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5th Sem / Elect, Power Station Engg., Elect & Eltx Engg.

Subject:- Electrical Machines - II

Time : 3Hrs. M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory (10x1=10)

Q.1 The frequency of voltage generated in large alternators in India is (CO1)

a) 0 Hz b) 230 Hz
c) 60 Hz d) 50 Hz

Q.2 Presence of 5th harmonics in induction motor causes (CO1)

a) cogging
b) crawling
c) small reverse braking torque
d) hunting

Q.3 Power developed by a synchronous motor will be maximum when the load angle is (CO2)

a) zero b) 45°
c) 90° d) 120°

Q.4 For high starting torque, the most suitable 3-phase induction motor is (CO2)

a) Slip ring b) squirrel cage
c) Double cage d) None of above

Q.5 The main function of a starter is (CO3)

a) to start the motor
b) to start and stop the motor
c) To limit the starting current
d) to limit the applied voltage

Q.6 A universal motor is (CO1)

a) Constant speed
b) Constant output
c) Operating on both a.c and d.c
d) Maximum efficiency

Q.7 The machine that supplies d.c to the rotor of an alternator is called the (CO4)

a) Rectifier b) exciter
c) converter d) inverter

Q.8 Which type of motor is used in ceiling fan (CO2)

a) shade pole b) Universal motor
c) permanent capacitor type
d) capacitor start type

Q.9 The induction motor shaft is made of (CO2)

a) Mild steel b) Cast iron
c) High speed steel d) Stainless steel

Q.10 For 4 pole, 3-f Induction motor, the synchronous speed of stator field will be revolving.

a) 750 rpm b) 1500 rpm
c) 3000 rpm d) None of above

SECTION-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

Q.11 Single phase motor is self starting. (True/False) (CO2)

Q.12 Define slip? (CO1)

Q.13 Synchronous motor gun at_____ speed. (CO3)

Q.14 Universal motor can work on_____ and _____ (CO2)

Q.15 The value of Distribution factor will be _____ one. (less/more)

Q.16 Define coil span factor. (CO3)

Q.17 Rating of alternator is given in _____. (CO1)

Q.18 Give any two applications of slip ring induction motors. (CO1)

Q.19 In electric clocks_____ motor is used. (CO4)

Q.20 Define crawling. (CO1)

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

Q.21 What are the conditions for parallel operation of an alternator? (CO3)

Q.22 Explain the methods of cooling of a synchronous machine. (CO3)

Q.23 Explain the principle of operation of a synchronous motor? (CO3)

Q.24 Explain the terms slip and slip frequency of rotor. (CO2)

Q.25 Explain the working of D.O.L starter. (CO5)

Q.26 What is hunting? How can it be minimized? (CO2)

Q.27 Write applications of synchronous motors. (CO3)

Q.28 What do you mean by cogging and crawling in a 3-phase induction motor? (CO1)

Q.29 Draw and explain in brief torque-slip curve of 3 Induction motor. (CO1)

Q.30 Write a note on the servo motor. (CO1)

Q.31 Write a short note on the hysteresis motors. (CO2)

Q.32 What are different types of single phase motors. (CO1)

Q.33 Derive an expression for induced e.m.f. for an alternator. (CO3)

Q.34 Explain why the stator core of an alternator is laminated. (CO3)

Q.35 Compare the squirrel cage and phase wound induction motor. (CO1)

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

Q.36 Explain the working principle & construction of 3 phase Induction motor. (CO1)

Q.37 Explain the working of split phase motors in detail. (CO2)

Q.38 Explain the effect of change in load and excitation on the operation of a synchronous motor. (Co3)