

- NOTE : 1. Figure should be Neat and labeled.
2. All Questions are compulsory.
3. Right side indicates marks.

Q.1 Answer any 2 from following.

1. Draw and explain PN junction Forward bias.
2. Explain transistor as a switch in detail.
3. Write a short note on Zener diode.
4. Explain transistor as an amplifier.

(10)

Q.2 Answer any 2 from following.

1. Draw and explain Darlington pair.
2. Draw and explain DC amplifier.
3. Draw and explain BJT as a single stage amplifier.
4. Draw and explain Multistage amplifiers.

(10)

Q.3 Answer any 2 from following.

1. In Astable circuit, $R_A = 25K\Omega$, $R_B = 33K\Omega$ and $C = 0.5\mu F$.
Calculate Time required to capacitor charge (T_c), time required to capacitor discharge (T_d).
2. Difference between positive feedback and negative feedback.
3. Difference between Amplifier and oscillator.
4. Draw and explain Hartley Oscillator.

(10)

Q.4 Answer any 2 from following.

1. Explain need for modulation system.
2. Draw and explain any one method to suppress the unwanted sideband.
3. Draw and explain Envelop detector.
4. Explain concept of SSB with advantages and disadvantages.

(10)

Q.5 Answer any 2 from following.

1. Difference between AM and FM.
2. Explain pre-emphasis and de-emphasis.
3. Explain TDM with advantages and disadvantages.
4. Explain PWM and PPM.

(10)

Q.6 Answer any 2 from following.

1. Explain the Need for Fiber optic communication.
2. Explain ASK & PSK.
3. Write a short note on LED & LASER.
4. Explain single mode & Multi mode fibers.

(15)

Q.7 Answer any 3 from following.

1. Difference between BJT and FET
2. Draw and explain two stage RC-coupled amplifier.
3. Draw and explain RC Phase shift Oscillator.
4. Explain Demodulation of AM.
5. Explain the sampling process.
6. Explain Ray Model.