① The dominant pole in the HFR is usually caused by high impedance node

② Consider IC CS amp with

$R_{sig} = 20k$, $R_{Leff} = \frac{r_o}{2} = 10k\Omega$, $g_m = 4mS$, $C_{gs} = 20fF$

$C_{gd} = 2fF$, $C_{sb} = C_{db} = 10fF$ and $C_L = 15fF$

∴ $f_t = \frac{\omega_t}{2\pi}$ is approx. equal to

$$f_t = \frac{g_m}{2\pi C_{gd}} \approx 320\ GHz.$$

③ If the output pole of the amplifier is the dominant pole, then increasing Rout will ... the GBW of the amp

$$GBW = A_v \cdot BW = G_m R_{out} \cdot \frac{1}{2\pi C_{out} R_{out}} \neq f(R_{out})$$

∴ Not change

④ If a capacitance CF is connected between the input and the output of a buffer, the effective input cap is .. CF

⑤ If both designed under the same conditions, the BW of CG amplifier is higher than the BW of CS amplifier because.. CG amplifier does not suffer from miller effect

⑥ for a CG amplifier, the dominant pole is usually the .. output pole

⑦ The cascode amplifier with $R_D \ll r_o$ can provide .... bandwidth compared to a CS amplifier that has the same load resistance higher

(8) for a CS amplifier, the dominant pole is usually the -- Pole input

(9) Consider a Common Gate amplifier, $g_m = 4\ mS$, r_o is very large $C_{gs} = 20\ fF$, $C_{gd} = 5\ fF$, $C_{sb} = C_{db} = 10\ fF$, $C_L = 15\ fF$ $R_{sig} = 10k\Omega$ and $R_L = 10\ k\Omega$. The dominant pole frequency is approximately equal to --

$$\omega_{Pd} = \frac{1}{2\pi R_L((C_L + C_{db} + C_{gd})} = 530\ MHz$$

(10) Consider an IC CS amplifier fed with a source having source resistance $R_{sig} = 20k\Omega$ and having an effective load resistance R_L composed of r_o of the transistor parallel with equal r_o of current source load.

$g_m = 4mS$, $r_o = 20k\Omega$, $C_{gs} = 20fF$, $C_{gd} = 2fF$, $C_{sb} = C_{db} = 10ff$ $C_L = 15fF$. the dominant pole frequency is approx equal to --

$$\omega_{pd} = \frac{1}{2\pi R_{sig}[C_{gd} * A_v + C_{gs})}$$

$$A_v = g_m \frac{r_o}{2} = 40$$

$\therefore \omega_{pd} = 80\ MHz$