Roll No. | | | | | | | | | | |

B.E / B.Tech (Full Time) DEGREE END SEMESTER EXAMINATIONS, APRIL / MAY 2014

ELECTRONICS AND COMMUNICATION ENGG.

Semester : 3

EE8351 BASIC OF ELECTRICAL ENGG.

(Regulation 2012)

Time: 3 Hours Answer ALL Questions Max. Marks 100

PART-A (10 x 2 = 20 Marks)

1. Write the equation for converting a Delta connected network to equivalent star connected network and vice versa.
2. Mention the advantages of 3 phase systems over si ngle phase systems.
3. Write the significance of a back e.m.f.
4. Distinguish between shunt and series field coil construction in DC machine?
5. Find the primary full load current of 1 kVA , 400 / 200 V , single phase transformer.
6. Define *regulation* and *all day efficiency* of the transformer?
7. Why an induction motor never runs at its synchronous speed?
8. Derive emf equation of an alternator
9. What is difference between RTD, thermo couple and thermistor in general?
10. What is essential torques required in measuring instruments?

Part – B (5 x 16 = 80 marks)

11. i State the various connections of three phase transformer.
    ii Prove that a three phase balanced load draws three times as much power when connected in delta, as it would draw when connected in star.

12. a) i Derive the expression for electro magnetic torque developed in a d.c. motor.
    ii Sketch and explain the speed-current, speed-torque and torque-current characteristics of a shunt series and series motor.

    (OR)

    b) i A short shunt compound d.c. generator supplies a current of 75A at a voltage of 225 V. Calculate the generated voltage if the resistance of armature , shunt field and series field windings are 0.04 ohm, 90 ohm and 0.02 ohm respectively.
    ii Explain in detail about the ward-leonard system of speed control of DC motor

13. a) i Draw the equivalent circuit of a single phase transformer and name the components.
    ii What is a autotransformer? How autotransformer works?

    (OR)

b) i The primary of a transformer is rated at 10A and 1000V. On open-circuit the readings are V_1=1000 V, V_2=500 V, I=0.42 A and P_{oc} = 100 W. On short-circuit the readings are V_1=126 V, I_1=10 A and P_{sc} = 400 W. Obatin the equivalent circuit parameters of the transformer.

ii Enumerate the various losses in a transformer. Derive the condition for maximum efficiency.

14. a) i Compare squirrel cage induction motor and slip ring induction motor

ii Draw the torque-speed characteristics of capacitor split phase motors and state its applications.

(OR)

b) i Explain the double field revolving theory applied to single phase induction motor and develop the equivalent circuit.

ii Explain the two methods used to determine voltage regulation of alternators.

15. a) i List the common errors in energy meter and discuss their remedial measures.

ii What is piezoelectric phenomenon? Explain the working of any one piezoelectric transducer?

(OR)

b) i Explain the Working of dynamometer type wattmeter. Name the errors caused in Dynamometer type wattmeter.

ii Compare the merits and demerits of underground system versus overhead system.