

	<p>The Nature of Organising -Types of Organisations, Organisational Levels, Process of Organising, Line/Staff Authority, Decentralisation of Authority and Delegation of Authority</p> <p>UNIT III DIRECTING, COORDINATING AND CONTROLLING Direction -- Supervision - Span of Management – Factors determining Span Motivation -- Elements - Importance – Methods - Morale Leadership--Theories, Approaches-Power and Authority Coordination - Definition - Characteristics- Objectives - Principles – Techniques Controlling --Control Process, Requirements for effective Control, Critical Control Standards and Techniques, Maintenance vs. Crisis Management, Overall Control Process</p> <p>UNIT IV ORGANISATIONAL BEHAVIOUR Foundations of Individual Behaviour-- Personality, Perception, Learning, Attitudes & values Foundations of Group Behaviour--Group Process, Group Tasks, Types, Group Development Conflict Management – Management of Change</p> <p>UNIT V RECENT DEVELOPMENTS Global Management, Managerial Functions in International Business, Business Process Reengineering, TQM-Six Sigma, Information Technology in Management, Enterprise Resource Planning (ERP); Supply Chain Management, Management of Innovation</p>
<p>Paper – II :</p>	<p>MARKETING MANAGEMENT Marketing Concept; Marketing Environment; Marketing Mix--4Ps vs 4Cs; Consumer Behaviour--Buying Process, Segmentation, Targeting, Positioning; Product—Types, Product Life Cycle; Pricing—Methods; Distribution—Channels; Promotion—Integrated Marketing Communications; Retailing—Recent Trends; Service Marketing—Features 7Ps; International Marketing—Cultural Dimension; Modes of Entry; e-marketing</p> <p>FINANCIAL MANAGEMENT Objectives; Functions; Sources of Finance; Working Capital Management; Cost of Capital; Operating and Financial Leverage; Dividend Policies; Capital Budgeting; Financial Control</p> <p>HUMAN RESOURCE MANAGEMENT Importance; difference between <u>Personnel Management</u> and HRM; Role of a HR Manager Human Resources Planning-Objectives-Importance-Process- Manpower Estimation-Job analysis-Job Description-Job Specification Recruitment-Sources of Recruitment-Selection Process-Placement and Induction Retention of Employees; Training and Development- Objectives and Needs-Training Process-Methods of Training-Tools and Aids-Evaluation of Training Programmes Performance Management System-Definition, Concepts, Different methods of Performance Appraisal Grievance Redressal—Concepts. Mechanisms Productivity Management—Concepts, Employee Involvement, Quality Circles, Kaizen Industrial Relations--Collective Bargaining-Settlement of Disputes</p> <p>STRATEGIC MANAGEMENT Concept, SWOT Analysis, PEST Analysis, Porter’s 5 Forces Framework, BCG Matrix, GE Model; Values and Ethics; Corporate Governance; e-governance</p> <p>QUANTITATIVE TECHNIQUES Assignment; Transportation; Linear Programming (Graphical and Simplex methods); Network Analysis—PERT and CPM</p>
<p>MECHANICAL ENGINEERING :</p>	
<p>Paper – I :</p>	<p style="text-align: center;"><u>Paper – I</u></p> <p>Theory of machines : Kinematic and dynamic analysis of planer mechanisms. General description and working principles of Belts, Cams, Gears and Gear trains. Inertia force analysis. Flywheels, Governors, Balancing of rotating masses and in-line engines. Linear vibration analysis of mechanical systems – single degree of freedom. Critical speeds and whirling of shafts.</p> <p>Mechanics of Solids : Simple stress and strain – plane stress and plane strain, cases, Mohr’s circle. Relation of elastic constants. Stress-strain relations due to uniaxial loading. Thermal stress. Bending Moment and Shear Force diagrams of beams. Bending stress and shear stress in Bending. Deflection of beams. Torsion of circular shafts. Combined stresses - thin wall pressure vessels. Struts and columns. Strain Energy concept. Theories of failure.</p>

	<p>Engineering Materials : Basic concepts on structure of solids - crystalline materials. Defects in crystalline materials. Binary phase diagram for selected alloys e.g Copper-Zinc, Copper-tin, Iron-Carbon. Ferrous alloys – structure, properties and applications. Heat treatment of steels. Plastics, Ceramics and composite materials – general character and uses.</p> <p>Manufacturing Science : Merchant force diagram. Tailors’ tool life equation. Machinability. Rigid, Small and Flexible Automation. CNC concepts. Recent machining concepts -- EDM, ECM, Ultrasonic, Laser, Plasma. Introduction to Forming processes—Rolling, Forging, Extrusion. Surface finish measurement.</p> <p>Manufacturing Management : Production Planning and control, Forecasting-moving average, exponential smoothing. Operations scheduling, assembly line balancing. Concept of Product development. Breakeven analysis, Capacity planning. PERT and CPM. Inventory control – ABC analysis, EOQ model. Materials Requirement Planning. Work measurement. Quality management.</p> <p>Elements of Computation : Computer Organization, Flow charting. Features of common Computer Languages – C/FORTRAN and elementary programming.</p>
Paper – II :	<p>1. Thermodynamics :</p> <p>Open, closed and isolated systems.</p> <p>Ideal gas law, Ideal thermodynamics processes – pdv work; Thermodynamic Cycle,</p> <p>1st law and 2nd law of Thermodynamics; Concepts of Internal Energy, Entropy and Reversibility – simple problems.</p> <p>Concept of Heat engine and Heat pump - efficiency and COP.</p> <p>Application of 1st and 2nd laws of thermodynamics in closed and open system (SSFF Equation) – simple problems.</p> <p>2. Vapour power cycles:- Rankine cycle and Modified Rankine cycle - simple problems.</p> <p>3. Air standard cycles : Otto, Diesel, Dual, Brayton and Bell-Colman. - pv and TS diagrams, simple problems.</p> <p>4. Refrigeration : Joule Thomson cooling effect, vapour compression cycle - simple problems.</p> <p>5. IC Engine :</p> <ul style="list-style-type: none"> a) S.I and C.I engines - basic principles of working, differences and applications, indicator diagram. b) 2-stroke and 4-stroke engines: working principles and simple engine performance calculations involving η_{thermal} , $\eta_{\text{mechanical}}$ etc. c) Combustion process, Basic idea about knocking and detonation. Cetane and Octan numbers. d) Carburetion and Fuel injection-description only. e) Exhaust gas analysis: ORSAT analysis. f) Air – Fuel ratio – simple problems. <p>6. Heat Transfer :</p> <ul style="list-style-type: none"> a) Fourier’s law of heat conduction. Derivations of unsteady 2-D heat conduction equation. Numerical problems involving 1-D equation. Concept of Bi-number. b) Steady state heat conduction in extended surface - derivation of related equation and simple problems. c) Basic concept of free and forced convections - concept and significance of Nusselt number, Reynolds number and Grashof number. Simple problems with the help of empirical convection correlation for heat transfer.

	<p>d) Heat exchangers - types and use, Efficiency. Concept of LMTD and NTU method for parallel flow and counter flow heat exchangers - simple problems using LMTD method only.</p> <p>e) Laws of radiation, Heat exchange between surfaces - black and non-black surfaces, View factor-simple problems.</p> <p>f) Refrigeration cycles and system components, Choice of Refrigerants, Problems related to performance, COP of refrigeration system.</p> <p>g) Airconditioning - system components and general description. Comfort indices. Cooling load calculation using psychrometric chart.</p> <p>7. Fluid Mechanics :</p> <p>a) Newton's law of viscosity: statement and simple problems.</p> <p>b) Hydrostatic force on submerged flat plate - simple problems</p> <p>c) Flow parameter measurement - Manometer, Pitot tube, Weir, Venturi meter, Orifice meter – working principles and simple problems.</p> <p>d) Application of Bernoulli's principle in simple engineering systems.</p> <p>e) Head loss in pipe, Darcy - Weisbach equation, Friction factor as function of Reynolds number and relative roughness, Minor loss, Simple system head loss calculations</p> <p>f) Dimensional analysis - various dimensionless quantities, problems involving model tests and their use in prototype performance prediction.</p> <p>g) Different types of pumps and their applications, Concept of specific speed, System curve and Pump performance curves – operating point.</p> <p>8. Power plant :</p> <p>a) Thermal and Hydraulic Power plant components - description only.</p> <p>b) Different types of hydraulic and steam turbines and their areas of application.</p> <p>c) Modern High pressure, high duty boilers - description.</p> <p>d) I.D., F.D and balanced draft boilers – description and simple problems, Dust removal systems - description only.</p> <p>e) Heat balance, Station and plant heat rates, Plant load factor, Load curve; Station economics – simple problems.</p>
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MEDICAL SCIENCE :	
Paper – I :	Human Anatomy : Human Physiology : Biochemistry : Pathology : Microbiology : Pharmacology : Forensic Medicine and Toxicology.
Paper – II :	General Medicine : General Surgery : Obstetrics and Gynaecology including Family Planning : Preventive and Social Medicine.

PHILOSOPHY :	
Paper – I :	<p style="text-align: center;"><u>Problems of Philosophy (European and Indian)</u></p> <ol style="list-style-type: none"> 1. Plato and Aristotle : Ideas, Substance; Form and Matter; Causation; Actuality and Potentiality. 2. Rationalism (Descartes, Spinoza, Leibnitz) : Cartesian Method and Certain Knowledge; Substance; God; Determinism and Freedom. 3. Empiricism (Locke, Berkeley, Hume) : Theory of Knowledge; Substance and Qualities; Self and God; Scepticism. 4. Kant : Possibility of Synthetic a priori judgments; Space and Time; Categories. 5. Moore, Russell and Early Wittgenstein : Defence of Common sense; Refutation of Idealism; Logical Atomism; Picture Theory of Meaning. 6. Logical Positivism : Verification Theory of Meaning; Rejection of Metaphysics. 7. Câravâka : Theory of Knowledge; Metaphysics and Ethics. 8. Jainism : Anekântavâda,; Saptabhanginaya. 9. Buddhism : Four Noble Truths; Prañīyasamutpāda, Kṣāṇikavâda, Nairâtmyavâda.