220931

3rd Sem. / Electrical

Subject : Electrical Machines - I

Time : 3 Hrs.   M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory   (6x1=6)

Q.1   The angle between stator field and rotor field is known as   (CO-1)

a)   Power Factor   b)   Torque Angle

c)   Both a & b   d)   None of the above

Q.2   Electrical machine which converts electrical energy into mechanical energy is known as   (CO-1)

a)   Electrical generator b)   Electrical motor

c)   Transformer   d)   All of the above

Q.3   In a step-up transformer the transformation ratio is   (CO-1)

a)   More than unity   b)   Less than unity

c)   Unity   d)   None of the above

Q.4   The transformer oil must be free from   (CO-5)

a)   Moisture   b)   Sludges

c)   Gases   d)   Sulpher

Q.5   Which of the following connection of a three phase transformer are best Suited for 3-phase, 4-wire service?   (CO-5)

a)   Star/Star   b)   Delta/Delta

c)   Star/Delta   d)   Delta/Star

Q.6   Which of the following is the main advantages of an auto-transformer over a Two winding transformer   (CO-5)

a)   Hystersis loss are reduced

b)   Saving in winding material

c)   Copper losses are negligible

d)   Eddy losses are totally eliminated

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory.   (6x1=6)

Q.7   The Brushes of a DC generator is made up of _____.   (CO-1)

Q.8   DC shunt motor is a _____ speed motor. (CO-2)

Q.9   Transformer works on the principle of _____.   (CO-5)

Q.10   _____ oil is used in a 3-Phase transformer.   (CO-5)

Q.11   Short circuit test is usually performed to determine _____ losses in a transformer.   (CO-4)

Q.12   The colour of dry silica gel is _____.   (CO-5)

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Differentiate between a generator and motor.(CO-1)

Q.14 Explain the concept of armature reaction in DC Generator. (CO-1)

Q.15 Write the methods of speed control of DC series motor. Explain any one. (CO-2)

Q.16 What are the conditions for parallel operation of 3-phase transformer? (CO-5)

Q.17 Derive the EMF equation for single phase transformer. (CO-5)

Q.18 Draw and explain the Open Circuit Test on the single-phase transformer. (CO-4)

Q.19 Draw a phasor diagram of 1-phase transformer for inductive load. (CO-4)

Q.20 Define auto transformer and write its applications. (CO-3)

Q.21 Differentiate between current transformer and potential transformer. (CO-3)

Q.22 Explain the concept of overheating due to harmonics in transformer. (CO-3)

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Explain and draw the various characteristics of a DC shunt motor. (CO-2)

Q.24 Write down the constructional details of various parts of DC machines with neat diagram. (CO-1)

Q.25 Draw and explain the connections of various types of three-phase transformer. (CO-5)

(**Note:** Course outcome/CO is for office use only)