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Question Paper Code: 33323

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2018

Third Semester

Electronics and Communication Engineering

01UEE323 - ELECTRICAL MACHINES

(Common to Instrumentation and Control Engineering and Mechanical Engineering)

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. What is the necessity of starter in a D.C. motor?
2. Define armature reaction.
3. What is the function of breather in transformer?
4. Why is transformer rated in KVA?
5. Why Number of Stator and Rotor Poles be same?
6. Why an induction motor is called rotating transformer?
7. Define voltage regulation of an alternator.
8. What is synchronous condenser?
9. What is a universal motor?
10. List few applications of single phase induction motors.

PART - B (5 x 16 = 80 Marks)

11. (a) (i) Explain the speed control methods in DC machines. (10)
(ii) Derive the torque equation of a DC motor? (6)

Or

- (b) Discuss about the various performance characteristics of DC shunt and series motor. (16)
12. (a) Explain the construction details and working of core type transformer with neat sketches. (16)

Or

- (b) Develop an equation for induced EMF in a transformer winding in terms of flux and frequency. (16)
13. (a) Explain with neat diagram, the construction details and working principle of a 3 Φ induction motor. (16)

Or

- (b) Explain about the working of autotransformer and star-delta starter used in 3 phase induction motor. (16)
14. (a) Explain with a neat diagram the load characteristics of an alternator when it delivers load at unity, lagging and leading power factors. (16)

Or

- (b) With neat sketches describe the construction and principle of operation of salient pole alternator. (16)
15. (a) Explain clearly the operation of a single phase induction motor. Discuss the different starting methods of single phase induction motors. (16)

Or

- (b) Explain the following with neat diagrams
- (i) Stepper motor (8)
- (ii) Repulsion motor (8)