Reg. No. : | | | | | | | | | | |

Question Paper Code: 34326

B.E. / B.Tech. DEGREE EXAMINATION, AUGUST 2021

Fourth Semester

Electronics and Instrumentation Engineering

01UEE426 - PRINCIPLES OF ELECTRICAL MACHINES

(Regulation 2013)

Duration: 1:45 hour Maximum: 50 Marks

PART A - (10 x 2 = 20 Marks)

(Answer any ten of the following questions)

1. Write the emf equation for (i) DC motor (ii) DC generator.
2. The armature of a DC machine is laminated. Why?
3. Why Transformer rating is in kVA?
4. Define all day efficiency of a transformer.
5. What is slip?
6. State the condition for maximum starting torque produced in an induction motor.
7. What is a synchronous capacitor?
8. What is hunting in synchronous machines and how it is suppressed?
9. What is a universal motor?
10. A single phase induction motor is not self starting. Justify.
11. The armature of a DC machine is laminated. Why?
12. Write the emf equation for (i) DC motor (ii) DC generator.
13. What is meant by turns ratio of a transformer
14. Define all day efficiency of a transformer.
15. State the condition for maximum starting torque produced in an induction motor.

PART – B (3 x 10= 30 Marks)

(Answer any three of the following questions)

16. Explain the construction and operating principle of DC generator with neat sketch. (10)

17. Explain the construction, operating principle of transformer with neat sketch. (10)

18. Derive an expression for the torque equation of a 3-phase induction motor. (10)

19. Draw the phasor diagram of a loaded alternator for the following conditions. (i) unity power factor (ii) power factor lag and (iii) power factor lead and then explain the diagram. (10)

20. Explain the principle of operation of a capacitor start and run single phase induction motor and mention its advantages. (10)