Total No. of Questions : 6

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EIS-179

B.E. (IInd Sem.) (CGPA) Civil Engg. Exam.-2016

BASIC ELECTRICAL & ELECTRONICS ENGG.

Paper - CE-203

Time Allowed : Three Hours
Maximum Marks : 60

Note : Attempt all questions.
Question No. I is compulsory.

Q.I Choose the correct answer— 2 each

(i) The temperature coefficient of metal like copper, iron is—

(a) Positive large
(b) Negative large
(c) Very small positive
(d) Very small negative

(ii) The unit of power is—

(a) Farad
(b) Volt
(c) Watts
(d) Hertz

(iii) The magnetic flux can be compared with —

(a) Electro static flux (2)

(b) Electric current

(c) Magnetic current

(d) Magneto motive force

(iv) The frequency of A.C. in India is—

(a) 25 Hz

(b) 60 Hz

(c) 50Hz

(d) 100 Hz

(v) Transformer core is laminated to reduce—

(a) Copper loss (2)

(b) Windage loss

(c) Hystersis loss

(d) Eddycurrent loss

Unit-I

Q.II (a) State and explain the following— 5

(i) mmf & reluctance

(ii) Statically and dynamically induced emf

(iii) Ampere's circuitary law

(b) In the circuit shown in figure-1 find current in various branch— 5

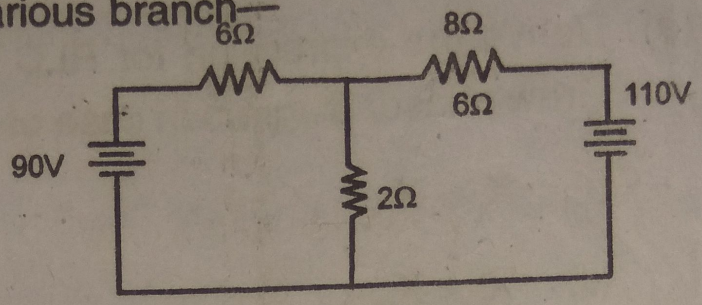

Figure-1

or

(a) State and explain Kirchoff's current law and Kirchoff's voltage law. 5

(b) (i) Compare the electric circuit with magnetic circuits

(ii) State and explain thevenin theorem

Unit-II

Q.III (a) Explain the following terms— 5

(i) Form factor

(ii) Peak factor

(iii) Power factor

(iv) Phase and phase difference

(b) Draw 3ϕ star connection and three phase delta connection and write down the equations for phase voltage, line voltage phase current and line current in both the cases. 5

or

(a) Derive the expression for RLC series circuit. Draw phasor diagram in case of—

(i) $X_L > X_C$

(ii) $X_L < X_C$

Draw impedance triangle.

(b) (i) What do you understand by three phase systems. Draw wave form of a three phase system.

(ii) What are balanced load and unbalanced load.

Unit-III

Q.IV (a) Explain working principle of a transformer. Derive the emf equation of transformer. What is transformation ratio. 5

(b) What are the various types of losses which occurs in a transformer. What is efficiency. 5

or

(a) Draw the phasor diagram of transformer under no load and lagging load conditions.

(b) Why we perform open circuit and short circuit test in a transformer. 5

Unit-IV

Q.V (a) Explain the constructional features of a d.c. machine. 5

(b) A 4-pole d.c. motor has a wave-wound armature with 594 conductors. The armature current is 40A and flux per pole is 7.5 mwb. Calculate H.P. of motor when running at 1400 rpm. 5

or

(a) Draw the principle diagram of shunt wound. Series wound and compound generator. 5

(b) Explain armature reaction. What are the effect of armature reaction and methods of compensating armature reaction. 5

Unit-V

Q.VI (a) Draw PN junction diode. Explain depletion region and explain also the working of PN junction diode in forward biasing and reverse biasing mode. 5

(b) Draw the block diagram of CRO and explain its various components. 5

or

(a) Explain the following—

(i) Zener diode

(ii) Photo diode

(iii) BJT

(b) Explain the characteristics and application of—

(i) UJT

(ii) Photo transistor

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