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2nd Sem / 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 shape of AC is
- a) Straight horizontal Line
- b) Square wave
- c) Sine wave
- d) Triangular wave

Q.2 In India, Frequency of DC supply is
- a) 0 b) 50
- c) 100 d) 230

Q.3 Equivalent resistance of two resistance 10 Ohm each in series is
- a) 0 b) 5
- c) 10 d) 20

Q.4 The resistance of wire varies inversely as
- a) Area of cross-section
- b) Length
- c) Resistivity
- d) Temperature

Q.5 Average emf of Nickle & Cadmium cell is
- a) 1.0 V b) 1.2 V
- c) 1.8 V d) 2.0 V

Q.6 The ideal voltage source should have
- a) Large value of emf
- b) Small value of emf
- c) Zero source resistance
- d) Infinite source resistance

Q.7 Which of the system is four wire system:
- a) Delta b) Star
- c) Both star and delta d) None

Q.8 An ideal current source has
- a) Zero internal resistance
- b) High internal resistance
- c) Infinite internal resistance
- d) Very low internal resistance

Q.9 The eddy current loss in the transformer is reduced by
- a) Reducing the resistance of core
- b) Using laminated core
- c) Both A & B correct
- d) Not possible of reduce

Q.10 The area hysteresis loop is a measure of
- a) Permittvity
- b) Susceptance
- c) Energy loss per cycle
- d) Magnetic Flux

SECTION-B

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

Q.11 Unit of voltage is_____.

Q.12 Two resistance of value 10 ohm & 20 ohm are connected in parallel, what is the total equivalent resistance of the parallel combination_____?

Q.13 Unit of flux is_____?

Q.14 Power consumed in pure inductive circuit is zero. (True/False)

Q.15 In star connection, line voltage V(L)=

Q.16 Define magnetic flux.

Q.17 From factor of Sinusoidal wave is_____.

Q.18 Write any one primary cell.

Q.19 Define peak factor.

Q.20 State Ohm's law.

SECTION-C

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

Q.21 Explain advantages of electrical energy over other forms of energy.

Q.22 Explain inductances in series and parallel.

Q.23 Compare a magnetic circuit with an electric circuit.

Q.24 State and explain Superposition theorem with example.

Q.25 Draw the circuit diagram to measure voltage, current, power and energy in an AC circuit.

Q.26 Explain Faraday's law of electromagnetic induction.

Q.27 State and explain ohm's law.

Q.28 Explain Active power, reactive power and apparent power.

Q.29 Derive an expression for the force on a current carrying conductor placed in a magnetic field.

Q.30 What are the advantages of 3-phase system over 1-phase system.

Q.31 Find the expression for energy stored in an inductor.

Q.32 Write short note on j-notation and its application.

Q.33 Differentiate between A.C. and D.C.

Q.34 Write a short note on care and maintenance of lead acid batteries.

Q.35 What is power factor and what are the disadvantages of low power factor?

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

Q.36 Explain principle, construction and applications of lead acid batteries.

Q.37 Write short note on any two:

a) 3-phase balanced and unbalanced circuits.

b) Practical importance of power factor.

c) Energy stored in a magnetic field.

Q.38 Compare star and delta connection of 3-phase connection and derive relationship between phase voltage & line voltage, phase current & line current in star and delta connections?