Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 40188

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2021.

Second Semester

Electronics and Telecommunication Engineering

BE 8254 – BASIC ELECTRICAL AND INSTRUMENTATION ENGINEERING

(Common to: Computer and Communication Engineering/ Electronics and Communication Engineering)

(Regulations 2017)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Differentiate between overhead and underground system.

2. Give the expression for three phase power.

3. Why transformer rating is expressed in kVA?

4. Define voltage regulation.

5. List the speed control methods of DC motors.

6. Mention the applications of universal motor.

7. Draw the equivalent circuit of 3 phase induction motor.

8. Give few applications of stepper motor.

9. Mention the types of indicating instruments.

10. Define transducer.

PART B — (5 × 13 = 65 marks)

11. (a) Write a short note on

(i) Balanced and Unbalanced loads. (6)

(ii) Star Delta conversion. (7)

Or

(b) List the different methods of three phase power measurement and explain any one method in detail. (13)

12. (a) Explain any one method used for determination of parameters of circuit model of transformer. (13)

Or

(b) Explain the working principle of Auto transformer and mention any two applications of the same. (13)

13. (a) Explain the working principle and Torque/EMF equations of DC machines. (13)

Or

(b) Explain the any one starting and speed control of DC machines. (13)

14. (a) Explain the working principle of single phase induction motor with its equivalent circuit. (13)

Or

(b) List the various starting methods of synchronous motor and explain any one in detail with a neat diagram. (13)

15. (a) Explain the any two static and any two dynamic characteristics parameters of measuring instruments with their importance. (13)

Or

(b) Explain the working principle of piezoelectric and hall effect transducer. (13)

PART C — (1 × 15 = 15 marks)

16. (a) Each phase of three phase alternator generates a voltage of 3810 volts and carries a maximum current of 300A. Find the line current, line voltage and total kVA capacity if the alternator is (i) star (ii) delta connected. (15)

Or

(b) (i) Draw a typical lay out of a power system. (8)

(ii) Describe the protection schemes of power system. (7)

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