C **Reg. No. :** | | | | | | | | | | | | |

Question Paper Code: U2425

B.E./B.Tech. DEGREE EXAMINATION, NOV 2024

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 Vdc=Vm/л Vrms = Vm/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- U

   (a) V2/A (b) A/V2 (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 , rectifies an alternating voltage of 325 V peak value and the diode has a forward resistance of 100 . 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.	CO3-App	(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	CO4-App	(16)