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

Question Paper Code: 34302

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

Fourth Semester

Electrical and Electronics Engineering

01UEE402 - AC MACHINES

(Regulation 2013)

Duration: 1:15hrs Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. The power factor of a Squirrel Cage Induction motor is

   (a) Low at light loads only (b) Low at heavy loads only
   (c) Low at light and heavy loads (d) Low at rated load only

2. Which of the following quantity in Squirrel Cage Induction motor does not depend on its slip?

   (a) Reactance (b) Speed (c) Induced emf (d) frequency

3. An Induction motor has a I_{SC} current 7 times the I_{FL} and Full load slip of 4%. Its starting torque is _____ times the full load torque.

   (a) 7 (b) 1.96 (c) 4 (d) 49

4. A 3-phase, 4-pole, 50*Hz* induction motor runs at a speed of 1440 *rpm*. The rotating field produced by the rotor rotates at a speed of

   (a) 1500 (b) 1440 (c) 60 (d) 0

5. In a synchronous machine, if the field flux axis is ahead of armature field axis in the direction of rotation , the machine operating is

   (a) Synchronous motor (b) Synchronous generator
   (c) Asynchronous motor (d) Asynchronous generator

6. In a synchronous generator, delivering lagging power factor load

(a) The excitation emf leads terminal voltage by the power angle
(b) The excitation emf lags terminal voltage by the power angle
(c) The excitation emf leads terminal voltage by the power factor angle
(d) None of these

7. Synchronous motor can operate at

(a) Lagging power factor only
(b) Leading power factor only
(c) Unity power factor only
(d) Lagging, leading and unity power factor only

8. When a synchronous motor is started, the field winding is

(a) short circuited (b) open- circuited
(c) excited from dc source (d) excited from three phase ac source

9. Which type of motor suitable for a computer printer drive?

(a) Reluctance motor (b) Hysteresis motor
(c) Shaded pole motor (d) Stepper motor

10. In a single phase repulsion motor power factor is

(a) Always leading (b) High at low speed
(c) High at high speed (d) Always unity

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. With a neat sketch explain the construction details of three phase induction motor. (8)

12. Describe with neat diagram, the principle and working of an Auto transformer starter in three phase induction motor. (8)

13. List the methods for determining voltage regulation and explain any one in detail. (8)

14. Explain the working principle and operation of synchronous motor. (8)

15. Explain linear induction motor. (8)