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**Question Paper Code: 53326**

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2019

Third Semester

Electronics and Instrumentation Engineering

15UEE326 - ELECTRICAL TECHNOLOGY

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

- The material for commutator brushes is generally made of
  - Mica
  - Copper
  - Cast iron
  - Carbon
- Two point starters are used in
  - Shunt Motor
  - Series Motor
  - Compound Motor
  - Slip Ring Induction Motor
- A shunt DC motor works on AC mains
  - unsatisfactorily
  - satisfactorily
  - not at all
  - none of these
- A Constant Flux Machine can also be called as
  - Transformer
  - Alternator
  - Motor
  - Generator
- The starting torque of a simple squirrel-cage motor is
  - low
  - increases as rotor current rises
  - decreases as rotor current rises
  - high
- Rotor resistance starter is used in
  - Squirrel Cage Induction Motor
  - Slip Ring Induction Motor
  - DC Series Motor
  - DC Compound Motor

7. If the field of a synchronous motor is under excited the power factor will be  
(a) lagging                      (b) leading                      (c) unity                      (d) more than unity
8. Motor which is not capable of self starting is  
(a) Series Motor                      (b) Shunt Motor  
(c) Three Phase Induction Motor                      (d) Synchronous Motor
9. Which motor is used in Grinders and washing machine?  
(a) BLDC motor                      (b) Stepper Motor  
(c) Servo motor                      (d) Split Phase induction Motor
10. Motor that is used in Dot Matrix printer and floppy disk drive  
(a) BLDC motor                      (b) Stepper Motor  
(c) Servo motor                      (d) Split Phase induction Motor

PART - B (5 x 2 = 10 Marks)

11. What is the function of commutator and brushes in a D.C Machine?
12. Define voltage regulation of transformer.
13. Mention the condition for three phase induction motor to attain its maximum torque.
14. Define hunting.
15. What is the need for centrifugal switch in a Capacitor Start Motor?

PART - C (5 x 16 = 80 Marks)

16. (a) Derive the emf equation of a D.C Generator and list the factors affecting the generated voltage and terminal voltage. (16)

Or

- (b) Explain the constructional details and principle of DC generator. (16)
17. (a) Explain in detail about phasor diagram of single phase transformer on resistive, inductive and capacitive load conditions. (16)

Or

- (b) Explain how equivalent circuit parameters of a transformer are obtained by conducting Open Circuit and Short Circuit tests. (16)

18. (a) Explain in detail about equivalent circuit of three phase induction motor. (16)

Or

(b) Explain about any two starters used for a Squirrel Cage Induction Motor. (16)

19. (a) Explain the principle of operation and constructional details of alternators with neat sketch. (16)

Or

(b) (i) Write a short note on V curve of synchronous motor. (8)

(ii) Write a short note on starting methods of synchronous motor. (8)

20. (a) Explain the operation and characteristics of single phase capacitor start capacitor run motors. State its applications. (16)

Or

(b) Explain the principle of operation and constructional details of switched reluctance motor. (16)

