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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 The rating of alternators is usually expressed in (CO4)

- a) full load current      b) horse power  
c) kVA                      d) kW

Q.3 In a motor, which loss varies with load (CO1)

- a) core loss                b) copper loss  
c) bearing friction loss   d) windage loss

Q.4 Synchronous motors are \_\_\_\_\_ (CO3)

- a) not self starting  
b) self starting  
c) single excited  
d) none of the mentioned

Q.5 The inverted V plots is plotted between \_\_\_\_\_ (CO3)

- a) power factor vs field current for constant shaft load  
b) field current vs power factor for variable shaft load  
c) armature current vs field current  
d) terminal voltage vs power factor

Q.6 What is the application of synchronous compensators? (CO3)

- a) Control of real power  
b) control of active power  
c) control reactive power  
d) control of apparent power

Q.7 The induction motor shaft is made of (CO1)

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

Q.8 The 3-Phase induction motor with rotor circuit open will (CO1)

- a) Run normally            b) Get overhead  
c) Not run                    d) Make noise

Q.9 Power developed by a synchronous motor will be maximum when the load angle is (CO2)

- a) zero                        b) 45°  
c) 90°                         d) 120

Q.10 \_\_\_\_\_ Motor is used in ceiling fan (CO2)

- a) shade pole  
b) universal motor  
c) permanent capacitor start  
d) capacitor start capacitor run

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### SECTION-B

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

- Q.11 Universal motor can work on \_\_\_\_\_ and \_\_\_\_\_ (CO2)
- Q.12 For parallel operation of alternators the \_\_\_\_\_ should be same. (CO3)
- Q.13 Value of slip at the time of starting is \_\_\_\_\_. (CO1)
- Q.14 Define Distribution factor. (CO1)
- Q.15 Over Excited synchronous motor behaves like a \_\_\_\_\_ (CO3)
- Q.16 Single phase motor is self starting. (True/False) (CO2)
- Q.17 Define coil span factor. (CO3)
- Q.18 A.C. servo motor has \_\_\_\_\_ starting torque. (CO4)
- Q.19 Schrage motor is used in \_\_\_\_\_ industry. (CO4)
- Q.20 NEMA stands for \_\_\_\_\_. (CO4)

### SECTION-C

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

- Q.21 What do you mean by cogging and crawling in a 3-phase induction motor? (CO1)
- Q.22 Draw and explain V- curves of a synchronous machine. (CO3)
- Q.23 Write down various applications of synchronous motors. (CO3)
- Q.24 Write a note on a shaded pole motor. (CO2)
- Q.25 How can a single phase induction motor be made self starting? (CO2)

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- Q.26 Explain working principle & application of linear induction motor. (CO4)
- Q.27 Explain the difference between variable reluctance stepper motor and a permanent magnet stepper motor. (CO4)
- Q.28 Derive an expression for induced e.m.f. for an alternator. (CO3)
- Q.29 Which factors affect voltage regulations of alternators? (CO3)
- Q.30 Draw the torque-slip characteristics of a 3-phase induction motor. (CO1)
- Q.31 Explain hunting & its preventive methods. (CO2)
- Q.32 Explain the term slip and slip frequency of rotor. (CO1)
- Q.33 Drive relationship between rotor copper losses, slip and rotor input. (CO1)
- Q.34 Mention the applications of universal motor. (CO3)
- Q.35 What are necessary conditions for parallel operation of 3-phase alternators? (CO3)

### SECTION-D

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

- Q.36 Explain the construction and principle of operation of a three phase induction motor. (CO1)
- Q.37 Describe construction and working of Hysteresis motor with applications. (CO2)
- Q.38 Explain the effect of excitation on the operation of a synchronous motor with neat phasor diagram (CO3)
- (**Note:** Course outcome/CO is for office use only)

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