

C

Reg. No. :

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

**Question Paper Code: U2425**

B.E./B.Tech. DEGREE EXAMINATION, NOV 2023

Second Semester

Computer Science and Business Systems

21UEC225- Principles Of Electronics Engineering

(Regulations 2021)

Duration: Three hours

Maximum: 100 Marks

Answer All Questions

PART A - (5x 1 = 5 Marks)

1. If  $V_{dc} = V_m/\pi$   $V_{rms} = V_m/2$  find the efficiency CO3- App  
(a) 100%                      (b) 90%                      (c) 81.2%                      (d) 42.5%
2. In an NPN transistor, the arrow is pointed towards \_\_\_\_\_ CO1- U  
(a) the collector    (b) the base    (c) depends on the configuration    (d) the emitter
3. The SI Units of the Process transconductance Parameter ( $k'$ ) is CO1- R  
(a)  $V^2/A$                       (b)  $A/V^2$                       (c)  $V/A$                       (d)  $A/V$
4. Which of the following gate is called universal gate? CO2- U  
(a) AND                      (b) OR                      (c) XOR                      (d) NAND
5. The truth table for an S-R flip-flop has how many VALID entries? CO2- U  
(a) 1                      (b) 2                      (c) 3                      (d) 4

PART – B (5 x 3= 15 Marks)

6. What is meant by Avalanche breakdown? CO1- U
7. List out the transistor H-parameters CO1- U
8. Difference between BJT and JFET. CO1- U
9. Implement the half adder using OR gate CO4- App
10. What is ripple counter? CO2- U

PART – C (5 x 16= 80Marks)

11. (a) A half-wave rectifier, having a resistive load of  $1000 \Omega$ , rectifies an alternating voltage of  $325 \text{ V}$  peak value and the diode has a forward resistance of  $100 \Omega$ . Calculate (a) peak, average and rms value of current (b) d.c. power output (c) a.c. input power, and (d) efficiency of the rectifier. CO3-App (16)
- Or
- (b) Compare Half wave, Full wave and Bridge rectifier. CO6-Ana (16)
12. (a) Describe the operation and input and output characteristics of Emitter follower CO1-U (16)
- Or
- (b) Describe the operation and input and output characteristics of Base grounded configuration CO1-U (16)
13. (a) Explain the construction, working and operating characteristics of P-channel JFET with relevant diagrams. CO1-U (16)
- Or
- (b) Explain the principle of operation of enhancement P-channel MOSFET and draw its drain characteristics. CO1-U (16)
14. (a) Design a binary-to-gray code converter and gray to binary code converter similar to basic ROM Structure CO4-App (16)
- Or
- (b) Design a binary-to-BCD converter and BCD to binary code converter similar to basic ROM Structure CO4-App (16)
15. (a) Design synchronous up counter for various applications. CO4-App (16)
- Or
- (b) Analyze the use of up/down counter in radar applications CO5-Ana (16)