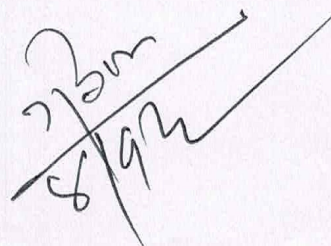


दमक नगरपालिका  
नगर कार्यपालिकाको कार्यालय  
इन्जिनियरिङ सेवा, इलेक्ट्रिकल इन्जिनियरिङ समूह, पाँचौ तह, इलेक्ट्रिसियन (सब-इन्जिनियर) वा सो सरहको पदको  
खुला प्रतियोगितात्मक परीक्षाको पाठ्यक्रम  
प्रथम र द्वितीय पत्र  
सेवासँग सम्बन्धित कार्य-ज्ञान (Job based knowledge)  
खण्ड (Section) (A)

1. **Electric Circuit:** Concept of resistance, inductance, capacitance and their role in electric circuits, Series, parallel and series-parallel combination of resistance, inductance and capacitance. Ohm's Law and Kirchhoff's Laws, Principles and applications of Super Position Theorem, Thevenin's theorem and Norton's theorem.
2. **Electromagnetism and Electrostatics:** Definition and formation of hysteresis loop, force on a current carrying conductor placed in magnetic field, Self-Inductance, Factors affecting the inductance of coil, Capacitor, Factors affecting the capacitance of capacitor, Time Constants in inductive and capacitive circuits
3. **A.C. Fundamentals:** Faraday's laws of electromagnetic induction, generation of alternating voltages and currents and their equations and waveforms, amplitude, frequency, phase, phase difference, average and rms values, A.C. through resistance, inductance, capacitance and through their combinations, single phase and three phase AC systems and their comparison. Use of J-operator in circuit analysis,
4. Single phase and three phase AC systems and their comparison, Star and Delta connection of Three phase Windings, Effect of unbalanced load in three phase system
5. **Earthling of Power system:** Causes of Over voltages and its protection, Neutral earthling, Body earthling, Lightning Arrestors- Types, Ratings and Characteristics, applications & locations
6. **DC Generator:** Types, Working principles, constructional details, Losses and efficiency, Parallel operation
7. **DC Motor:** Types, Working principles, Torque, Losses and efficiency, speed control, speed-torque characteristics.
8. **Measurement and instrumentation:** Types and applications of indicating, recording, integrating, analog and digital measurement, Concept of measurement of current, voltage, frequency, power and energy. Concept of maximum demand meter and TOD Meter,



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सेवासँग सम्बन्धित कार्य-ज्ञान (Job based knowledge)  
खण्ड (Section) (A)

Operating Principle, characteristics, construction features of Current Transformer and Potential Transformer and their application

9. **Utilization of Electrical Energy:** General concept of load curve and load duration curve, load factor, maximum demand, diversity factor, power factor, Causes of low power factor, its effect and method of correction. Principles of Illumination, Primary and Secondary illumination, street lighting, Factory lighting, Types of lamps

खण्ड (Section) (B)

10. **Generation of Electrical Energy:** Hydroelectric power plants: Merits and demerits, classifications and respective layouts, selection of sites, types of water turbines, their working principles and applications. Diesel electric power plants: Merits and demerits, selection of sites, elements of a diesel plant and its layout. Solar power generation: Photo voltaic or solar cells, Solar power generation technologies, Wind power generation: Wind turbines and wind power generation technology.
11. **Substations:** General lay out, Bus bars and Reactors, Automatic Voltage Regulator, Circuit Breakers, CTs, PTs, Relays, Batteries, Fire protection and grounding system etc.
12. **Transmission and Distribution Systems:** Introduction-Overhead lines and Underground cables, Types of Conductors and cables and their selection, Mechanical and electrical design of Overhead lines, Sag and Tension calculation, Earthling, Corona, Skin effect, Primary and Secondary distribution systems, Three phase four wire and single phase two wire distribution, voltage regulation, Importance of Communication in power system
13. **Transformer:** Working principle, E.M.F. equation, transformer at no load and at loaded condition, Voltage regulation, Losses and Efficiency, Cooling, Parallel operation of Single phase and Three phase transformer, Tap changing, Noises and Temperature Rise, No-load and full load test of transformers.

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खण्ड (Section) (B)

14. Introduction and types of single-phase A. C. Motor (Motors and their characteristics for particular service-Domestic use.)
15. **Three phase induction motor:** Construction, Principle of operation, torque speed characteristics, stand still and running condition, method of starting
16. Introduction, Types, Constructional details and principle of operation of Synchronous Generator (Alternator) and Synchronous Motor, Parallel operation and Synchronizing of Alternator
17. **Fundamentals of Protection systems:** Fuses, MCB Isolators, Contactors, Classification, Construction and Operating principle of Circuit Breakers
18. Principles of cost estimate for distribution system for domestic installation and wiring
19. **Basic Electronics:** Characteristics of diode, transistor and thyristor, Rectifier and filter, inverter, speed control of DC and AC motor by using thyristor

खण्ड (Section) (C)

१. नेपालको संविधानको भाग १ देखि ५ तथा ५ देखि ९ सम्म अनुसूचीहरू
२. स्थानीय सरकार संचालन ऐन, २०७४ सम्बन्धि जानकारी

