Roll No:

KARPAGAM COLLEGE OF ENGINEERING COIMBATORE-641032

B.E Electronics and Communication Engineering / B.E Electronics and Telecommunication Engineering

Semester:II

15LC09/15TC09 ELECTRICAL ENGINEERING

Model Examinations

Time: 3 Hours **Session:** **Maximum: 100 Marks**

Answer ALL the following Questions

PART-A (10 x 2 = 20 Marks)

1 Define magnetic flux density and magnetic field strength.

2 Calculate the force experienced by the conductor of 20cm long, carrying 50 amperes, placed at right angles to the lines of force of flux density $10X10^{-3}$ Wb/m^2 .

3 Classify Batteries.

4 State the significance of seperators.

5 List any two advantages of fluorescent lamp.

6 Define the term luminious intensity

7 Differenciate Conventional and Non-Conventional Energy Sources

8 Mention the advantages of high voltage transmission

9 Mention any four types of earthing procedures.

10 What is the function of fuse in an electrical circuit?

Answer ALL the following Questions

PART-B (5 x 16 = 80 Marks)

11 (a)	(i)	Derive the expression for mmf,reluctance and flux for series magnetic circuit.Also draw its electrical equivalent circuit.	(7)
	(ii)	An Iron ring of circular cross sectional area of 3.0 cm^2 and mean diameter of 20 cm is wound with 500 turns of wire and carries a current of 2.09 A to produce the magnetic flux of 0.5 m Wb in the ring. Determine the permeability of the material.	(5)
	(iii)	Mention any four similarities of Magnetic and Electric Circuits	(4)
		(OR)	
(b)	(i)	Derive the expression for magnitude of mutually induced e.m.f	(6)
	(ii)	Derive the expression for co-efficient of coupling	(6)
	(iii)	Discuss the various factors affecting self inductance of a coil.	(4)
12 (a)	(i)	Explian the construction and working principle of Lead acid battery with neat diagram.	(6)
	(ii)	Compare Lead acid battery with Ni-Cd and Ni-Fe batteries.	(4)
	(iii)	Explian the construction and working principle of Nickel-Iron battery with neat diagram.	(6)
		(OR)	
(b)	(i)	Explian the construction and working principle of Nickel-Cadmium battery with neat diagram.	(6)

	(ii)	Compare primary cells and secondary cells	(4)
	(iii)	State and Explain What is ampere-hour and watt-hour efficiency	(6)
13 (a)	(i)	Explain the construction and working principle of fluorescent lamp with neat diagrams.	(7)
	(ii)	With neat diagram explain the construction and working principle of sodium vapour lamp.	(5)
	(iii)	Mention any two advantages and disadvantages of sodium vapour lamp.	(4)
		(Or)	
	(i)	Along with necessary diagrams explain the construction and working principle of mercury vapour lamp.	(6)
	(ii)	State and prove laws of illumination	(6)
	(iii)	Define the terms Light and Radiant Efficiency.	(4)
14 (a)	(i)	Draw and explian the schematic arrangements of thermal power plant	(7)
	(ii)	List out the differences between under-ground and over-head lines of power transmission.	(5)
	(iii)	Explain the variuos components of distribution system.	(4)
		(OR)	
(b)	(i)	Draw and explian the schematic arrangement of hydro-electric power plant	(6)
	(ii)	How the wind energy is converted into electrical energy? Explain in detail.	(6)
	(iii)	State the advantages and disadvantages of nuclear power plant	(4)
15 (a)	(i)	With neat cross sectional view explain pipe earthing method	(6)
	(ii)	What are the safety precautions to be followed while working with electricity.?	(6)
	(iii)	Draw the single line diagram of power system and mention the differnet levels of voltages are associated with generation, transmission and distribution.	(4)
		(OR)	
(b)	(i)	Explain the construction and working principle of HRC fuse.	(6)
	(ii)	Give the elementary first aid steps to be followed against electrical shock.	(6)
	(iii)	Distinguish Conductor and Insulator materials	(4)

Staff Incharge **HoD/EEE**