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Question Paper Code: U2405

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

Second Semester

Electronics and Communication Engineering

21UEC205- Electronic Devices

(Regulations 2021)

Duration: Three hours

Maximum: 100 Marks

Answer All Questions

PART A - (5x 1 = 5 Marks)

1. If the positive terminal of the battery is connected to the anode of the diode, then it is known as CO1- U
(a) Forward biased (b) Reverse biased (c) Equilibrium (d) Schottky barrier
2. The input resistance is given by CO4- U
(a) $\Delta V_{CE}/\Delta I_B$ (b) $\Delta V_{BE}/\Delta I_B$ (c) $\Delta V_{BE}/\Delta I_C$ (d) $\Delta V_{BE}/\Delta I_E$
3. Which of the following is true for the saturation region CO6- U
(a) $V_{DG} \leq |V_{tp}|$ (b) $V_{SD} \leq |V_{OV}|$ (c) $V_{DG} < |V_{tp}|$ (d) $V_{SD} < |V_{OV}|$
4. The efficiency of half wave rectifier is? CO2- U
(a) 100% (b) 90% (c) 81.2% (d) 42.5%
5. The base current amplification factor α is given by _____ CO5- U
(a) I_C/I_B (b) I_B/I_C (c) I_E/I_B (d) I_B/I_E

PART – B (5 x 3= 15 Marks)

6. Differentiate metals, insulators and Semiconductors. CO1- U
7. Find the efficiency of half wave rectifier if $V_m=10V$. CO3- App
8. Give the biasing arrangement for an NPN transistor to operate in the active region CO4- U
9. List out the transistor H-parameters CO4- U
10. What are the features of JFET? CO6- U

PART – C (5 x 16= 80Marks)

11. (a) Explain briefly about the partially conducting materials and classify the semiconductor types. CO1-U (16)
- Or
- (b) Describe the operation of DIAC and TRIAC. CO1-U (16)
12. (a) Explain the working of PN junction diode under different bias conditions CO2-U (16)
- Or
- (b) Describe the working of Zener junction diode under different bias conditions CO2-U (16)
13. (a) Compare impedance, admittance and gain of transistors to design amplifier with suitable configuration CO4-Ana (16)
- Or
- (b) Analyze the current amplification factor and relate CB, CC and CE CO4-Ana (16)
14. (a) Describe the operation and input and output characteristics of Emitter follower CO5-U (16)
- Or
- (b) Describe the operation and input and output characteristics of Base grounded configuration CO5-U (16)
15. (a) Explain the construction, working and operating characteristics of P-channel JFET with relevant diagrams. CO6-U (16)
- Or
- (b) Explain the principle of operation of enhancement P-channel MOSFET and draw its drain characteristics. CO6-U (16)