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

Question Paper Code: 42306

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2021

Second Semester

Civil Engineering

14UEE206 – BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

(Common to Mechanical Engineering)

(Regulation 2014)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 1 = 10 Marks)

1. If 750 μA is flowing through 11 kΩ of resistance, what is the voltage drop across the resistor?
   (a) 8.25 V (b) 82.5 V (c) 14.6 V (d) 146 V

2. Which of the following are integrating instruments?
   (a) Ammeters (b) Voltmeters
   (c) Wattmeters (d) Ampere-hour and watt-hour meters

3. A transformer
   (a) changesAC to DC (b) changes DC to AC
   (c) steps up or down DCvoltages (d) steps up or down ACvoltages

4. A D.C. generator works on the principle of
   (a) Lenz's law (b) Ohm's law (c) Faraday's law (d) None of the above

5. The barrier potential for a silicon diode at 25°C is approximately
   (a) 0.4V (b) 0.3V (c) 0.7V (d) 0.5V

6. When both emitter and collector junctions are forward biased, the transistor is in which region?

(a) Active (b) Cut-off (c) Break down (d) Saturation

7. Convert $(11110111)_2$ to Octal

(a) 267 (b) 367 (c) 376 (d) 276

8. With OR operation, 1+1 is

(a) 1 (b) 0 (c) 10 (d) 2

9. In transistor radio receivers the number of IF amplifier stages are

(a) 1 (b) 2 (c) 4 (d) 6

10. Radio broadcasting is a familiar example of

(a) space multiplexing (b) time multiplexing
(c) frequency multiplexing (d) none of the above

PART - B (5 x 2 = 10 Marks)

11. Define power factor.

12. What is emf equation of a transformer?

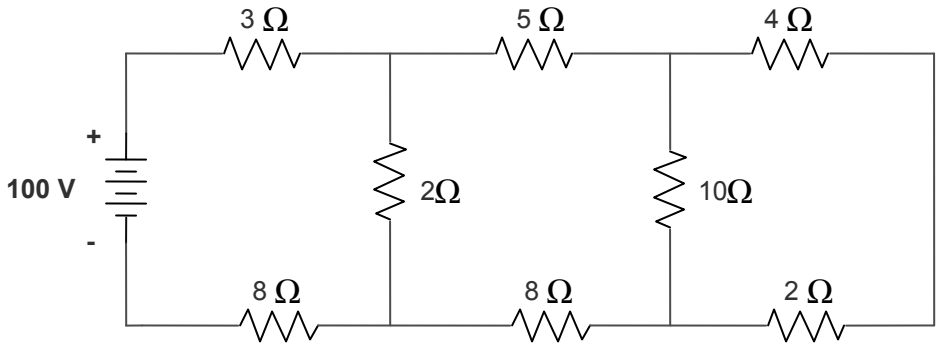
13. What is early effect?

14. What are shift registers?

15. Define the term modulation.

PART - C (5 x 16 = 80 Marks)

16. (a) Find the current through each branch by network reduction technique. (16)



Or

(b) Explain the construction and working principle of Electro Dynamometer type Watt meters in detail. (16)

17. (a) A 4 pole, wave wound generator having 40 slots and 10 conductors placed per slot. The flux per pole is 0.02 *wb*. Calculate the generated emf when the generator is drive at 1200 *rpm*. (16)

Or

(b) Explain the working principle of transformer with its construction details. (16)

18. (a) Discuss the operation of single phase diode bridge rectifier with neat diagram. (16)

Or

(b) Explain the working of the CE configuration of a BJT. (16)

19. (a) Explain in detail about T-Flip flop, S-R flip flop and J-K flip flop (16)

Or

(b) (i) Design a Full Adder, construct the truth table, simplify the output equations and draw the logic diagram. (8)

(ii) Explain the operation of JK flip flop with suitable logic diagram. (8)

20. (a) Why modulation is necessary? Explain frequency modulation in detail. (16)

Or

(b) (i) Draw the block diagram of an AM transmitter and explain its operation. (8)

(ii) Explain the operation of a FM transmitter. (8)