

Reg. No. :

--	--	--	--	--	--	--	--	--	--

**Question Paper Code: 42306**

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2022

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  $750 \mu\text{A}$  is flowing through  $11 \text{ k}\Omega$  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) changes AC to DC      (b) changes DC to AC  
(c) steps up or down DC voltages      (d) steps up or down AC voltages
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  $25^\circ\text{C}$  is approximately  
(a) 0.4V      (b) 0.3V      (c) 0.7V      (d) 0.5V

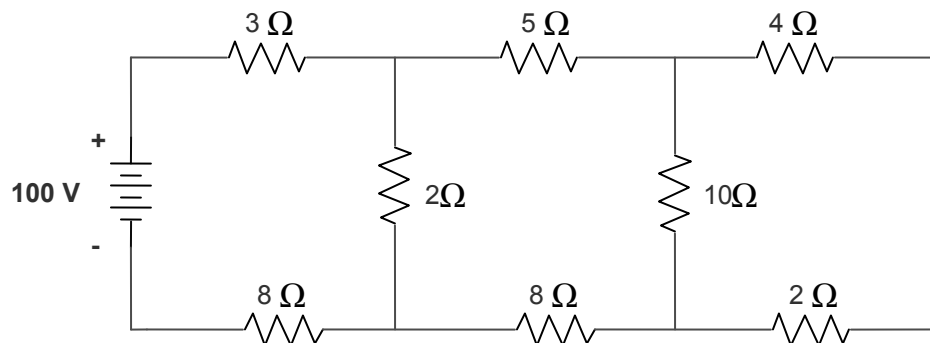
6. When both emitter and collector junctions are forward biased, the transistor is in which region?  
 (a) Active (b) Cut-off (c) Break down (d) Saturation
7. Convert  $(11110111)_2$  to Octal  
 (a) 267 (b) 367 (c) 376 (d) 276
8. With OR operation,  $1+1$  is  
 (a) 1 (b) 0 (c) 10 (d) 2
9. In transistor 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  
2

- (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)

