

ANNA UNIVERSITY COIMBATORE
B.E./ B.TECH. DEGREE EXAMINATIONS: MAY / JUNE 2010
REGULATIONS: 2008
THIRD SEMESTER: ECE
080290008 - ELECTRICAL ENGINEERING

TIME: 3 Hours

SKCET

Max.Marks: 100

PART-A

(20 x 2 = 40 MARKS)

ANSWER ALL QUESTIONS

1. Mention the types of electric braking of dc motor
2. State the condition for maximum efficiency of a transformer.
3. Express the emf equation of DC generator?
- 4 What is the necessity of having starter with DC motor?
5. What are the different losses in a transformer?
6. Define voltage regulation of transformer?
- 7 What are the advantages of auto-transformer over two-winding transformer?
- 8 Write down the significance of back emf in the D.C motor.
- 9 A 6 pole, three phase induction motor runs at 800 rpm at load. Determine the value: ' of
Slip at this load condition
- 10 Why is single phase induction motor not self starting motor?
- 11 What are the applications of universal motor?
12. What is locked rotor torque?
13. Why slots on the rotor of induction motor are skewed?
14. What are the uses of damper windings in synchronous machine?
15. List the different types of torques associated with synchronous motor

16. Define pitch factor and distribution factor as applied to alternator.
17. What is the voltage range for transmission and distribution system?
18. Enumerate the purpose of Trans-positioning of Transmission lines.
19. Why HVDC transmission is preferred in long distance power transmission
20. What is corona loss?

PART- B

(5 x 12 = 60 MARKS)

ANSWER ANY FIVE QUESTIONS

21. Draw the layout and single line diagram of a main power-receiving substation with the following details,

2 Nos of 440kV incoming lines, Duplicate bus bar with bus coupler arrangement 2 Nos of 22kV outgoing lines

3 Nos of 66kV lines, necessary CB's and Lighting arresters?
22. With neat diagram Explain the armature speed control method of DC shunt motor
23. State the assumptions made in the potier method and explain the effect of these assumptions on the accuracy of the voltage regulation.
24. Discuss briefly the operation and characteristics of (i) Repulsion motor (ii) Universal motor.

25. Derive the emf equation of a single phase transformer. Discuss the constructional features of a transformer
26. The power input to a 500 V, 50 Hz, 6 poles, 3-phase induction motor running at 975 rpm is 40 kW. The stator losses are 1 kW and friction and windage losses total 2 kW. Calculate, (i) Slip (ii) Rotor Cu Loss (iii) O/P Horse power (iv) Efficiency
27. Draw and explain the load characteristics for shunt, series and over-compounded dc generator?
28. A 4 pole, lap wound, 750 rpm, dc shunt generator has armature resistance of 0.4 ohm and field resistance of 200 ohm. The armature has 720 conductors and flux per pole is 30 mWb. If the load resistance is 15 ohm, find the terminal voltage?

*****THE END*****