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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 (CO1)

a) Power factor b) Torque angle

c) Form factor d) Phase angle

Q.2 Yoke of DC machine is made up of _____ (CO1)

a) Silicon steel b) Copper

c) Cast Iron d) Brass

Q.3 The core of a transformer is laminated to reduce (CO5)

a) hysteresis losses b) copper losses

c) eddy current losses d) Mechanical losses

Q.4 The rating of D.C. Generator is in (CO1)

a) KW b) KVAR

c) KVA d) KWH

Q.5 In case of distribution transformer, which types of transformer connection is preferred? (CO5)

a) Star/Star b) Delta/Delta

c) Star/Delta d) Delta/Star

Q.6 In a transformer which of the following electrical quantity does not change? (CO5)

a) Voltage b) Current

c) Frequency d) All of the above

SECTION-B

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

Q.7 Write any two applications of DC Series motor. (CO2)

Q.8 _____ material is used in a breather. (CO5)

Q.9 The efficiency of a D.C. Machine will be maximum when Variable losses=_____ (CO2)

Q.10 A 6- pole wave wound d.c motor will have _____ parallel paths. (CO1)

Q.11 Open circuit test is usually performed to determine _____ losses in a transformer. (CO4)

Q.12 Define Armature reaction? (CO1)

SECTION-C

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

Q.13 Explain the various types of losses occur in a d.c machine. (CO2)

Q.14 Write a short note on Amorphous Core type Distribution Transformer. (CO3)

Q.15 Discuss the need for parallel operation of 3-phase transformer. (CO3)

Q.16 Draw and explain the torque vs armature currrent characteristics of a d.c. series motor. (CO2)

Q.17 Write a short note on an instrument transformer and its types. (CO3)

Q.18 Discuss, Why a d.c. series motor cannot work on no-load. (CO1)

Q.19 Discuss the Buchholtz relay. (CO5)

Q.20 Differentiate between power transformer and distribution transformer. (CO5)

Q.21 Drive the e.m.f. equation of a d.c. generator. (CO1)

Q.22 Explain the behaviour of a 1-phase transformer on no load with phasor diagram (CO5)

SECTION-D

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

Q.23 Explain the various methods of cooling of a 3-phase transformer with neat sketch (CO5)

Q.24 Define voltage regulation. Drive the expression to find the no-load secondary terminal voltage of a 1-phase transformer for a inductive load. (CO4)

Q.25 Explain the working of a 4-point starter for a d.c. shunt motor with neat diagram. (CO1)

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