

**Group code: ME****MECHANICAL ENGINEERING****Marks: 100****1 Basic Management Skills**

Team, Group, Team Building, Production and Productivity, Product Design and its Stages, Types of Production, Functions of Production, Planning and Control Department, Purchasing and its Procedure, Stores Management, Logistics, Inventory Control, Total Productive Maintenance-Concept and Techniques, Quality, Inspection-Types, Total Quality management-Concept and Tools, I.S.O 9000, Quality Standards, Accident and its Prevention

**15 Marks****2 Manufacturing Technology**

Lathe, Drilling, Milling, Shaping, Grinding,(Types of Machines , Operations, Tools And Accessories ); NC & CNC Machines ( Comparison, advantages and disadvantages); Electric Discharge Machining(EDM), Ultrasonic Machining(USM), Abrasive Jet Machining(AJM) , Laser Beam Machining(LBM), Electro Chemical Machining(ECM), Electron Beam Machining(EBM); Casting, Molding Sands, Patterns, Casting Processes, Special Casting Techniques; Welding Techniques -Arc Welding, Gas Welding, TIG, MIG, Resistance Welding, EBW, LBW, Plasma Arc Welding; Forging, Rolling, Extrusion; Sheet Metal Operation-Shearing, Blanking, Punching, Trimming, Drawing, Embossing.

**20 Marks****3 Thermal Engineering**

Basic terms and Concepts, Perfect Gas Laws, Zeroth Law, First and Second Laws of Thermodynamics, , Thermodynamic Processes Perfect Gases; Air Standard Cycles, Air Compressors; SI & CI-Engine(Two stroke & Four stroke), Compression Ratio, Valve Timing Diagram, Lubrication and cooling; Fuels-types-Calorific Value of Fuel.

**15 MARKS**

**4 Theory of Machines**

Basic Kinematics of Machines, Transmission of power-Belt drive, Rope drive, Chain drives, Gear drives, Gear trains, Balancing of rotating masses in the same plane, Cams and Followers-Classification, Friction, Types of Friction, Laws of Friction, Brakes, Clutches and Dynamometers.

**15 Marks****5 Strength of Materials and Engineering Mechanics**

Simple Stress and Strain, Types of Stresses, Hooks Law, Modulus of Elasticity, Modulus of Rigidity, Poissons Ratio, Relations between three Elastic Constants, Temperature Stresses, Bending Moment, Shear Forces, BMD and SFD diagrams for Cantilever, Simply Supported Beams with Point Load and Uniformly Distributed Load.

**15 Marks****6 Material Science**

Mechanical Properties of Metal, Manufacturing, Properties & Uses of Pig Iron Cast Iron & Steel, Properties & Uses of Copper, Aluminum, Lead, Zinc, Tin, Cobalt & Nickel, Iron-Carbon Equilibrium Diagram, Heat Treatment of Steel, Alloys of Steel.

**10 Marks****7 Engineering Drawing**

Basics of Drawing, Conventions, Types, Dimensioning, Surface finish symbols, Projections-Orthographic and Isometric.

**10 Mark**