

Code No: R21026

R10

SET - 1

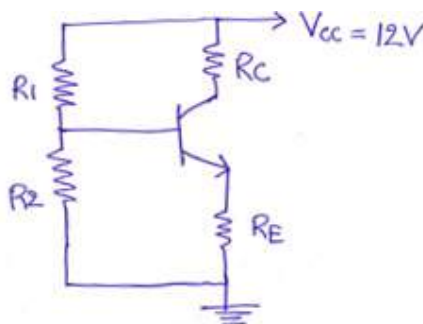
II B. Tech I Semester Supplementary Examinations, Oct/Nov- 2017
ELECTRONIC DEVICES AND CIRCUITS
(Com. to EEE, ECE, EIE, ECC, CSE, IT, BME)

Time: 3 hours

Max. Marks: 75

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

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



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