

Code No: R21026

**R10****SET - 1**

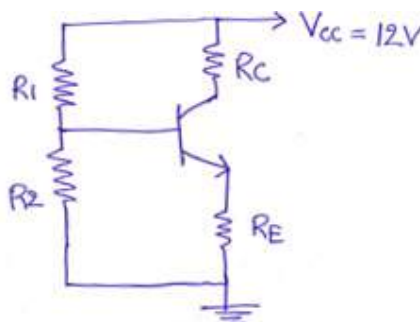
**II B. Tech I Semester Supplementary Examinations, Oct/Nov- 2017**  
**ELECTRONIC DEVICES AND CIRCUITS**  
(Com. to EEE, ECE, EIE, ECC, CSE, IT, BME)

Time: 3 hours

Max. Marks: 75

Answer any **FIVE** Questions  
All Questions carry **Equal** Marks

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- Explain about Two – Dimensional motion of electron.
    - What is the force on a current carrying conductor in a magnetic field? Explain briefly. (7M+8M)
  - Discuss the following with respect to semiconductor  
i) doping      ii) Dopant      iii) donor      iv) acceptor.
    - Explain “Majority and minority carriers” in semiconductors. (8M+7M)
  - Explain briefly about the switching characteristics of a diode?
    - List out the applications of tunnel diode and mention its advantages and disadvantages. (10M+5M)
  - A diode has an internal resistance of  $20\ \Omega$  and  $1000\ \Omega$  load from a  $110\ \text{V rms}$  source of supply. Calculate, i) The efficiency of rectification and  
ii) The percentage regulation from no-load to full load.
    - Show that a Full wave rectifier is twice as efficiency as a Half wave rectifier. (8M+7M)
  - Calculate the values of Q and Y if (i)  $\beta = 50$  (ii)  $\beta = 95$  (iii)  $\beta = 55$ .
    - The Common Base d.c current gain of a transistor is 0.967 .If emitter current is  $10\text{mA}$ , What is the value of base current? (10M+5M)
  - A JFET has a drain current of  $4\text{mA}$ . If  $I_{DSS} = 8\ \text{mA}$  and  $V_{GS}(\text{off}) = 6\text{V}$ . Find the value of  $V_{GS}$  and  $V_p$ .
    - Explain why an SCR is operated only in the forward biased condition. (8M+7M)
  - Explain about Self Bias Amplifiers.
    - A Si transistors is used in the self – biasing arrangement of Figure with  $V_{cc} = 12\text{V}$  and  $R_c = 1\ \text{K}\Omega$ . The Quiescent point is chosen to be  $V_{CE} = 6\text{V}$  and  $I_C = 4\ \text{mA}$ . A stability factor  $S = 10$  is desired. If  $\beta = 99$  find  $R_1$ ,  $R_2$  and  $R_E$ . (8M+7M)



- Explain in detail about analysis of a transistor amplifier circuit biasing h - parameters.
  - Explain about Transistor Amplifier configurations. (7M+8M)