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Question Paper Code: 31306

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

Fourth Semester

Electronics and Instrumentation Engineering

01UEE426 - PRINCIPLES OF ELECTRICAL MACHINES

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. Write the torque equation of DC motors.
2. List the different types of DC generator. Also write their applications.
3. Why Transformer rating is in kVA?
4. What is ideal transformer?
5. What is slip?
6. Write the condition for maximum starting torque in induction motor.
7. What is a synchronous capacitor?
8. List out the different torques of a synchronous motor.
9. What is a universal motor?
10. What are the types of single phase induction motor?

PART - B (5 x 16 = 80 Marks)

11. (a) Explain the construction and operating principle of DC generator with neat sketch. (16)

Or

- (b) Draw and explain the various characteristics of DC series motor. (16)

12. (a) Explain the construction and operating principle of transformer with neat sketch. (16)

Or

(b) Explain no-load and impedance tests in transformers with neat diagram. (16)

13. (a) With neat diagram explain the construction and operation of three phase induction motor and also derive its torque equation. (16)

Or

(b) (i) Draw the equivalent circuit of a 3 phase induction motor. (8)

(ii) Explain the starting of 3 phase induction motor using star-delta starter. (8)

14. (a) Draw and explain the vector diagram of a loaded alternator with different power factor. (16)

Or

(b) Discuss in detail about hunting and V curves for synchronous motor. And also discuss how to prevent the hunting in synchronous motor. (16)

15. (a) With neat sketch explain the operation of capacitor start capacitor run single phase induction motor. (16)

Or

(b) (i) Discuss in detail the principle operation of Hysteresis motor. (8)

(ii) Discuss the construction detail and working principle of switched reluctance motor. (8)
