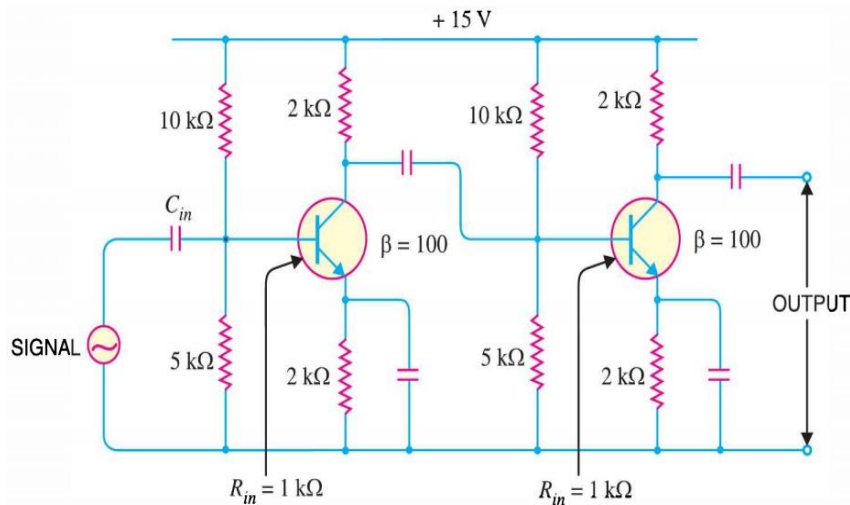
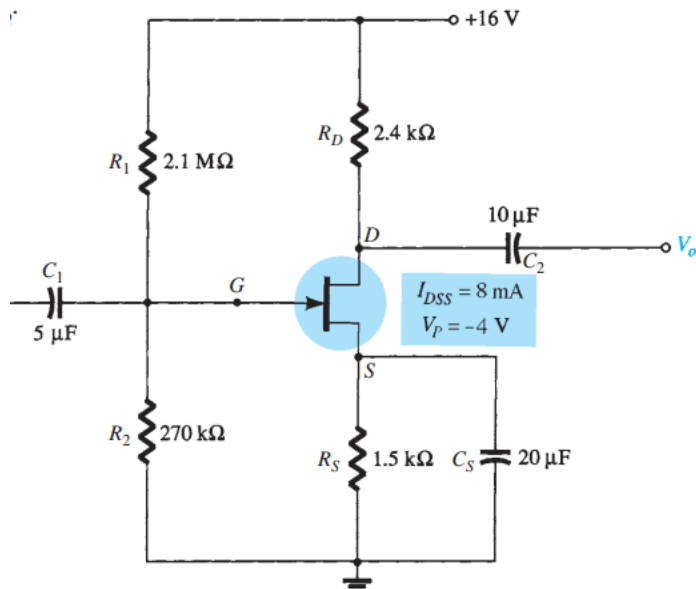


- 2(a). What is the significant feature of a differential amplifier? Explain common mode rejection of a differential amplifier. **CO1 R, 02**
Un
- 2(b). There is a multistage RC-coupled transistor amplifier in “Fig. 2” If the input resistance of each stage is 1K, find: i) Voltage gain of first stage, **CO2 Ev 03**
 ii) voltage gain of second stage and iii) total voltage gain.



“Fig. 2” Multistage RC-coupled transistor amplifier.

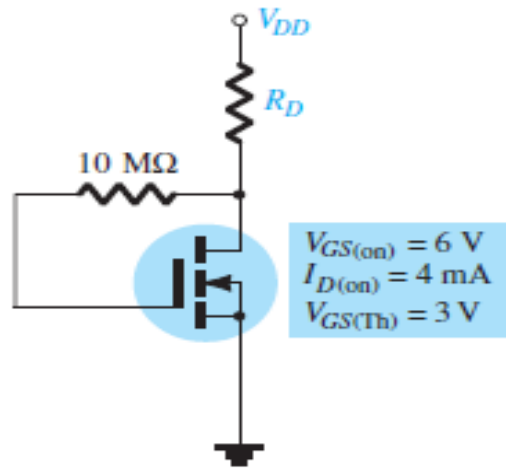
- 2(c). What are the applications of multistage amplifier? **CO1 R 01**
- 3(a). Why N channel FET’s are preferred over P channel FET’s? **CO1 Ev 01**
- 3(b). Determine the following from the following network shown in “Fig. 3”. **CO2 Ev 02**
 (a) I_{DQ} and V_{GSQ} , (b) V_{DS}



“Fig. 3” n-channel voltage-divider biased JFET.

- 3(c). Design a voltage-divider bias network using a depletion-type MOSFET **CO3 Cr 03**
 with $I_{DSS} = 10 \text{ mA}$ and $V_P = -4 \text{ V}$ to have a Q -point at $I_{DQ} = 2.5 \text{ mA}$
 using a supply of 24 V. In addition, set $V_G = 4 \text{ V}$ and use $R_D = 2.5R_S$
 with $R_1 = 22 \text{ M}\Omega$. Use standard values.

- 4(a). What do you mean by threshold voltage? Why drain current of MOSFET is zero before threshold voltage? **CO1 U 01**
- 4(b). Derive the expression for transconductance of MOSFET? **CO1 An 02**
- 4(c). Show the construction and principle of operation of Enhancement mode MOSFET with the help of suitable diagram. **CO1 Ap 03**
- 5(a). Draw the V-I characteristics of UJT with the help of an equivalent circuit. **CO1 R 01**
- 5(b). The levels of V_{DS} and I_D are specified as $V_{DS} = 12V_{DD}$ and $I_D = I_{D(on)}$ for the network of “Fig. 4”. Determine the levels of V_{DD} and R_D . What are the closest standard commercial values? **CO3 Ev 03**



“Fig. 4” n-channel E-MOSFET.

- 5(c). In a unijunction transistor, $\eta = 0.8$, $V_P = 10.3$ V and $R_{B2} = 5$ k Ω . Determine R_{B1} and V_{BB} . **CO2 Ev 02**
6. Viva-Quiz: The time of viva-quiz will be declared in google classroom. **CO1 20**

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