

- (d) Describe in detail, how a JFET is biased
- (e) If $V_D = -4$ V and $I_{DSS} = 4$ mA plot g_m versus I_{DSS} for a JFET.
- (f) Compare JFET and MOSFETs.
3. Answer any **two** parts : (10×2=20)
- (a) Explain the high frequency response of an Amplifier.
- (b) Explain the effect of bypass capacitor in the functioning of common-source amplifier.
- (c) Derive the expression for the low frequency amplifier gain of common-emitter amplifier.
4. Answer any **two** parts : (10×2=20)
- (a) Obtain the expression of negative feedback amplifier gain in terms of basic gain of amplifier and feedback factor.
- (b) The gain of an amplifier is 140, when negative feedback is introduced it is reduced to 17.5. Find the value of feedback factor.
- (c) Describe the following :
- (i) Series-series feedback amplifier
- (ii) Shunt-series feedback amplifier.
5. Answer any **two** parts : (10×2=20)
- (a) Deduce the condition of oscillation and frequency of oscillation of weinbridge oscillator.
- (b) Write notes on the following :
- (i) RC oscillators
- (ii) Crystal oscillators.
- (c) If $L = 800$ mH, $C = 0.01$ PF, $R = 1000$ Ω and $C_m = 20$ PF are the various values of an ac equivalent circuit of a piezoelectric crystal, determine F_s and F_p of the crystal.