MVN UNIVERSITY, PALWAL
DEPARTMENT OF CSE/CIS
Syllabus for MVN Ph. D. Entrance Test (MPET 2016-17)

SECTION A
Data mining: Association, clustering, classification

SECTION B
Soft computing: ANN, Fuzzy, GA learning, training,
Artificial intelligence: searching, reasoning, planning, machine learning,

SECTION C
Computer networks: Introduction, Protocols and Layering, Physical and Link layers, Retransmissions,
Multiple access, Switching, Network layer, Inter networking, Intra- and Inter-domain Routing, Network Security

SECTION D
OOPS, Data structures, Software Engg
MVN UNIVERSITY, PALWAL
SCHOOL OF PHARMACEUTICAL SCIENCES
Syllabus for MVN Ph. D. Entrance Test (MPET 2016-17)

SECTION A


SECTION B


SECTION C

Pharmaceutical Chemistry: Structure, nomenclature, classification, synthesis, SAR and metabolism of the following category of drugs, which are official in Indian Pharmacopoeia and British Pharmacopoeia. Introduction to drug design. Stereochemistry of drug molecules. Hypnotics and Sedatives, Analgesics, NSAIDS, Neuroleptics, Antidepressants, Anxiolytics, Anticonvulsants, Antihistaminics, Local Anaesthetics, Cardio Vascular drugs ? Antianginal agents Vasodilators, Adrenergic & Cholinergic drugs, Cardiotonic agents, Diuretics, Antijpertensive drugs, Hypoglycemic agents, Antilipedmic agents, Coagulants, Anticoagulants,


SECTION D


Digital Signal Processing: Review of discrete time signals and systems, system properties, discrete LTI system, impulse response, convolution, system representation by difference equation, natural and forced responses, Review of Fourier transform, DTFT, DTFS and Z-transform, DFT and circular convolution, Basic concepts of IIR and FIR filters.

Control Systems: Basic control system components; block diagrammatic description, reduction of block diagrams. Open loop and closed loop (feedback) systems and stability analysis of these systems. Signal flow graphs and their use in determining transfer functions of systems; root loci, Routh-Hurwitz criterion, Bode and Nyquist plots. elements of lead and lag compensation, elements of Proportional-Integral- Derivative (PID) control.
Section C

ELECTROMAGNETICS: Elements of vector calculus: divergence and curl; Gauss’s and stoke’s theorems, Maxwell’s equations: differential and integral forms. Wave equation, pointing vector. Plane waves: propagation through various media; reflection and refraction; phase and group velocity; skin depth. Transmission lines: characteristic impedance; impedance transformation; Smith chart; Impedance matching; S-parameters, pulse excitation. Waveguides: modes in rectangular waveguides; boundary conditions; cut-off frequencies; dispersion relations. Basics of propagation in dielectric waveguide and optical fibers. Basics of Antennas: Dipole antennas; radiation pattern; antenna gain. Fundamental Concept of Antenna: Physical concept of radiation, Antenna parameters, Friis transmission equation, Radiation integrals and auxiliary potential functions. Radar Basics: Radar equation, receiver noise, probability of detection and signal-to-noise ratio, receiver bandwidth, target cross-section and cross-section fluctuations, statistical description of RCS, antenna coverage and gain, system coverage and gain, system losses.

Electronic Instrumentation: Units and dimensions, characteristics of Instruments. Analog concepts of measurement, Digital instruments. Intelligent Instruments, Biomedical Instruments, Sensors & Transducers.

Section D

DIGITAL ELECTRONICS, MICROPROCESSORS & MICROCONTROLLERS

Boolean algebra, minimization of Boolean functions; logic gates; digital IC families (DTL, TTL, ECL, MOS, CMOS). Combinational Circuit Design: Combinational design Methodology, Circuit Timings, Combinational PLDs, Decoders, Encoders, Tristate Devices, Adders, Subtractors, ALUs, Comparators, Multiplexers. Sequential Circuit Design: Synchronous Design Methodology, Circuit Timings, Latches and Flip-Flops, Sequential PLDs, Counters, Shift Registers, Synchronizer Failure and Metastability.

Memory, CPLDs and FPGAs: Read-only Memory, R/W Memory, Static RAM, Dynamic RAM, Complex Programmable Logic Devices, Field Programmable Logic Arrays.

8085 Microprocessor, 8086 Microprocessor, 8051 Microcontroller: Architecture, Pin Description, Addressing Modes, Instruction Set

ANALOG & DIGITAL COMMUNICATION: Amplitude Modulation, Frequency Modulation, Sampling theorem, quantization, quantization noise and signal to noise ratio analysis in PCM, DPCM and DM, Baseband transmission, intersymbol interference, Digital modulation techniques-BPSK, FSK, QPSK, MSK,

MVN UNIVERSITY, PALWAL
MECHANICAL ENGINEERING DEPARTMENT
Syllabus for MVN Ph. D. Entrance Test (MPET 2016-17)

SECTION A

ENGINEERING MATERIALS
Structure and properties of engineering materials, Concept of unit cell space lattice, Bravais lattices, and common crystal structures. Crystal Directions and planes. Miller indices X-ray crystallography techniques, Imperfections, Defects & Dislocations in solids.
Mechanical Properties: Stress strain diagram, Ductile & brittle material, Toughness, Impact Strength, Hardness, Fracture, Fatigue, Creep, Non-destructive testing (NDT)
Heat treatment,

Physical Metallurgy:

SECTION B

PRODUCTION ENGINEERING
Metal Casting: Design of patterns, moulds and cores; solidification and cooling; riser and gating design, design considerations. Forming: Plastic deformation and yield criteria; fundamentals of hot and cold working processes; load estimation for bulk (forging, rolling, extrusion, drawing) and sheet (shearing, deep drawing, bending) metal forming processes; principles of powder metallurgy. Joining: Physics of welding, brazing and soldering; adhesive bonding; design considerations in welding. Machining and Machine Tool Operations: Mechanics of machining, single and multi-point cutting tools, tool geometry and materials, tool life and wear; economics of machining; principles of non-traditional machining processes; principles of work holding, principles of design of jigs and fixtures. Metrology and Inspection: Limits, fits and tolerances; linear and angular measurements; comparators; gauge design; interferometry; form and finish measurement; alignment and testing methods; tolerance analysis in manufacturing and assembly. Computer Integrated Manufacturing: Basic concepts of CAD/CAM and their integration tools. Production Planning and Control: Forecasting models, aggregate production planning, scheduling, materials requirement planning. Inventory Control: Deterministic and probabilistic models; safety stock inventory control systems. Operations Research: Linear programming, simplex and duplex method, transportation, assignment, network flow models, simple queuing models, PERT and CPM. Lean Management: General concepts
SECTION C

ENGINEERING MECHANICS
Free body diagrams and equilibrium; trusses and frames; virtual work; Kinematics and Dynamics of particles and of rigid bodies in plane motion, including impulse and momentum (linear and angular) and energy formulations; impact. **Strength of Materials:** Stress and strain, stress-strain relationship and elastic constants, Mohr's circle for plane stress and plane strain, thin cylinders; shear force and bending moment diagrams; Bending and shear stresses **Theory of Machines:** Displacement, velocity and acceleration analysis of plane mechanisms; dynamic analysis of slider-crank mechanism; gear trains; flywheels. **Vibrations:** Free and forced vibration of single degree of freedom systems; effect of damping; Vibration isolation; resonance, critical speeds of shafts. **Design:** Design for static and dynamic loading; failure theories; fatigue strength and the S-N diagram; *principles* of the design of machine elements such as bolted, riveted and welded joints, shafts, spur gears, rolling and sliding contact bearings, brakes and clutches.

SECTION D

**FLUID MECHANICS & THERMODYNAMICS**

**Fluid Mechanics**
Fluid properties; fluid statics, buoyancy; control-volume analysis of mass, momentum and energy; fluid acceleration; differential equations of continuity and momentum; Bernoulli's equation; viscous flow of incompressible fluids; boundary layer; elementary turbulent flow; flow through pipes, head losses in pipes, bends etc. **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 correlations for heat transfer in flow over flat plates and through pipes; thermal boundary layer; effect of turbulence; **Thermodynamics:** Zeroth, First and Second laws of thermodynamics; thermodynamic system and processes; Carnot cycle, irreversibility and availability; behavior of ideal and real gases, properties of pure substances, calculation of work and heat in ideal processes; analysis of thermodynamic cycles related to energy conversion.
MVN UNIVERSITY, PALWAL
DEPARTMENT OF HUMANITIES - ENGLISH

Syllabus for MVNU Ph.D. Entrance Test (MPET) 2016-17

SECTION A

STUDY OF LANGUAGE
Speech Mechanism, Vowels, Consonants, Varieties of language, Dialects, Registers, Idiolects, etc., Morphology, Syntax, Semantics

SECTION B

LITERARY CRITICAL THEORIES
New Criticism, Stylistics, Structuralism, Deconstruction, Discourse Analysis, Feminism, Post Colonialism, Prostest Literature

SECTION C

ENGLISH LITERATURE (1400 TO PRESENT ERA)
British Poetry, British Prose, Fiction and Drama

SECTION D

INDIAN ENGLISH LITERATURE AND DIASPORIC LITERATURE
Prose, Poetry, Drama, Fiction (V.S. Naipaul, Salman Rushdie, Bharti Mukharjee, Vikram Seth, Himani Banerjee, Rohinton Mishtri, Uma Parmeshwaran)
MVN UNIVERSITY, PALWAL
Syllabus for MVNU Ph.D. Entrance Test (MPET) 2016-17
MATHEMATICAL SCIENCES

SECTION A


Complex Analysis: Algebra of complex numbers, the complex plane, polynomials, power series, transcendental functions such as exponential, trigonometric and hyperbolic functions. Analytic functions, Cauchy-Riemann equations. Contour integral, Cauchy’s theorem, Cauchy’s integral formula, Liouville’s theorem, Maximum modulus principle, Schwarz lemma, Open mapping theorem. Taylor series, Laurent series, calculus of residues. Conformal mappings, Mobius transformations.

SECTION-B


Algebra: Groups, subgroups, normal subgroups, quotient groups, homomorphism’s, cyclic groups, permutation groups, Cayley’s theorem, Lagrange’s theorem, class equations, Sylow & Cauchy’s theorem for abelian and Non-abelian group.

Rings, ideals, prime and maximal ideals, quotient rings, unique factorization domain, principal ideal domain, Euclidean domain. Polynomial rings and irreducibility criteria. Fields, finite fields, field extensions, Galois Theory.

SECTION-C

Ordinary Differential Equations (ODEs):
Existence and uniqueness of solutions of initial value problems for first order ordinary differential equations, singular solutions of first order ODEs, system of
first order ODEs. General theory of homogenous and non-homogeneous linear ODEs, variation of parameters, Sturm-Liouville boundary value problem, Green’s function.

**Partial Differential Equations (PDEs):**
Lagrange and Charpit methods for solving first order PDEs, Cauchy problem for first order PDEs. Classification of second order PDEs, General solution of higher order PDEs with constant coefficients, Method of separation of variables for Laplace, Heat and Wave equations.

**SECTION-D**

**Numerical Analysis:**

**Linear Integral Equations:**
Linear integral equation of the first and second kind of Fredholm and Volterra type, Solutions with separable kernels. Characteristic numbers and eigen functions, resolvent kernel.
MVN UNIVERSITY, PALWAL
School of Business Management & Commerce
Syllabus for MVN Ph. D. Entrance Test (MPET 2016-17)

SECTION A


SECTION B

Finance, Insurance and Banking

SECTION C

Marketing, Retail, Consumer Behaviour, Sales & Distribution, Advertising & sales Promotion, SCM, CRM, OSCM

SECTION D

General Awareness, Reasoning and Quantitative Aptitude.
MVN UNIVERSITY, PALWAL
SCHOOL OF LAW
Syllabus for MVN Ph. D. Entrance Test (MPET 2016-17)

SECTION A

Constitutional Law:- Preamble, Fundamental Rights and Duties, Directive Principles of Policy, President and his powers, The Union and the state Judiciary, Parliamentary Privileges, Legislative relations between the Union and the State, Emergency provisions and amendment of the constitution.


SECTION B


SECTION C


SECTION D


Research Methodology: Research Methods, Formulation of Research Problem, Hypothesis, Data collection and report writing.