Engineering Mechanics Blueprint

1	a	**System of Coplanar forces** Resultant of Concurrent forces, Parallel forces, Non-concurrent Non-parallel system of forces, Moment of force about a point, Couples, Varignon's Theorem. Distributed Forces in plane (04 marks)
	b	**Equilibrium of system of coplanar forces** Condition of equilibrium for concurrent forces, parallel forces and Non-concurrent Non-parallel general forces and Couples (04 marks)
	c	**Friction** Introduction to Laws of friction, Cone of friction, Equilibrium of bodies on inclined plane, Application to problems involving wedges, ladders. (04 marks)
	d	**Kinematics of Particle** Velocity & acceleration in terms of rectangular co-ordinate system, Rectilinear motion, Motion along plane curved path, Tangential & Normal component of acceleration, Motion curves (a-t, v-t, s-t curves), Projectile motion, Relative velocities (04 marks)
2	e	**Kinetics of a Particle: Force and Acceleration** D'Alembert's Principle, Equations of dynamic equilibrium, Newton's second law of motion (04 marks)
	a	**System of Coplanar forces** Resultant of Concurrent forces, Parallel forces, Non-concurrent Non-parallel system of forces, Moment of force about a point, Couples, Varignon's Theorem. Distributed Forces in plane (06 marks)
	b	**Equilibrium of system of coplanar forces** Condition of equilibrium for concurrent forces, parallel forces and Non-concurrent Non-parallel general forces and Couples (08 marks)
	c	**Kinetics of a Particle: Impulse and Momentum** Principle of Linear Impulse and Momentum. Law of Conservation of momentum. Impact and collision (06 marks)
3	a	Center of Gravity and Centroid for plane Laminas (08 marks)
	b	**Forces in space** **Resultant of Non-coplanar force systems:** Resultant of Concurrent force system, Parallel force system and Non-concurrent non-parallel force system Resultant of Concurrent force system, Parallel force system and Non-concurrent non-parallel force system **Equilibrium of Non-coplanar force systems:** Equilibrium of Concurrent force system, Parallel force system and Non-concurrent nonparallel force system (06 marks)

	c	**Kinetics of a Particle: Work and Energy** Principle of Work and Energy, Law of Conservation of Energy (06 marks)
4	a	Types of support, loads, Beams, Determination of reactions at supports for various types of loads on beams (08 marks)
	b	**Kinematics of Particle** Velocity & acceleration in terms of rectangular co-ordinate system, Rectilinear motion, Motion along plane curved path, Tangential & Normal component of acceleration, Motion curves (a-t, v-t, s-t curves), Projectile motion, Relative velocities (06 marks)
	c	**Kinematics of Rigid Bodies** Introduction to general plane motion, Instantaneous center of rotation for the velocity, velocity diagrams for bodies in plane motion, (up to 2 linkage mechanism) (06 marks)
5	a	Analysis of plane trusses by using Method of joints and Method of sections. (Excluding pin jointed frames) (08 marks)
	b	**Kinematics of Particle** Velocity & acceleration in terms of rectangular co-ordinate system, Rectilinear motion, Motion along plane curved path, Tangential & Normal component of acceleration, Motion curves (a-t, v-t, s-t curves), Projectile motion, Relative velocities (06 marks)
	c	**Kinematics of Rigid Bodies** Introduction to general plane motion, Instantaneous center of rotation for the velocity, velocity diagrams for bodies in plane motion, (up to 2 linkage mechanism) (06 marks)
6	a	**Forces in space** **Resultant of Non-coplanar force systems:** Resultant of Concurrent force system, Parallel force system and Non-concurrent non-parallel force system Resultant of Concurrent force system, Parallel force system and Non-concurrent non-parallel force system **Equilibrium of Non-coplanar force systems:** Equilibrium of Concurrent force system, Parallel force system and Non-concurrent nonparallel force system (04 marks)
	b	**Friction** Introduction to Laws of friction, Cone of friction, Equilibrium of bodies on inclined plane, Application to problems involving wedges, ladders (08 marks)
	c	**Kinematics of Particle** Velocity & acceleration in terms of rectangular co-ordinate system, Rectilinear motion, Motion along plane curved path, Tangential & Normal component of acceleration, Motion curves (a-t, v-t, s-t curves), Projectile motion, Relative velocities (04 marks)
	d	**Kinetics of a Particle: Force and Acceleration** Introduction to basic concepts, D'Alembert's Principle, Equations of dynamic equilibrium, Newton's second law of motion (04 marks)