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**Question Paper Code: 33030**

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2017

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 back EMF 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. What happens if the air gap flux density in an Induction motor increases?
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. Define holding torque.

PART - B (5 x 16 = 80 Marks)

11. (a) With neat diagram explain the working of 3 point starter. (16)

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 $\Phi$  induction motor. (16)

Or

(b) Explain about the working of autotransformer and star-delta starter used in 3 phase induction motor. (16)

14. (a) Describe the various methods of starting the synchronous motor. (16)

Or

(b) With neat sketches describe the construction and principle of operation of salient pole alternator. (16)

15. (a) Explain the principle of operation of a single phase induction motor using double field revolving theory. (16)

Or

(b) Explain the following with neat diagrams

(i) Stepper motor (8)

(ii) Repulsion motor (8)