

- Q.24 What are the advantages of Electrical energy over other types forms of energies ?
- Q.25 State Ohm's Law alongwith the conditions required for ohm's Law.
- Q.26 What is the difference between A.C. and D.C. ?
- Q.27 State and explain Faraday's law of Electromagnetic Induction.
- Q.28 Explain with diagram what happened to a current carrying conductor when it is placed in a magnetic field ?
- Q.29 What are the advantages of a 3-Phase system over a single phase system ?
- Q.30 Write down the causes of Low Power Factor alongwith disadvantages of it.
- Q.31 What do you mean by Primary and Secondary cells ?
- Q.32 State and explain Kirchhoff's Law .
- Q.33 What are the steps that are to be taken for the care and maintenance of a Lead Acid Battery ?
- Q.34 What is Electro-magnetic Induction? How many types of emf is induced by it ? Explain.
- Q.35 Derive an expression for the inductances connected in series.

SECTION-D

- Note:** Long answer type questions. Attempt any two questions out of three questions. (2x10=20)
- Q.36 Derive relationship between phase voltage and line voltages; phase current and line current in a star connected 3-Phase system.
- Q.37 Describe with diagram power measurement in a 3-Phase circuit by using two wattmeter method.
- Q.38 What would be the equation for current as well as power when alternating current is applied to a RL series Circuit.

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Roll No.

**2nd Sem / Branch : Elect, Power Stat, Engg.,
Elect, & Eltx Engg., Fire Tech & Safety**

Subject:- Fundamentals of Electrical Engineering

Time : 3Hrs.

M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory (10x1=10)

- Q.1 The electrolyte used in Nickel cadmium cells is:
a) Dilute Sulphuric Acid
b) Potassium Hydroxide
c) Hydro Chloric Acid
d) Nitric Acid
- Q.2 What is the unit of mmf?
a) Ampere Turns (AT) b) Watt
c) Joule d) Volts
- Q.3 The value of frequency for alternating current in India is _____.
a) 60 Hz b) 0 Hz
c) 50 Hz d) 40 Hz
- Q.4 In a A.C. circuit, in a purely resistive circuit, the voltage is _____ with the current .
a) Out of phase by 120° b) In Phase
c) Lag d) Lead
- Q.5 Which law states that, "Whenever a conductor is placed in a varying magnetic field, an electromotive force is induced"
a) Lenz's Law b) Ohm's Law
c) Faraday's Law d) Fleming's Law

- Q.6 Power in a three phase system is given by:
- 3 Watt Meter Method
 - 2 Watt Meter Method
 - Using 3 Phase Watt Meters
 - Any of above Method
- Q.7 The Power factor of a purely resistive load is:
- Unity
 - Lagging
 - Zero Lagging
 - Zero Leading
- Q.8 Which form of energy can be easily converted into other forms of energy.
- Mechanical Energy
 - Electrical Energy
 - Chemical Energy
 - Heat Energy
- Q.9 The Formula for two equivalent resistance in parallel is given by.
- $R=R_1+R_2$
 - $R=\frac{R_1 \times R_2}{R_1+R_2}$
 - $R=\frac{R_1+R_2}{R_1 \times R_2}$
 - $R=R_1 \times R_2$
- Q.10 A sinusoidal wave repeat itself after an interval of
- 180° Electrical
 - 180° Mechanical
 - 360° Electrical
 - 360° Mechanical

SECTION-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

- Q.11 The reluctance of a magnetic circuit is similar to _____ of an electric circuit.
- Q.12 Average power dissipated in a pure inductor is _____.

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- Q.13 In a 3-Phase Delta connected system V_L is equal to _____.
- Q.14 Ceiling fans in our houses operate on D.C. (True/False).
- Q.15 What do you mean by Power Factor ?
- Q.16 The red mark on the terminal of a battery indicates a negative terminal. (True/False).
- Q.17 Define Permeability with reference to magnetic circuit.
- Q.18 On discharging the specific gravity of the electrolyte in a secondary cell is _____.
- Q.19 What is conductance ?
- Q.20 Define Charge with its unit.

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

- Q.21 What is Resistance ? Derive an expression for two resistances connected in parallel with each other.
- Q.22 Match the following electrical quantities with their units

Quantity	Units
1. Voltage	Ohms
2. Current	Joule
3. Resistance	Watt
4. Power	Ampere
5. Energy	Volts

- Q.23 Define the following terms with reference to A.C. circuits.
- Instantaneous Value
 - Average Value
 - R.M.S. Value
 - Form Factor
 - Admittance

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