ASSIGNMENT 1 (EEE ADE) ~ TIME: 45 MINS ~ TOTAL MARKS: 20

Part 1 (Answer <u>all</u> the questions: Total Marks: 8)

1. In terms of doping, arrange three terminals of a BJT.
2. In terms of width of the regions, arrange E, B, and C regions of a BJT.
3. Describe major difference between a pn junction diode and Zener diode.
4. Describe the relationship of I_{CO} with increase in temperature (T).
5. Describe one major difference between a BJT and FET.
6. Describe the condition for a BJT to operate in active region.
7. Describe the condition for a BJT to operate in cutoff region.
8. Describe the condition for a BJT to operate in saturation region.

Part 2 (Answer <u>all</u> the questions: Total Marks: 12)

1. Describe the operation and V-I characteristics of a pn junction diode in reverse and forward bias.
2. (a) Point out the differences between bipolar junction transistor and field effect transistor.
   (b) Draw circuit diagrams of CE, CB, and CC configurations of a **npn** BJT

ASSIGNMENT 2 (EEE ADE) ~ TIME: 45 MINS ~ TOTAL MARKS: 20

Part 1 (Answer <u>all</u> the questions: Total Marks: 8)

1. State the expression for stability factor (S).
2. If the stability factor (S) is more, the overall circuit will be (a) less stable or (b) more stable?
3. State the difference between a fixed bias circuit and emitter bias circuit in terms of stability.
4. In an emitter follower configuration, which of the following is used: CE or CB or CC?
5. In fixed bias and emitter bias configuration, which of the following is used: CE or CB or CC?
6. Stability factor depends on: (a) ICO, or (b) VBE, or (c) β, or (d) all of them?
7. State the relationship between α, β, and γ in a BJT.
8. State the general equation of a BJT in active region.

Part 2 (Answer <u>all</u> the questions: Total Marks: 12)

1. Describe fixed bias & emitter bias circuit configurations of BJT. Find the stability factors for each.
2. Describe voltage divider bias configuration of BJT. Find out the expressions for I_B, I_C, I_E, and V_{CE}.