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 Nonconcurrent 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)**
	e	**Kinetics of a Particle: Force and Acceleration** D'Alembert's Principle, Equations of dynamic equilibrium, Newton's second law of motion. **(04 marks)**
2	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 Nonconcurrent 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)**

	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)**
	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 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)**
	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)**

Engineering Buddy