

- Q.26 What are different types of excitation of DC machines?
- Q.27 How power can be measured in a 3 phase system by 2 Wattmeter method?
- Q.28 State the working principle of a transformer.
- Q.29 State the difference between motor and generator.
- Q.30 Write about the application of synchronous machine.
- Q.31 Why stator of an induction motor is laminated?
- Q.32 How torque is developed due to alignment of two fields?
- Q.33 Explain the function of commutator in DC machine.
- Q.34 Write the advantages & disadvantages of servo motor.
- Q.35 Write about the double field revolving theory.

#### **SECTION-D**

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

- Q.36 Explain the working principle of D.C. motor.
- Q.37 Explain the principle and working of synchronous motor.
- Q.38 Explain construction & working of a stepper motor in detail.

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**3rd Sem / Eltx, EI, IC, Medical Eltx (5th Sem) Power Eltx, Elect. & Eltx. Engg.**

**Subject:- Electrical Machines**

Time : 3Hrs.

M.M. : 100

#### **SECTION-A**

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

- Q.1 Rotor of a stepper does not have
- a) Winding
  - b) Commutator
  - c) Brushes
  - d) All of these
- Q.2 An ideal transformer is considered to have
- a) Zero resistance of primary & secondary winding
  - b) Zero iron loss
  - c) No leakage of magnetic flux
  - d) All of above
- Q.3 Core of a transformer is generally made of
- a) Mild steel
  - b) Silicon steel
  - c) Non-magnetic
  - d) Material Cast iron
- Q.4 Three phase servo motor have
- a) Low power rating
  - b) Low speeds
  - c) High efficiency
  - d) High power rating
- Q.5 Power drawn by a transformer on no load is required to meet mainly

- a) copper losses      b) iron losses  
 c) rotational losses    d) load losses
- Q6** Armature of a dc machine is laminated  
 a) To improve heat dissipation in armature  
 b) To reduce copper losses  
 c) To reduce iron losses  
 d) To increase flux density
- Q.7** Starter is used in a dc motor  
 a) To increase the starting torque  
 b) To increase back EMF  
 c) To reduce the speed of motor  
 d) To reduce the starting current
- Q8** In a 3 phase star connected system  
 a)  $VL=VP$       b)  $VL=\sqrt{3}VP$   
 c)  $IL=3 IP$       d)  $IL=IP/3$
- Q.9** Various phase of a 3 phase system have a phase difference of  
 a)  $60^\circ$       b)  $90^\circ$   
 c)  $120^\circ$       d)  $180^\circ$
- Q.10** Material used for salient poles of a VR stepper motor is  
 a) Para magnetic      b) Diamagnetic  
 c) Ferromagnetic      d) Non-magnetic

## SECTION-B

**Note:** Objective type questions. All questions are compulsory.  $(10 \times 1 = 10)$

- Q.11 What is phase sequence?  
 Q.12 What is the full form of PT?  
 Q.13 Define torque angle.  
 Q.14 Write one application of DC machine.  
 Q.15 What is the basic principle of transformer?  
 Q.16 What are polyphaser system?  
 Q.17 Which winding are used in servo motor.  
 Q.18 Define flux.  
 Q.19 What is back E.M.F. in D.C motor?  
 Q.20 Define generator.

## SECTION-C

**Note:** Short answer type questions. Attempt any twelve questions out of fifteen questions.  $(12 \times 5 = 60)$

- Q.21 List the various characteristics of balanced delta connected system?  
 Q.22 What is the importance of voltage regulation of a transformer?  
 Q.23 Write the application of DC machine.  
 Q.24 Write about the main parts of a transformer.  
 Q.25 Name different winding connections of a three phase transformer.