Q1. Compare the different line codes with respect to the bandwidth they use.

→ Manchester code are considered worst line code as far as bandwidth is considered since they have the highest bandwidth. RZ bipolar also has very large bandwidth. NRZ polar is the considered best line code considering bandwidth since they have half the bandwidth of Manchester. Delay line code have the lowest bandwidth

Q2. Compare the different line codes with respect to the ~~bandwidth they use~~ probability of error they may have?

→ AMI is best line code in case of error in them as they have the ability to detect error (violation of rules). Polar & Bipolar signals have a limited error detecting ability. Unipolar & Manchester have zero error detection capability.

Q3. Compare the different line codes with respect to the DC power they require for transmission.

→ NRZ polar has the highest DC component among line codes. NRZ unipolar also has high DC component. RZ line codes have significantly low DC power. Manchester codes have '0' DC power component.

Q4. Compare the different line codes with respect to the self-clocking ability.

→ Manchester line code has the highest self clocking ability among line code. RZ bipolar also has self clocking ability. NRZ have no self clocking ability.

Q5. Site a specific application of line codes.

→ NRZ encoding :- RS232 based protocols.
NRZ coding is most commonly used coding scheme & the reference for all coding schemes

→ RZ coding is used primarily in optical transmission system because it minimizes power consumption & the effects of system dispersion on optical signal distortion

→ Manchester encoding :- Ethernet networks, embedded clock application because it forces at least once transition per bit

→ Differential manchester encoding : token ring networks

→ Modified AMI :- WAN.