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

120941/030941

4th Sem. / Elect. Engg. / P.S.

Subject : Electrical Machine - I

Time : 3 Hrs. M.M. : 100

SECTION-A

Note: Very Short Answer type questions. Attempt any 15 parts. (15x2=30)

Q.1 a) In generating action current flows in _____ direction as that of induced _____.

b) Torque developed due to alignment of the two fields will be maximum when the torque angle is _____.

c) Power transformers are designed for low _____ losses.

d) To avoid moisture to enter the transformer tank, _____ is placed in the breathes.

e) Direction of torque depends upon the _____ of the torque angle.

f) The critical resistance of the d.c. generator is the resistance of _____.

g) What is the condition of maximum efficiency of a d.c. machine.

h) Define armature reaction.

i) The brushes in d.c. motor are made of _____.

j) Name the methods for reducing communication?

k) Interpoles are used for _____.

l) There is _____ difference in the construction of generator and motor.

m) Core of a transformer is made of _____.

n) What is a step up transformer?

o) State the condition of maximum efficiency in a transformer?

p) What is voltage regulation in a transformer.

q) Iron losses in a transformer consist of _____ and _____.

r) Draw no load phaser diagram of a transformer.

SECTION-B

Note: Short answer type questions. Attempt any ten parts 10x4=40

Q.2 i) What is parallel operation of transformer? Why there is necessity of parallel operation?

ii) What is tap changer? Explain its different types?

iii) What are types of cooling of a transformer?

iv) Explain the Faraday's law of electro-magnetic induction?

v) What are the merits of rotating field and stationary armature?

vi) What are the different types of losses in a D.C. machine?

vii) What are characteristics of DC generator.

viii) What is commutation and what are the methods for improving the commutation?

ix) What are the functions of a motor starter?

x) What are the conditions of paralleling DC generators?

xi) Explain the working principle of a transformer with diagram?

xii) Explain efficiency of a transformer.

xiii) A single phase 50 Hz core type transformer has a core area of 400 sq. cm. with permissible maximum flux density of 1.18 wb/m^2. Calculate the number of turns on the high and low voltage sides if the ratio of primary to secondary voltage is 3300/230.

xiv) Explain construction of auto transformer.

xv) Explain briefly losses in a transformer.

SECTION-C

Note: Long answer type questions. Attempt any three questions. 3x10=30

Q.3 Explain the working of electrical machine as a generator as well as motor.

Q.4 Explain principle and working of a starter for d.c. shunt motor.

Q.5 Explain the methods of measuring losses of a transformer. Draw the circuit diagram for each.

Q.6 Explain why is it necessary to use instrument transformers for measuring voltage and currents in high voltage a.c. circuits carrying large power.

Q.7 What are different types of three phase transformers on the basis of their connection?