P T P G 2019
ENTRANCE TEST SYLLABUS

M.Tech. (STRUCTURAL ENGINEERING)

STRUCTURAL ENGINEERING

Structural Analysis: Simple stresses and Strains, shear force and Bending Moment, flexural stresses -Shear Stresses - Deflection of beams - Principle stresses and Strains - Torsion - Columns and Struts -Direct and bending stresses - beams curved in plan - propped cantilever - Continuous beams - Energy theorem - moving loads - Influence lines - Arches - slope deflection method --moment distribution method - flexibility and stiffness methods - matrix approaches.

Concrete and Steel Structures: Concrete Technology, properties of concrete, basics of mix design. Limit State methods of design; design of reinforced concrete beams, slabs, columns, staircase, earth retaining structures and foundations; detailing of reinforcement; analysis and design of pre-stressed concrete beams, provisions of IS code of practice, Analysis and design of tension and compression members, beams and beam-columns, column bases; Connections - simple and eccentric, beam and column connections, plate and gantry girder and trusses; plastic design of beams and frames, provisions of IS codes of practice.

GEOTECHNICAL ENGINEERING

Soil Mechanics: Origin and Formation of soils, Structure, three-phase system, fundamental definitions, relationships and interrelationships, index properties of soils, particle size analysis, plasticity characteristics, soil classification, stress distribution in soil, permeability of soil, seepage analysis, effective stress principle, consolidation, compaction, shear strength.

Foundation Engineering: Sub-surface investigations- scope, drilling bore holes, sampling, penetration tests, plate load test. Earth pressure theories, Active and Passive earth pressure theories in sands and clays soils, effect of water table, layered soils. Stability of slopes-infinite slopes, finite slopes. Foundation types-foundation design requirements. Shallow foundations-bearing capacity, effect of shape, water table and other factors, settlement analysis in sands & clays. Deep foundations–pile types, dynamic & static formulae, load carrying capacity of piles in sands & clays, Pile Groups. negative skin friction.

WATER RESOURCES ENGINEERING

Fluid Mechanics: Hydrostatic application of Bernullis's equation, laminar and turbulent flow through pipe lines, pipe network, concept of boundary layer and its growth, uniform flow, critical flow, Specific energy concepts, Hydraulic jump, forces on immersed bodies, flow measurement in channels, tanks and pipes, dimensional analysis and modeling; velocity triangles and specific speed of pumps and turbines. Application of momentum equation, potential flow, kinematics of flow.

Hydrology and Irrigation Engineering: Hydrologic cycle, rainfall, evaporation, infiltration, unit hydrographs, flood estimation, reservoir and channel routing, well hydraulics, Duty, Delta, Estimation of evapo-transpiration, crop water requirements, design of lined and unlined canals, water ways, head works, gravity darns and Ogee spillways, Earthen dams, Design of weirs on permeable foundation, Irrigation methods.

ANSPORTATION ENGINEERING AND ENVIRONMENTAL ENGINEERING

Transportation Engineering: Highway Development and Planning, Road Patterns, Alignment, Engineering-surveys for highway locations, Drawings and reports.

Highway Geometric Design, Elements of cross section, sight distance, Horizontal and Vertical Alignment.

Traffic Engineering, Traffic studies, Volume, origin and destination studies, accident studies, Traffic signs, traffic islands, Intersection design, all grade and grade-separated intersections.

Highway Design, Construction and Maintenance of gravel, water bound, bituminous pavement and concrete pavements, maintenance of roads.

Environmental Engineering: Water requirements, Quality standards, basic unit processes and operations for water treatment. Drinking water standards, water requirements, basic unit operations and unit processes for surface water treatment, distribution of water. Sewage and sewerage treatment: quantity and characteristics of wastewater, Primary, secondary and tertiary treatment of wastewater, sludge disposal, effluent discharge standards. Domestic wastewater treatment, quantity of characteristics of domestic wastewater, primary and secondary treatment Unit operations and unit processes of domestic wastewater, sludge disposal.

E N D

P T P G 2019
ENTRANCE TEST SYLLABUS

M.Tech. (ELECTRICAL POWER ENGINEERING)

NETWORK THEORY: General circuit concept - RLC Parameters - Response of RL - RC - RLC for impulse, step and sinusoidal excitations - Magnetic circuits - Single phase circuits - Concept of Real and Reactive powers - Power factor -Series & Parallel resonance - Three phase circuits - Star & delta connections - line & phase quantities - Analysis of balanced & unbalanced ckts. - Network theorems - Two port networks.

ELECTROMECHANICS: DC Generators - EMF equation - methods of excitation - characteristics of shunt, series and compound generators - DC Motors - Principle of operation - Torque equation - methods of speed control - efficiency -Applications - Single phase transformers - principle of operation - Phasor diagram - Equivalent circuit - iron and copper losses —efficiency - regulation - Polyphase induction motor - principle of operation - Phaser diagram - equivalent circuit - Torque equation - mech. Power developed - torque slip characteristics –

speed control methods & starting methods -Synchronous generators - Principle of operation - Armature reaction -leakage reactance - synchronous reactance & impedance - phasor diagram - voltage regulation - load - characteristics - synchronizing and parallel operation - Synchronous motor - theory of operation - phasor diagram - power developed - excitation & power circles - methods of starting.

POWER SYSTEMS: Operation of Hydropower stations - Thermal Power Stations - Nuclear power Stations - Economic aspects of power station - transmission line parameters - types of conductors - calculation of inductance - capacitance for 2 wire and 3 wire systems. Transmission line performance - short, medium and long line - T and TT network models - ABCD constants - Ferranti effect - Corona - Insulators - Underground cables - Calculation of insulation resistance - Power factor improvement - Protection against over voltage - Fuses - Circuit breakers - Currant limiting reactors - Electromagnetic & Static relays - application of relays - protection of busbars - transformers & generators - economic operation of power systems - load frequency control - single area and two area systems - power system transient & steady - state stability analysis, load flow studies.

CONTROL SYSTEMS: System concept - mathematical models of physical systems - block diagram algebra - feedback characteristics - reduction in parameter variations by use of feed back - PID controllers - time response analysis- concept of stability - frequency response analysis.

POWER ELECTRONICS: Basic theory of operation of SCR, BJT and their characteristics - On & Off methods - Snubber circuits - di/dt, dv/dt protection - Line commutaled converters both midpoint & bridge type - Single Phase & 3 phase with R, RL loads - Output equations - waveforms - dual converters - AC Voltage controllers (single phase) with R, RL loads - output equation - waveforms - single phase cycle converter - principle of operation'- wave forms -forced commutation - techniques - D.C. choppers, single quadrant and two - quadrant operation - Output equation, wave forms - inverters - series & parallel inverters - single phase and three phase - operation - wave forms.

ELECTRICAL MEASUREMENTS: Measuring instruments - classification, ammeter, voltmeter - expression for deflection torque & control torque - Instrument transformers - CT & PT - Measurement of active and reactive power in balanced load -Measurement of energy (single phase) - potentiometers - applications -bridges for resistance, inductance and capacitance measurements.

E N D

P T P G 2019
ENTRANCE EXAMINATION SYLLABUS

M.Tech. (ADVANCED MANUFACTURING SYSTEMS)

APPLIED MECHANICS AND DESIGN

Engineering Mechanics: Equivalent force systems, free-body concepts, equations of equilibrium, trusses .and frames, virtual work and minimum potential energy. Kinematics and kinetics of particles and rigid bodies, impulse and momentum (linear and angular), energy methods, central force motion.

Strength of Materials: Stress and strain, elastic constants, stress-strain relationship, Mohr's circle.

Deflection of beams, bending and shear stresses, shear force and bending moment diagrams, torsion of circular shafts, thin and thick cylinders, Euler's theory of columns, strain energy methods, thermal stresses.

Theory of Machines: Analysis of plane mechanisms, dynamic analysis of slider-crank mechanism, planar cams and followers, gear tooth profiles, kinematics and design of gears, governors and flywheels, balancing of reciprocating and rotating masses.

Vibrations: Free and forced vibration of single degree freedom systems, effect of damping, vibration isolation, resonance, critical speed of shafts.

Design of Machine Elements: Design for static and dynamic loading, fatigue strength, failure theories. Design of bolted, riveted and welded joints; design of shafts and keys; design of spur gears, brakes and clutches,, rolling and sliding contact bearings; belt, ropes and chain drives, springs, IC engine components, power screws.

THERMAL SCIENCE AND ENGINEERING

Fluid Mechanics: Fluid properties, fluid statics, manometry, buoyancy, control-volume analysis of mass, momentum and energy, fluid acceleration, differential equation of continuity and momentum. Bernoulli's equation. Viscous flow of incompressible fluids; boundary layer, flow through pipes, head losses in pipes, bends etc. turbo machines: velocity triangles Euler's equation, specific speed, Pelton wheel, centrifugal pump, Francis and Kaplan. turbines.

Heat-Transfer: Modes of heat transfer, one dimensional heat conduction, resistance concept, electrical analogy, unsteady heat conduction, fins, dimensionless parameters in free and forced convective heat transfer, various practical correlations for heat transfer over flat plates and through pipes thermal boundary layer, effect of turbulence, radiative heat transfer, black and grey surfaces shape factors, network analysis, heat exchanger performance, LMTD and NTU methods.

Thermodynamics: Zeroth, first and second laws of thermodynamics, thermodynamic system and processes irreversibility and availability, behaviour of ideal and real gases, properties of pure substances, calculation of work and heat in ideal processes, Analysis of thermodynamics cycles related to energy conversion. Carnot, Rankine, Otto, Diesel, Brayton and Vapour compression cycle.

Steam Engineering: Steam generators, Steam engines, steam turbines-impulse and reaction, velocity diagrams, compounding, reheat factor.

I.C. Engines; Requirements and suitability of fuels in IC engines, fuel ratings, fuel-air mixture requirements, normal combustion in S1 and Cl engines, engine performance and testing gas turbines.

Reciprocating Air Compressor: Isothermal, adiabatic and polytropic compression, staging the compression process, intercooling and aftercooling, minimum work requirement, volumetric efficiency. Centrifugal and axial flow compressors.

Refrigeration and Air-conditioning: Refrigerant compressors, expansion devices, condensers and evaporators, properties of moist air, psychrometric chart, basic psychrometric processes.

MANUFACTURING AND INDUSTRIAL ENGINEERING

Engineering Materials: Structure and properties of engineering materials and their applications, heat treatment.

Metal Casting: Casting processes - pattern making, moulds and cores, solidification, design of casting, casting defects.

Metal Working: Stress-strain diagrams for ductile and brittle material, plastic deformation, mechanisms, fundamentals of hot and cold working processes-forgoing, extrusion, wire drawing, sheet metal wording, punching, blanking, - bending, deep drawing, coining and spinning.

Metal Joining Processes. Fusion and non-fusion welding processes, design of welded joints, modern welding processes.

Machining Processes and Machine Tool Operation: Mechanics of metal cutting, single and multipoint cutting tools, geometry and machining aspects, tool life, machinability, economics of machining, non-traditional machining processes.

Metrology and Inspection: Limits, fits and tolerances, linear and angular measurements, comparators, gauge design, interferometry, form and finish measurement, measurement of screw threads, alignment and testing methods.

Tool Engineering: Principles of work holding, design of jigs and fixtures, design of press working tools.

Manufacturing Analysis. Part-print analysis, tolerance analysis in manufacturing and assembly, time and cost analysis.

Computer Integrated Manufacturing: Basic concepts of CAD, CAM, Group technology.

Work Study. Method study, work measurement time study, work sampling, job evaluation, merit rating. Production Planning and Control. Forecasting models, aggregate production planning" master scheduling, materials requirements planning.

Inventory Control: Deterministic and probabilistic models, safety stock inventory control systems.

Operations Research: Linear programming, simpler and duplex method, transportation, assignment, network flow models, simple queuing models, PERT and CPM.

E N D

P T P G 2019
ENTRANCE EXAMINATION SYLLABUS

M.Tech. (ENERGY SYSTEMS)

One-dimensional steady and unsteady state heat conduction: electrical analog, dimensional analysis, forced convection over flat plates and inside tubes, free convection over vertical and horizontal places, concepts of radiative heat transfer, Fick's Law of mass diffusions basic of convective mass transfer

Concept continuum, Macroscopic approach. Thermodynamic system, closed and open, Intensive and extensive properties thermodynamic equilibrium. State of system, state diagram path process. Zeroth law of Thermodynamic properties of pure substances in solid, liquid and vapour phases. P-V-T behaviour of simple compressible substances. Equations of state. Compressibilities and expansion coefficient. Thermodynamic property tables and charts.

First law of Thermodynamics, Kelvin-planch and Clausius statements. Carnot theorem. Reversible and irreversible processes. Thermodynamic (absolute) temperature scale. Clasius inequality and the concept of entropy. Principle of increase of entropy. Availability and irreversibility. applications of second law.

Power and Refrigeration cycles, Carnot, Rankine, Air standard Joule (Brayton) Otto, Diesel and Dual. Vapour Compression, Refrigeration.

Relations between power, torque and speed of rotating electrical machines Kirchhoff's laws. Resistors, inductors, capacitors and cells in series and parallel, energy stores in inductors and capacitors. Alternating voltage and current, instantaneous, maximum, average and RMS values, phasor addition, lagging and leading, power in a.c. circuits, power factor, three-phase systems, star and delta connections power measurement in three-phase systems.

Single-phase transformers: emf, equation, losses, efficiency, and regulation.

Three-phase induction motors, and slip-ring, slip power, torque slip characteristic. Starting methods, speed control.

Alternators synchronous impedance, voltage regulation. Utilization, Industrial applications of electric motors, selection of motors, motors for particular services. Utilization, Luminous, flux and intensity, laws of illumination. Electric lamps, street-lighting. Simple Tarif system.

E N D

P T P G 2019
ENTRANCE EXAMINATION SYLLABUS

M.Tech.(SYSTEMS & SIGNAL PROCESSING)

Semiconductor Devices: Characteristics, Applications, Amplifiers and Oscillator Circuits, Power Amplifiers and Tuned Amplifiers, Network Theorems, Noise, Fourier Transforms, Convolution, Laplace Transforms, Z. Transforms.

Boolean Algebra, Combinational Circuits, Sequential Circuits, Linear and non-Linear Wave Shaping, Multi-vibrators, Sweep Circuits, Linear and Digital ICs, A/D, D/A Converters.

EM Theory – Maxwell's Equations, Uniform Plane Waves, Transmission Lines, waveguides.

Modulation Theory – AM, FM, PM, Pulse Modulation, PCM, DM, ADM, ASK, PSK, FSK Schemes. Antennas – Characteristics and Types, Wave Propagation.

Random variables : Single and multiple Random variables, PDF, CDF. Random Process: stationarity, Ergodicity, Auto correlation, Cross-correlation, Power Spectral Density.

Digital Signal Processing : LTI system characteristics, DFT, FFT, IIR Digital Filter, FIR Digital Filter and Multirate Digital Signal Processing and Finite word length effects.

Information Theory, Data Communication and Networking, ISDN, Micro controllers.

Electronics measuring instruments, CROs, Transducers, Measurement of Physical Parameters.

Control Systems: Transfer function of Linear Systems, Sensitivity function. Time Domain Analysis and Feed Back Control System, Root Locus Techniques.

Microwave Engineering: Two cavity klystron Amplifier, Reflex klystron TWT, Magnetron, Microwave components, Microwave measurements, principle of Rader, Fundamentals of wireless communications.

E N D

P T P G 2019
ENTRANCE EXAMINATION SYLLABUS

M.Tech. (COMPUTER SCIENCE)

Computer Hardware & Organisation: Number Systems, Representation Positive and negative integers and real numbers, logic gates, Boolean algebra, simplification of Boolean expressions, Combinational circuits, sequential circuits, Functional organization of computer.

Programming in C: Data types, Operators and Expressions, Input Output Statements, Control Statements, Functions, Arrays, Pointers, Structures & Unions, Preprocessors, Programming in C.

Data Structures: Searching and Sorting Techniques, Expression, Evaluation, Stacks, Queues, Linked Lists, Trees, Graphs and applications.

Discrete Mathematics: Sets and relations, Fundamentals of propositional logics, inference, elementary combinatories, Probabilities, Mathematical Induction.

Operating System: Processes, Threads, Inter-process communication, Concurrency, Synchronization, Deadlock, CPU scheduling, Memory management and virtual memory, File systems, I/O systems, Protection and security.

Databases: ER-model, Relational model (relational algebra, tuple calculus), Database design (integrity constraints, normal forms), Query languages (SQL), File structures (sequential files, indexing, B and B+ trees), Transactions and concurrency control.

Software Engineering: Process life cycle, planning and managing the project, design, coding, testing, implementation, maintenance.

Computer Networks: ISO/OSI stack, LAN technologies (Ethernet, Token ring), Flow and error control techniques, Routing algorithms, Congestion control, TCP/UDP and sockets, IP(v4), Application layer protocols (icmp, dns, smtp, pop, ftp, http); Basic concepts of hubs, switches, gateways, and routers. Network security basic concepts of public key and private key cryptography, digital signature, firewalls.

E N D

P T P G 2019
ENTRANCE EXAMINATION SYLLABUS

M. Tech. (INDUSTRIAL METALLURGY)

Thermodynamics and Rate Processes: Laws of thermodynamics, activity, equilibrium constant, applications to metallurgical systems, solutions, phase equilibria, Ellingham and phase stability diagrams, thermodynamics of surfaces, interfaces and defects, adsorption and segregation; basic kinetic laws, order of reactions, rate constants and rate limiting steps; principles of electro chemistry-single electrode potential, electro-chemical cells and polarizations, aqueous corrosion and protection of metals, oxidation and high temperature corrosion - characterization and control; heat transfer - conduction, convection and heat transfer coefficient relations, radiation, mass transfer - diffusion and Fick's laws, mass transfer coefficients; momentum transfer - concepts of viscosity, shell balances, Bernoulli's equation, friction factors.

Physical Metallurgy: Crystal structure and bonding characteristics of metals, alloys, ceramics and polymers, structure of surfaces and interfaces, nano-crystalline and amorphous structures; solid solutions; solidification; phase transformation and binary phase diagrams; principles of heat treatment of steels, cast iron and aluminum alloys; surface treatments; recovery, recrystallization and grain growth; industrially important ferrous and non-ferrous alloys; elements of X-ray and electron diffraction; principles of scanning and transmission electron microscopy; industrial ceramics, polymers and composites; electronic basis of thermal, optical, electrical and magnetic properties of materials; electronic and opto-electronic materials.

Mechanical Metallurgy: Elasticity, yield criteria and plasticity; defects in crystals; elements of dislocation theory - types of dislocations, slip and twinning, source and multiplication of dislocations, stress fields around dislocations, partial dislocations, dislocation interactions and reactions; strengthening mechanisms; tensile, fatigue and creep behaviour; super-plasticity; fracture - Griffith theory, basic concepts of linear elastic and elasto-plastic fracture mechanics, ductile to brittle transition, fracture toughness; failure analysis; mechanical testing - tension, compression, torsion, hardness, impact, creep, fatigue, fracture toughness and formability.

Manufacturing Processes: Metal casting - patterns and moulds including mould design involving feeding, gating and risering, melting, casting practices in sand casting, permanent mould casting, investment casting and shell moulding, casting defects and repair; hot, warm and cold working of metals, Metal forming - fundamentals of metal forming processes of rolling, forging, extrusion, wire drawing and sheet metal forming, defects in forming; Metal joining - soldering, brazing and welding, common welding processes of shielded metal arc welding, gas metal arc welding, gas tungsten arc welding and submerged arc welding; welding metallurgy, problems associated with welding of steels and aluminium alloys, defects in welded joints; powder metallurgy; NDT using dye-penetrant, ultrasonic, radiography, eddy current, acoustic emission and magnetic particle methods.

E N D

P T P G 2019
ENTRANCE EXAMINATION SYLLABUS

M.Tech. (BIO TECHNOLOGY)

Microbiology: History of Microbiology, Classification of Protists. Morphological, Structural and Biochemical characteristics of procreates and Eukaryotes. Growth characteristics of microbes.

Methods of microbiology including pure culture techniques and microscopy. Industrially important micro organisms and important fermentation products.

Media formulation Principles of microbial nutrition, construction of culture media.

Isolation, improvement and preservation of industrial micro-organisms.

Microbial Genetics: Transformation, Transduction and Conjugation, Structure and Classification of viruses, replication of viruses including bacteriophases and animal viruses.

DNA: Structure of DNA and arrangement of genes on chromosomes, DNA synthesis and replication, RNA syntheses and processing, Different classes of RNA and their functions, Ribozymes, Protein expression in prokarytes and Eukarytes.

Plasmids, Transposable elements, TY Elements and repetitive sequences, Mutations.

Structure of Bio-Molecules, Metabolism of Carbohydrates, liquids, proteins, amino acids and Nucleic acids, photosynthesis.

Enzymes: Specificity, catalysis, kinetics, inhibition and allosteric enzymes. Metabolic organization and regulasation of metabolism. Signal Transduction.

Plasma Membrane: Structure and Transport, Signal Hypothesis.

Thermodynamics: First law of thermodynamics: Internal energy, enthalpy, molar heat capacities, reversible and irreversible processes. Isothermal and adiabatic changes. Second law: entrophy, Free energy change and chemical reaction equilibria. Heat of reaction, Hess's law, heat of formation, combustion etc.

Chemical Reaction Kinetics: Rate of reactions: Molecularity, order and rate consists, Arrhenius equation, Energy of activation, catalysis design of Ideal Reactors for single reactions.

Mathematics: Differential and integral calculus including integration Ordinary and partial differential equations. Laplace transforms of elementary functions, solution to ordinary differential equation by transform methods. Solutions of a system of linear algebraic equations by matrix method eigen values, of a square matrix. Fourier and Taylor's series. Mean value theorem.

Fluid Mechanics: Fluids vs Solids, Fluids statics and applications, Mass and energy balances in fluid flow, bernoulli's equation, its corrections and applications including pump work. Newton's law of viscosity, flow curves for non-newtonian fluids.

Pressure drop due to skin friction by Rayleigh's method of dimensional analysis – significance of friction, factor and Reynol's number. Boundary layer theory and form friction pressure drop due to form friction. Flow past immersed bodies and drag coefficients. Pressure drop in flow through packed beds. Fluidization and pressure drop across fluidized beds. Flow metering, machinery and control.

Heat Transfer: Modes of heat transfer and examples. Fourier's law of heat conduction and analogy with momentum transfer, heat transfer through a cylindrical pipe wall.

Convection and concept of heat transfer coefficient, application of dimensional analysis to heat transfer from pipe to a flowing fluid. Thermal boundary layer and prandtlnumber. Overall heat transfer coefficient.

Correlations for heat transfer coefficients in natural and forced convection, significance of dimensionless numbers. Overview of heat exchangers and concept of LMTD. Overview of other heat transfer operations, viz., boiling and condensation and evaporation. Overview of radiation, combined heat transfer by conduction – convection and radiation.

Diffusion and Mass Transfer: Fick's law of diffusion, analogy with momentum and energy transport, diffusivities of gases and liquids, fundamentals of mass transfer coefficient, dimensionless numbers and significance, correlation for mass transfer, overview of separation operations. Equipment for mass transfer operations. Equilibrium stage operations.

Mechanical Unit Operations: Principles of the following operations for size reduction and size separation, crushing, grinding, filtration, centrifugation.

E N D

P T P G 2019
ENTRANCE EXAMINATION SYLLABUS

M. Tech. (ENVIRONMENTAL MANAGEMENT)

Ecology & Environment:

1. Nature of ecosystems
2. Energy flow in ecosystems-energy fixation by Autotrophs –Energy beyond the producers
3. Biogeochemical cycles and ecosystems
4. Ecology of populations - population growth - age structure - equilibrium level -
5 . Dynamics of ecological communities.

Recommended Books: Concepts of Ecology, E. J. Kormondy, Prentice-Hall 1984

Microbiology:

1. Major characteristics of microorganisms --- bacteria - Fungi, molds and yeasts - algae - protozoa – Viruses.
2. Cultivation of microorganisms – Control of microorganisms - physical and chemical agents.
3. Microorganisms in aerobic & anaerobic biological waste treatment- major groups of microbes and their role.
4. Microorganisms, growth kinetics- bacterial growth curve, various phases of growth, growth rate and doubling time.

Environnemental Chemistry:

1. Basic concepts and scope of environmental chemistry – Environmental Segments.
2. Atmosphere - Structure - Chemical and photo chemical reactions – and ozone chemistry - green house effect.
3. Hydrosphere - hydrologic cycle – chemistry of water and waster water.
4. Lithosphere - micro and macro nutrients – Wastes and pollution of soil air and water.
5. Environmental technologies, Environmental effects of pollution – Health effects of pollution.

Pollution Control Engineering:

1. Solid, Liquid and Gaseous Wastes, Various Pollutants and their Harmful effects.
2. Waster quality, waster purificatrion systems.
3. Waste water characteristics, Primary / Secondary treatment methods.
4. Air Pollution control methods.
5. Dispersion of pollutants and self-purification aspects.

Geomorphic:

1. Origin and age of the earth, internal Constitution of the earth, Geological processes - Exegetic and endogenic, ligneous, metamorphic and sedimentary rocks, distinguishing features of these three types of rocks, basic principle of structural geology, geology of dams and reservoirs.
2. Geomorphic cycle, geomorphic agents, definition of weathering, types of weathering physical and chemical, definition of erosion and denudation, cycle of erosion, landforms created by geomorphic agents.
3. Map terminology: map reading, topographic map, conventional symbols, locating points, map projections and classification of maps.
4. Aerial photogrametry: Definition, photo scale, classification of Ariel photographs, Air photo interpretation key elements, photo grammetric terminology.
5. Remote Sensing: Electromagnetic energy, Electro magnetic spectrum, various satellites and sensors, latest advancements in satellite remote sensing, General knowledge on Indian remote sensing Programmes.

Elementary Mathematics, Statistics and Computer Science:

1. Elementary Mathematics: Solutions of simultaneous linear equations, quadratic equations, progressions, perambulations and combinations, concepts of matrices and determinants.
2. Statistics: sample mean and variance, random variable, distributed and continuous distributions, mean and variance of distribution, correlation, coefficient, confidence intervals, goodness of fit, test, pairs of measurements, fitting straight lines.
3. Introduction to computers and programming: components of computers, characteristics of computer, modes of operation, type of computer algorithms, flowcharts, programming languages, operating systems, fundamentals, of C, structure of C, variables and constants, arithmetic and logical expressions, standard output-input functions, conditional statements and looping in C, various types of functions.

E N D

P T P G 2019
ENTRANCE EXAMINATION SYLLABUS

M. B. A.

(HR / Finance / Marketing / Systems)

Section A: Analytical / Reasoning ability

(a). Problem solving (b) Data Sufficiency

Section B: Mathematical ability

(a). Arithmetical ability (b). Algebraic and Geometrical ability (c). Statistical ability

Section C: Communication ability

(a). Vocabulary (b). Business Terms (c). Functional grammar (d). Reading comprehension

E N D