Question Paper

Paper-II

Q-1) A) Select correct alternative and rewrite the sentence. (4)

1) For use as an amplifier, the transistor must be operated in ----- region.

   i) Saturation ii) active iii) cut off iv) upper

2) At absolute temperature ,an intrinsic semiconductor has ------

   i) A few electrons ii)many holes iii)many free electrons iv)no free electrons or no holes

3) If the PIV rating of a diode is exceeded, -------.

   i) The diode conducts poorly ii) the diode behaves as Zener diode
   iii) the diode is destroyed iv) the diode work as capacitor

4) .A transistors converts -----

   i) Dc power into ac power ii) ac power into dc power iii) high resistance into low resistance iv) low resistance into high resistance

Q-1)B)Answer any two of the following questions. (6)

1) Write a note on intrinsic semiconductor.
2) Explain operation of NPN transistor.
3) What do you mean by biasing? Explain the need for bais stabilisation

Q-2) A) Answer any two of the following questions. (6)

1) Define: i) depletion layer, ii) barrier potential iii) knee voltage.
2) Calculate I_E in a transistor for which $\beta=50$ and $I_B = 20\mu A$.
3) Write a note fixed bias.

Q.2) B) Answer any one of the following question. (4)

1) Define α and β of transistor? Obtain the relation between α and β.

2) Define the behaviour of a PN junction under forward and reverse

Q-3) A) Answer any two of the following questions. (6)

1) Compare :conductors ,semiconductors ,and insulators
2) In a common base connection, I_E=1mA, I_c=0.95mA calculate the value of I_B.
3) Explain the use of transistor as switch.

Q-3) B) Answer any one of the following. (4)

1) Calculate the co-ordinates of operating point if fixed bais method is used and Rc = 1.2 kΩ , RB=100kΩ and VCC = 8V and β = 50.
2) Calculate the value of IB IC and IE in collector to base baising method. VCC =9V , RB = 1mΩ , Rc = 3Ω and β = 95 and RE = 1kΩ.

Q-4) A) Answer any two of the following questions. (6)

1) Explain V-I characteristics of P-N junction diode .Draw the circuit diagram .
2) What do you mean by amplifier ? Explain common base transistor configuration .
3) Compare BJT and FET

Q-4) B) Answer any one of the following. (4)

1) Explain collector to base bias circuit.
2) Explain decibel gain of multistage amplifier.Why dB scale is used in amplifiers.

Q-5) A) Answer any two of the following. (6)

1) Write a note on p-type semiconductor .
2) Explain the construction of a junction transistor and draw the symbols.
3) Explain collector to base bias circuit

Q-5) B) Answer any one of the following. (4)

1) Draw circuit diagram of typical common emitter amplifier and explain the function of each component in it.
2) Write the calssification of amplifers.

OR

Q-5) A) Answer any two of the following. (6)

1) Write a note on N-type semiconductor
2) Explain doping and areas of emitter base and collector regions in a transistor.
3) Explain voltage divider biasing circuit.

B) Answer any one of the following. (4)

1) In a transistor circuit if V_{cc}=10 v, R_c =5K zero signal base current 25μA and β=40.Find the co –ordinates of load line and operating point .Draw loadline.

2) Draw circuit diagrams for three configrations of a transistors.