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Question Paper Code : 40019

B.E. DEGREE EXAMINATION, APRIL/MAY 2018

Second Semester

Computer and Communication Engineering

BE 8254 – BASIC ELECTRICAL AND INSTRUMENTATION ENGINEERING

(Common to Electronics and Communication Engineering/Electronics and
Telecommunication Engineering)

(Regulations 2017)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

PART – A

(10×2=20 Marks)

1. What are the advantages of Underground system ?
2. State the different types of power tariff.
3. What are the various losses in a transformer ?
4. Define voltage regulation of transformer.
5. Specify the function of the commutator in a DC machine.
6. Write the equation for emf induced in a DC machine.
7. State the advantages and disadvantages of three phase induction motor.
8. Draw the basic circuit of Capacitor Start Capacitor run motor.
9. What are the different types of errors in measurement system ?
10. What are the broad classification of measuring instruments ?



PART – B

(5×13=65 Marks)

11. a) Explain with a simple diagram the basic structure of Electric Power System to deliver electricity to the consumer place.

(OR)

- b) A balanced three phase load consists of three coils, each of resistance 6 ohm and inductive reactance of 8 ohm. Determine the line current and power absorbed when the coils are

i) star connected. (7)

ii) delta connected across 400 V, 3 phase supply. (6)

12. a) i) Draw the equivalent circuit diagram of a transformer with respect to primary side. (5)

ii) A 200 kVA, 3300/240 V single phase transformer has 80 turns on the secondary winding. Assuming an ideal transformer, calculate primary and secondary currents on full load, the maximum value of flux and the number of primary turns. (8)

(OR)

- b) What is meant by Auto transformer ? Explain the principle of operation of an auto transformer with a neat sketch.

13. a) Describe the construction of DC machines with neat sketch.

(OR)

- b) Explain with a neat diagram, the armature control and field control method of speed control of DC shunt motor

14. a) Explain the principle of operation of a three phase induction motor with essential constructional features.

(OR)

- b) Describe the construction and principle of working of Stepper motor with neat diagram.

15. a) Describe the Static and Dynamic characteristics of measurement system.

(OR)

- b) Explain the working principle of resistive transducer and give some of its applications.

PART – C

(1×15=15 Marks)

16. a) Describe a typical power system protection scheme with a suitable illustration.

(OR)

- b) What is power factor and why is it important and how it can be improved ? Discuss.