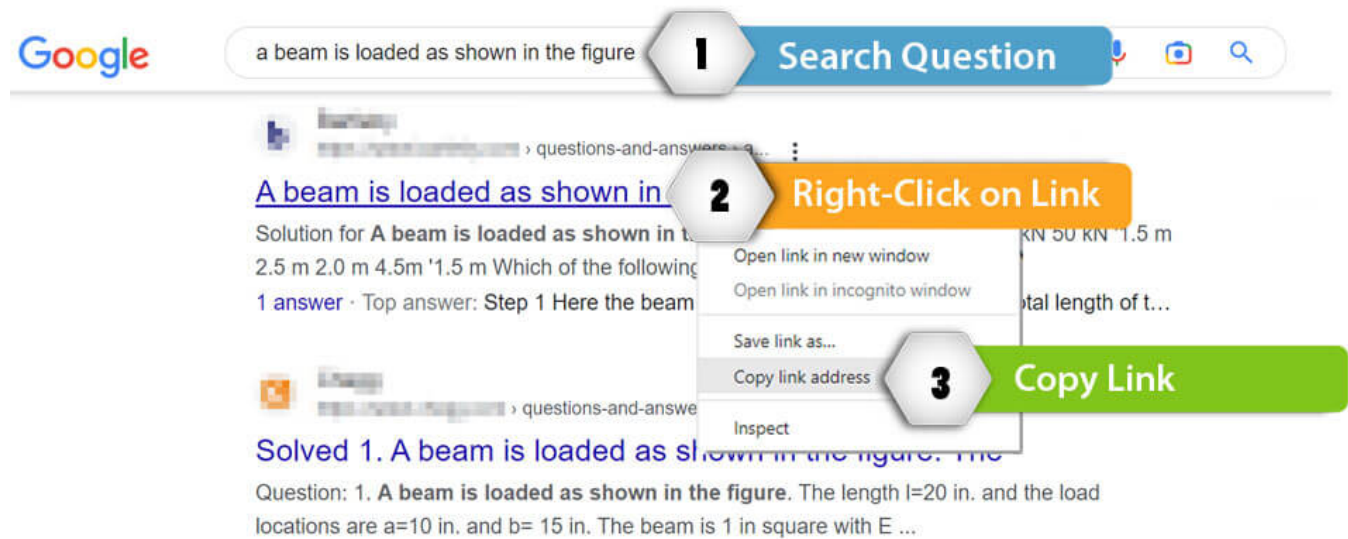


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To do: If you are getting wrong answer or irrelevant answer.

Fix #1 >> We suggest you to follow the directions shown in the below image to get right question link.



Answer

$$|V_P| = 6 \rightarrow V_P = -6 \text{ (For JFET)}$$

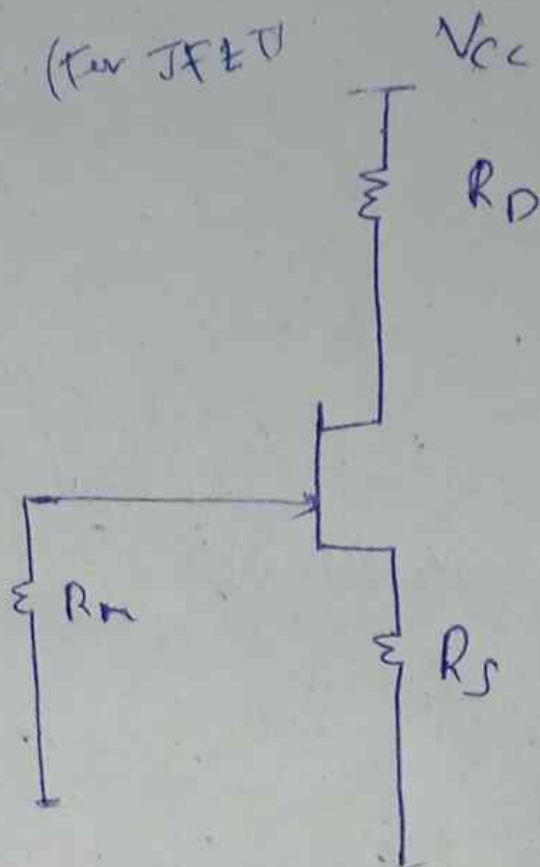
$$I_{DSS} = 8 \text{ mA}$$

$$V_P = -6 \text{ V}$$

$$I_{DQ} = 4 \text{ mA}$$

$$V_{CC} = 14 \text{ V}$$

$$R_D = 3 R_S$$



$$I_{DS} = I_{DSS} \left(1 - \frac{V_{GS}}{V_P}\right)^2$$

$$4 \text{ mA} = 8 \text{ mA} \left(1 - \frac{V_{GS}}{-6}\right)^2$$

$$\frac{4 \text{ mA}}{8 \text{ mA}} = \left(1 + \frac{V_{GS}}{6}\right)^2$$

$$\frac{1}{2} = \left(1 - \frac{V_{GS}}{6}\right)^2$$

$$1 + \frac{V_{GS}}{6} = \frac{1}{\sqrt{2}}$$

$$R_S = \frac{V_S}{I_D} = \frac{1.75736}{4\text{m}} = 439.34\Omega$$

$$R_S = 439.34\Omega$$

$$R_D = 3R_S$$
$$= 3(439.34)$$

$$R_D = 1318\Omega$$