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Total No. of Questions : 09] [Total No. of Pages : 02

Paper ID [A0117]

(Please fill this Paper ID in OMR Sheet)

B.Tech. (Sem. - 1st/2nd)

BASIC ELECTRICAL & ELECTRONICS ENGINEERING (EE - 101)

Time : 03 Hours **Maximum Marks : 60**

Instruction to Candidates:

1) Section - A is **Compulsory**.
2) Attempt any **Five** questions from Section - B & C.
3) Select at least **Two** questions from Section B & C.

Section - A

Q1) **[Marks : 2 Each]**

a) State Ohm's law and give its limitations.

b) Define Root Mean Square value of a sinusoidal wave.

c) State Faraday's laws of electromagnetic induction.

d) Give significance of back emf in dc motors.

e) State significance of damping torque in measuring instruments.

f) What is meant by Creeping in energy meters?

g) Give advantages and limitations of foil strain gauges.

h) Define ripple factor in rectifiers and give its significance.

i) Convert the decimal number 39.75 to hexadecimal.

j) What is the difference between combinational and sequential circuit?

Section - B

[Marks : 8 Each]

Q2) (a) State and explain Kirchoff's laws.
(b) Discuss the temperature dependence of metals and semiconductors.

Q3) (a) Discuss the RLC parallel resonant circuit.
(b) A coil of 20Ω resistance and 0.2H inductance is connected in parallel with a capacitor of 100 μF capacitance. Find the frequency of resonance and the effective impedance at resonance.

Q4) (a) Compare electric and magnetic circuits. Establish the relationship between magneto motive force, magnetic flux and magnetic reluctance.
(b) What is meant by armature reaction in dc generator? Discuss external characteristics of dc generator.

Q5) (a) Describe the construction and working of an attraction type moving iron voltmeter. Give the sources of error.
(b) Discuss the salient features of Multimeters.

Section - C

[Marks : 8 Each]

Q6) (a) Discuss construction, working principle, merits and demerits of LVDT.
(b) Justify the statement that piezo-electric transducers cannot be used for measurement of static displacements.

Q7) (a) Explain how the process of avalanche breakdown occurs in a p-n junction diode. How is it different from zener breakdown?
(b) Discuss the working of a full wave rectifier.

Q8) (a) What are characteristics of an ideal operational amplifier? Discuss the working of inverting amplifier.
(b) Give pin configuration of IC 555.

Q9) (a) What are the different logic gates? Give their truth tables.
(b) Give the logic diagram of clocked RS flip flop. Discuss its working.