

Sem-IV

Electrical & Electronics engg / PROD / 10-12-15



Q.P. Code : 5437

(3 Hours)

[ Total Marks : 80

- N.B. : 1. Q. No. 1 is compulsory.  
2. Answer any three out of remaining questions.  
3. Figures to the right indicate full marks

1. Attempt any four of the following : 20
- (a) What is an operational Amplifier ? Write the characteristics of an ideal Op-Amp.
  - (b) Write classifications of D.C. Motors and their applications.
  - (c) Explain Torque speed characteristics of three phase induction motor.
  - (d) Explain working principle of Transformer.
  - (e) Draw and explain V-I characteristics of SCR.
2. (a) Explain any three applications of an Op-Amp with circuit diagram. 10  
(b) Explain various speed control methods of DC series motor. 10
3. (a) Draw and explain transformer equivalent circuit. 10  
(b) Explain programmable Logic controller and its industrial applications. 10
4. (a) A 250V dc shunt motor has an armature resistance of  $0.5 \Omega$ . It draws 10A armature current, when supplying full load torque, running at 1000rpm. what resistance must be inserted in series with the armature winding to reduce the speed to 750rpm at the same torque ? What will be the speed, if load torque is halved with this resistance in the circuit ? 10  
(b) Explain the function and applications of Timers and relays. 10
5. (a) Explain resistance welding process and its control using SCR with neat circuit diagram. 10  
(b) Explain the working principle of A.C. commutator motor and its applications. 10
6. Write short notes on any four of the following : 20
- (a) Stepper motor
  - (b) Circuit breaker
  - (c) Speed control of Induction motor.
  - (d) Encoder and decoder.
  - (e) 8085 Microprocessor.

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