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

Question Paper Code: 51328

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2016

Second Semester

Civil Engineering

15UEE208 - BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

(Common to Mechanical Engineering and Chemical Engineering)

(Regulation 2015)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. The unit of resistivity is

    (a) ohms   (b) ohm millimetre
    (c) ohm metre   (d) ohm/metre

2. Ohm's law is not applicable to

    (a) DC circuits   (b) high currents
    (c) Small resistors   (d) semi-conductors

3. A single phase motor generally used for small air compressor is

    (a) capacitor start capacitor run motor   (b) reluctance motor
    (c) Universal motor   (d) shaded pole motor

4. A motor converts

    (a) Mechanical energy into electrical energy
    (b) Chemical energy into electrical energy
    (c) Electrical energy into Mechanical energy
   (d) Electrical energy into chemical energy

5. The maximum efficiency of a half wave rectifier circuit can be

    (a) 37.2%   (b) 40.6%   (c) 3.9%   (d) 81.2%

6. In symbols of PNP transistors, and NPN transistors the arrow on the emitter shows the direction of

    (a) Holes, electrons   (b) Electrons, holes
    (c) Holes, holes   (d) Electrons, electrons

7. The universal gate is

    (a) NAND gate   (b) OR gate   (c) AND gate   (d) None of these

8. A Nibble is equal to _____ bit(s)

    (a) 1   (b) 2   (c) 4   (d) 8

9. FM is disadvantageous over AM signal because

    (a) Much wider channel bandwidth is required
    (b) FM systems are more complex and costlier
    (c) Adjacent channel interference is more
    (d) Both (a) and (b)

10. In TV transmission, picture signal is _____ modulated.

    (a) Frequency   (b) Phase   (c) Amplitude   (d) None of these

PART - B (5 x 2 = 10 Marks)

11. Define R.M.S value.

12. Why is a single phase induction motor not self-starting?

13. Give the applications of Zener diode.

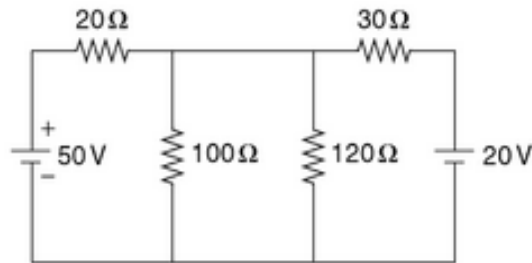14. Convert $(634)_8$ to its binary.

15. What is the use of satellite?

PART - C (5 x 16 = 80 Marks)

16. (a) (i) State and explain the Kirchhoff's law.   (8)

      (ii) What will be the equivalent resistance between terminals P and Q of the ladder network as shown in Figure.   (8)

51328
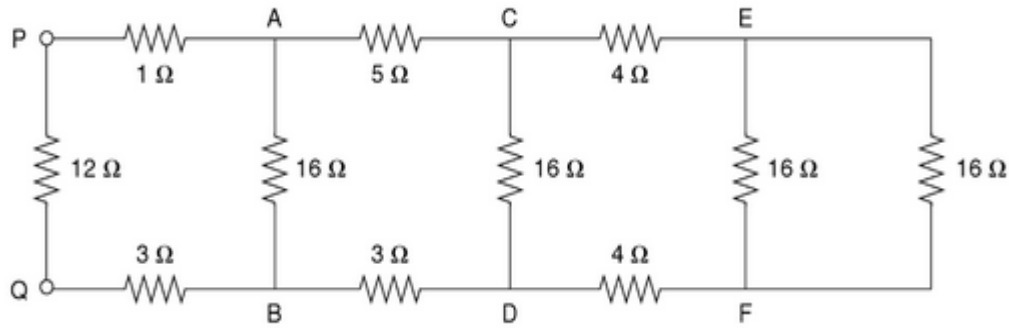
Or

(b) Using mesh analysis, find the current through 100Ω resistance shown in figure. (16)

17. (a) (i) What are the types of DC Generators with neat circuit diagram. (8)

(ii) Derive the EMF equation for the DC generator. (8)

Or

(b) Explain in detail about construction and working principle of Single Phase Induction Motors and then types? (16)

18. (a) Explain the operation of Common Emitter configurations with its neat voltage–current characteristics? (16)

Or

(b) Explain the operation of a half wave rectifier circuit with various parameters that govern its performance? (16)

19. (a) Design a half adder and full adder circuits. (16)

Or

(b) (i) Explain the working of a weighted resistor D/A converter. (8)

(ii) Explain the working of Successive Approximation A/D converter? (8)

3

51328

20. (a) With a neat block diagram explain the various functional blocks of TV transmitter? (16)

Or

(b) Explain Microwave Communication system with block diagram? (16)

————————————

51328