Q.26 Explain torque-slip characteristics of Induction motors. (CO4)

Q.27 State the need for speed control of DC motors. (CO3)

Q.28 Write down advantages of a three phase system over 1-phase system. (CO1)

Q.29 Explain star to delta conversion. (CO1)

Q.30 Explain armature relation for D.C. generator. (CO3)

Q.31 Write importance of power factor. How it works. (CO1)

Q.32 Explain construction of a synchronous motor. (CO5)

Q.33 Describe the methods of starting a squirrel cage induction motor. (CO4)

Q.34 The input power to a 3-phase a.c. the motor is measured as 5kW. If the voltage and current to the motor are 400V and 8.6A respectively, determine the power factor of the system? (CO1)

Q.35 Draw a circuit of the DC series motor and write its voltage and current equation. (CO3)

SECTION-D

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

Q.36 Draw and explain 3-point starters in detail. (CO3)

Q.37 Explain principle and construction of Induction motor in detail with diagram. (CO4)

Q.38 Write a note on the following (CO8)

a) Stepper motor
b) Servo motor

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4th Sem / Branch : Mechatronics
Subject:- DC and AC Machines

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 The rating of alternators is usually expressed in (CO7)

a) Fully load current
b) Horse Power
c) kVA
d) kW

Q.2 The armature of D.C. generator produces (CO2)

a) A.C.
b) D.C.
c) AC modulated on DC
d) None

Q.3 The commutator segments of a dc machine are made of (CO2)

a) Carbon
b) Stainless steel
c) Hard drawn copper
d) Tungsten

Q.4 What will happen if the DC shunt motor is connected across the AC supply? (CO3)

a) will run at normal speed
b) will not run
c) will run at lower speed
d) Burn due to heat produced in the field winding

Q.5 Direction of rotation of motor is determined by_____ (CO2)
a) Faraday's law
b) Lenz's law
c) Coulomb's law
d) Fleming's left-hand rule

Q.6 Power in a three phase system is measured by (CO1)
a) 3 wattmeter method
b) 2 wattmeter method
c) Using 3 phase wattmeter
d) any of the above

Q.7 Power in a Three Phase Circuit =_____ (CO1)
a) P=3 Vph Iph CosΦ b) P= √3 VL IL CosΦ
c) Both 1 & 2 d) None of the above

Q.8 An induction motor is identical to (CO4)
a) D.C. compound motor
b) D.C. series motor
c) Synchronous motor
d) Asynchronous motor

Q.9 The efficiency of an induction motor can be expected to be nearly (CO4)
a) 60 to 90 % b) 80 to 90 %
c) 95 to 98 % d) 99%

Q.10 Active power in synchronous machine is proportional to_____ (CO7)

a) torque b) excitation
c) sinΦ d) all of the mentioned

SECTION-B

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

Q.11 The brushes of a DC machine are made of..... (CO3)

Q.12 Define active power. (CO1)

Q.13 Ceiling fans use.....motors (CO4)

Q.14 Write formula for impedance (CO1)

Q.15 Rating of alternator is given in..... (CO7)

Q.16 Define synchronous speed? (CO5)

Q.17 Give two applications of Squirrel cage Induction motor. (CO4)

Q.18 Universal motor can work on.....and..... (CO6)

Q.19 Define efficiency. (CO2)

Q.20 DC.....motor has high starting torque. (CO3)

SECTION-C

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

Q.21 List the various applications of D.C. motor. (CO3)

Q.22 Derive the emf equation of alternator. (CO7)

Q.23 Describe universal motor working and their applications. (CO6)

Q.24 What is back e.m.f. explain? (CO3)

Q.25 Draw power. Relation between line current and phase current for 3 phase systems. (CO1)