

**II.B.TECH- I-SEM –I MID EXAMINATIONS *Date:*  23.09.2024 Time*: 01.00 PM TO 03.00 PM***

**Subject: ADE Branch:IT Marks: 30M**

**Note: Question paper contains two parts,Part - A and Part - B.**

**Part-A is compulsory which carries 10 marks. Answer all questions in part-A.**

**Part-B. Answer any FOUR questions out of SIX qustions (4\*5=20 MARKS )**

**PART-A 5x2=10**

1. Discuss about PN junction open circuited ? [**CO.1] [BTL-2]**

2. What is pinchoff voltage? [**CO.2] [BTL-1]**

3. Discuss about the bias compensation. [**CO.2] [BTL-3]**

4. Determine the h parameter from the characteristics of CE configurations? [**CO.2] [BTL-2]**

5. Define diffusion capacitance ? [ **CO.2] [BTL-2]**

**PART-B 4x5=20**

6. Explain the operation of CE amplifier with sketches [ **CO.2] [BTL-2]**

7. Describe the action of PN junction diode under forward bias and reverse bias with V-I characteristics [CO.2] **[BTL-2]**

8. Explain the input and output characteristics of a transistor in CB configuration. [**CO.2 ] [BTL-2]**

1. The reserve saturation current in a germanium diode is 6 µA?. calculate current flowing through the diode when forward bias voltages are 0.2V,0.3V. [**CO.2] [BTL-2]**

10. Draw a self bias circuit and derive an expression for its stability factor? [**CO.2] [BTL-2]**

11. Define rectifier? Explain the operation Half wave rectifier and derive expression for ripple factor? [**CO.2] [BTL-2]**

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| **PART** | **S.NO** | **QUESTIONS** | **MARKS** | **TOTAL** |
| **A** | 1  2  3  4  5 | Explanation of PN junction open circuited  Definition of pinch off voltage  Explanation of bias compensation.  Determination of h parameter from the characteristics of CE configurations  Definition of diffusion capacitance | 2  2  2  2  2 | 2  2  2    2  2 |
| **B** | 6  7  8  9  10      11 | Operation of CE amplifier  Sketches    PN junction diode under forward bias  PN junction diode under reverse bias  V-I characteristics  Circuit diagram  The input characteristics of CB configuration.  The Output characteristics of CB configuration  Formulae  0.2 v solution  0.3 v solution  self bias circuit diagram  Explanation  Derivation of an expression for its stability factor  Definition of rectifier  The operation of Half wave rectifier  Expression for ripple factor? | 3  2  2  2  1  1  2  2  1  2  2  1  2  2  1  3  1 | 5    5  5  5  5  5 |

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