

- Q.26 Explain the working principle of synchronous motor?  
(CO5)
- Q.27 Why is the stator core of alternator is laminated. (CO7)
- Q.28 Explain anyone methods of starting of a synchronous motors.  
(CO5)
- Q.29 Write a short note on capacitor start motor? (CO6)
- Q.30 What is the Principle operation of universal motor and also write its application. (CO6)
- Q.31 List five application of single phase Induction motor.  
(CO6)
- Q.32 Explains the working of two phase servo motor. (CO8)
- Q.33 Explain the construction and working of a PM stepper motor.  
(CO8)
- Q.34 Write down the necessary condition for parallel operation of an alternator. (CO7)
- Q.35 Explain the working principle of DC motor. (CO3)

#### Section-D

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

- Q.36 Explain construction and working principle of 3 phase Induction motor in details. (CO4)
- Q.37 Writes down the construction of various parts of DC machine with neat diagram. (CO3)
- Q.38 Explain & Draw the various characteristics of DC shunt motors. (CO3)

Note : Curs outcome/CO is for office use only.

No. of Printed Pages : 4  
Roll No. ....

202442/122442/062443

#### 4th Sem. Branch : Mechatronics Subject : DC & AC Machines

Time : 3 Hrs.

M.M. : 100

#### SECTION-A

**Note: Multiple type Questions. All Questions are compulsory. (10x1=10)**

- Q.1 The relation between line current and phase current in star connection. (CO1)
- a)  $I_L = I_{ph}$                       b)  $I_L = 3I_{ph}$   
c)  $I_L = \sqrt{3}I_{ph}$                   d) None
- Q.2 The value of power factor for a pure inductive load is\_ (CO1)
- a) 0                                      b) 1  
c) 0.5                                  d) 2
- Q.3 Angle between stator field & rotor field is knows as (CO2)
- a) Power factor                      b) Torque angle  
c) Both A & B                        d) None
- Q.4 Armature core of DC machines is made of - (CO3)
- a) Silicon steel                      b) Brass  
c) Cast Iron                          d) Carbon
- Q.5 Electrical machine which converts mechanical energy into electrical energy is knows as (CO2)
- a) Generator                          b) Motor  
c) Transformer                      d) None

- Q.6 Function of a starter- (CO3)  
 a) To start the motor  
 b) To start & stop the motor  
 c) To limit the starting current  
 d) To limit the applied voltage
- Q.7 Stator core of a 3-phase induction motor is laminated to reduces the- (CO4)  
 a) Eddy current loss  
 b) Hysteresis loss  
 c) Both Eddy & Hysteresis loss  
 d) Weight of the stator
- Q.8 Motor used in control system are called- (CO8)  
 a) Servo motor                      b) Toy motor  
 c) Quick motor                      d) None
- Q.9 Motor in which the rotor turns in discrete movement is called- (CO8)  
 a) Servo motor                      b) Linear Induction motor  
 c) Stepper motor                      d) Universal motor
- Q.10 The frequency of voltage generated in large alternators in India is- (CO7)  
 a) 0Hz                                      b) 25 Hz  
 c) 60 Hz                                      d) 50 Hz

### Section-B

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

- Q.11 The direction of 3-phase induction motor can be reversed by\_\_\_\_\_. (CO4)
- Q.12 Define the generator. (CO2)

- Q.13 The rating of Alternator is usually expressed in\_\_\_\_\_. (CO7)
- Q.14 Gives any two application of slip ring induction motor. (CO4)
- Q.15 Torque developed due to alignment of the two field will be maximum when the torque angle is\_\_\_\_\_. (CO5)
- Q.16 The commutator segment of DC machine is made of \_\_\_\_\_ material. (CO3)
- Q.17 Fleming's R.H.R is used to determine the direction of force (True/False) (CO2)
- Q.18 Write anyone application of DC series motor. (CO3)
- Q.19 Rotor of PM stepper motor contains \_\_\_\_\_ poles. (CO8)
- Q.20 The best suited motor for electric traction is \_\_\_\_\_.(CO3)

### Section-C

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

- Q.21 What are the advantages of 3-phase system over single phase system. (CO1)
- Q.22 Write relation between line & Phase voltage and line current & Phase current in delta connection. (CO1)
- Q.23 Write a short note on stepper motor and its application. (CO8)
- Q.24 Explain anyone methods of speed control of Induction motor. (CO4)
- Q.25 Writes comparison between 3-phase induction motor & 3 phase synchronous motor. (CO4)