

(3 Hours)

[Total Marks: 80]



1. Question No.1 Compulsory.

2. Answer any three out of the remaining questions.

Q.1. Attempt any four of the following questions:

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- a) Explain principle of oscillator with Barkhausen criteria
- b) Why single phase induction motor is not self-starting. How it is self-started?
- c) Explain various ideal characteristics of OPAMP741
- d) Compare DIAC with TRIAC.
- e) Derive the emf equation of dc motor.

Q.2. a) Explain the following i) field winding ii) Armature winding iii) commutator
iv) brushes v) yoke .

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b) Compare 3point starter with four point starter with neat diagram.

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Q.3 a) Draw the equivalent circuit of transformer along with its phasor diagram for inductive load.

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b) Draw and explain Torque-speed characteristics of 3 phase induction motor.

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Q.4 a) Explain the working of stepper motor and its industrial applications

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b) Discuss "transmission and distribution" of electric power.

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Q.5 a) Explain op-amp as integrator and differentiator with neat diagram. Derive its necessary conditions.

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b) Explain RC phase shift oscillator with neat circuit diagram and derivation of frequency

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Q.6 Write short notes on

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- a) Condition for maximum efficiency for the transformer
- b) Hartley oscillator
- c) Transistor Analogy of SCR
- d) Boolean algebra laws and properties.