Exam.Code:0906
Sub. Code: 33304

2055

B.E., Second Semester

EEE-201: Fundamentals of Electrical Engineering

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.

x-x-x

I. Answer the following:-

a) Explain the working principle of an electron mechanical energy meter.

b) How can the errors in CT and PT be minimized?

c) Why is transformer efficiency highest near full load?

d) What are the different voltage levels used in AC transmission system?

e) Define back EMF in DC motor and explain its significance. (5x2)

UNIT - I

II. Explain the function and necessity of operating, controlling and damping torques in analog measuring instruments. Discuss the method of producing each torque. (10)

III. a) What is a B-H curve? Explain its significance and what information can be derived from it for magnetic material selection.

b) A coil of 1000 terns is wound on a core and a current of 1A following through the coil creates a core flux of 1m Wb. Calculate the energy stored in the magnetic field. (2x5)

IV. a) Explain the construction and working principle of a potential transformer (PT).

b) A CT has a ratio of 100:5. The actual primary current is 95A and the measured secondary current is 4.7A. Calculate the actual ratio and the ratio error. (2x5)

UNIT - II

V. a) Explain the working of a transformer under various loading conditions using phasor diagrams.

Contd.....P/2

b) A transformer has iron losses of 80W and copper losses of 50W at full load. If the output power is 1800W, calculate the efficiency of transformer at full load. (2x5)

VI. a) Describe the torque-slip characteristics of a three phase induction motor. How does slip vary with load?

b) Draw a single line diagram of a power transmission network and explain function of each component. (2x5)

VII. Write note on the following:-

a) Performance analysis of fuel cell

b) Application of DC machines and three-phase induction motor (2x5)

x-x-x