C Reg. No. : □□□□□□□□□□□□

Answer All Questions

PART A - (5x 1 = 5 Marks)

1. If $Vdc=Vm/\pi$ $Vrms = Vm/2$ 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- R

   (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.   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)

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