles of work and energy.

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