

PROFORMA

DETAILS OF ENTRANCE TEST-2016

Name of the Faculty: **Faculty of Engineering and Technology**
Department/Centre: **Department of Electrical Engineering**
Name of the Program: **M. Tech in Electrical Power System Management (EPSM)**
About Program's Prospects: --
Summary of Entrance Test

S. No.	Test Components (Strike off, if not applicable)	Test Duration (in minutes)	Max. Marks	Passing Marks	Negative Marking (Yes/No)
1	(Objective/Multiple Choice Questions)	120 Minutes	85		Yes

Any other Information about the Entrance Test:

Important Instruction

1. Calculator and other Electronic gadgets are **not allowed**
2. **Permissible** material/equipment for entrance Test
 - Black/Bull Pen
 - Pencil

Detailed Syllabus for the Entrance Test

AC and DC Network Analysis

Nodal and Mesh Analysis, Theorems: Superposition, Thevenin, Norton, Maximum Power Transfer, Substitution, Compensation, Millman and Tellegan. Graph theory. Steady State and Transient Response of Networks. Resonance. Basic Filters. Two Port Networks, Three Phase Circuits. Signals and Systems, Fourier Series representation of Continuous Periodic Signals, Sampling Theorem, Fourier, Laplace and Z-Transforms.

Electrical Machines

Single Phase Transformer; Equivalent Circuit, Phasor Diagram, Tests, Regulation and Efficiency. Three Phase Transformer; Connections, Parallel Operation. Auto transformer. Energy Conversion Principles. DC machines; Types, Windings, Characteristics, Armature Reaction and Commutation, Starting and Speed Control. AC Machines: Three Phase Induction Motors- Principles, Types, Operation, Characteristics, Starting and Speed Control. Single Phase Induction Motors with Operating Characteristics. Synchronous Machine; Performance, Regulation and Parallel Operation of Generators. Servo and Stepper Motor.

Power Systems

Power Generation Concepts. Transmission Line Models and Performance. Insulation, Corona and Radio Interference. Distribution Systems. Per unit Quantities. Bus Impedance and Admittance Matrices. Load Flow. Voltage Control. Power Factor Correction. Economic Operation. Symmetrical Components. Fault Analysis. Principles of Over Current, Differential and Distance Protection. Relays and Circuit Breakers. System Stability Concept. Swing Curves and Equal Area Criteria.

Control and Measurement

Mathematical Modelling of Physical Systems. Principles of Feedback. Transfer Function. Block Diagrams. Signal Flow Graphs. Time Domain Analysis of Control System. Steady State Errors. Stability Concepts. Routh-Hurwitz's stability criterion. Routh and Nyquist Techniques. Bode Plot. Root-Locus Plots. Polar Plot. Design of Proportional, Integral, Derivative, PI, PID Controllers. Lag, Lead and Lead-Lag Compensation. Steady State Model. State Transition Matrix. Controllability and Observability. Power measurement in Single Phase and Three Phase Circuits. Classification of Energymeters. Power Factor Meter. Transducers.

Power Electronics and Drives

Characteristics and Operation of Power Diodes, MOSFET, IGBT and Thyristor Family: SCR, TRIACS, GTO. Triggering Circuits. Principles and Operation of Single Phase; Half Wave, Full Wave Converters and Choppers. Basic Concepts of Adjustable Speed DC and AC Drives.

(Prof. Majid Jamil)
Head