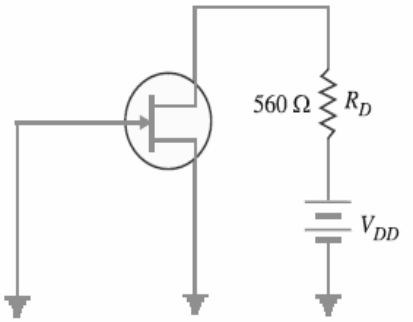
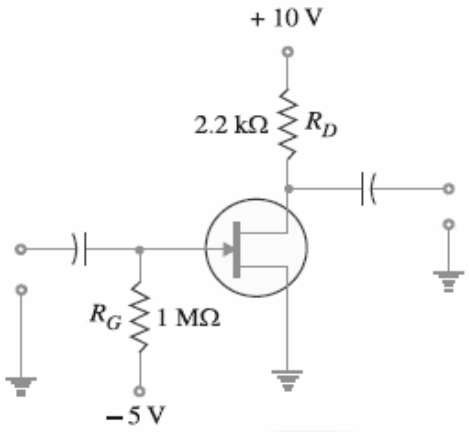
# *Electronic Devices*

## *Sheet #7*

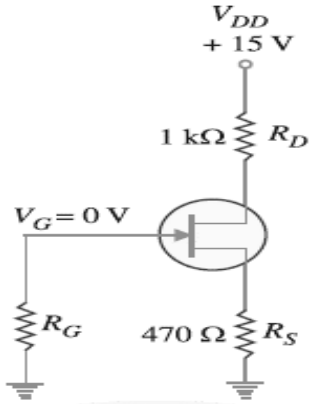
**1. For the JFET shown, VGS (off) = – 4V and IDSS = 12 mA. Determine the minimum value of VDD required to put the device in the constant-current region of operation.**



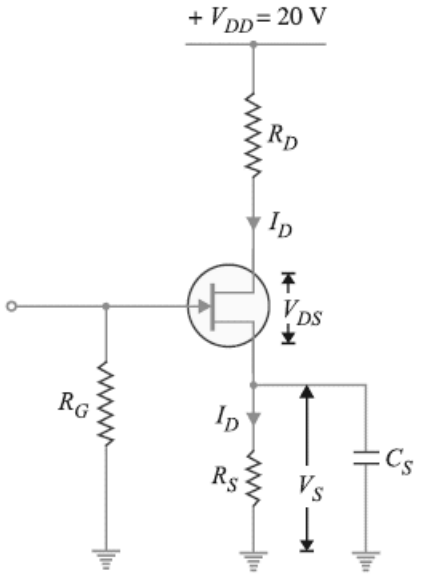

**2. A JFET has values of VGS (off) = – 8V and IDSS = 16 mA. Determine the values of VGS, ID and VDS for the circuit.**



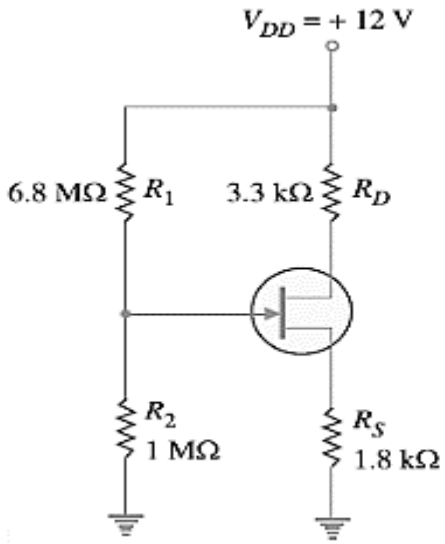

**3. Find VDS and VGS in circuit shown, given that ID = 5 mA.**



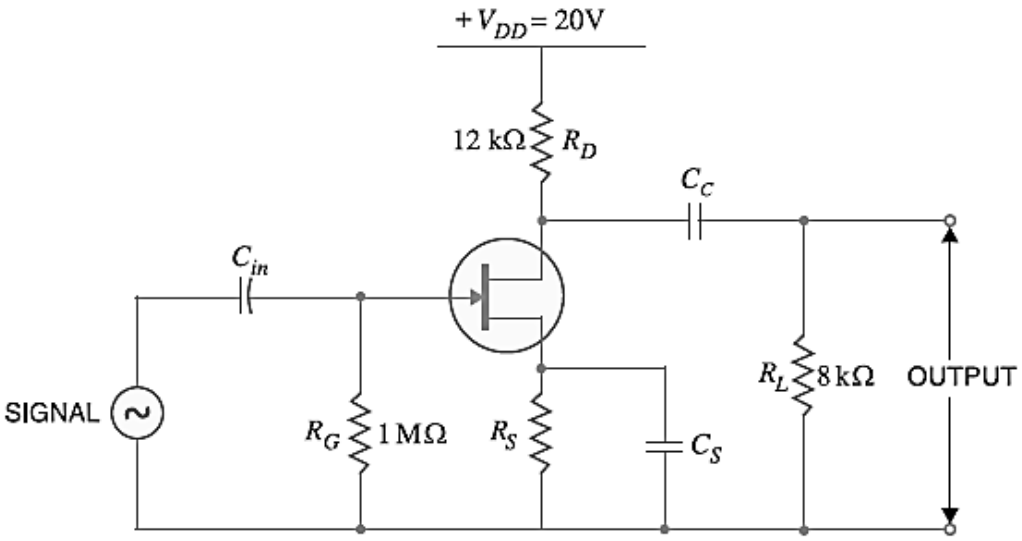
**4. In a self-bias n-channel JFET, the operating point is to be set at ID = 1.5 mA and VDS =10 V. The JFET parameters are IDSS = 5 mA and VGS (off) = − 2 V. Find the values of RS and RD, given that VDD = 20 V.**




**5. Determine ID and VGS for the JFET with voltage-divider bias in circuit shown, given that VD = 7V.**



**6. The JFET in the amplifier has a transconductance gm = 1 mA/V. If the source resistance RS is very small as compared to RG, find the voltage gain of the amplifier.**




**7. For the JFET amplifier circuit shown, calculate the voltage gain with (i) RS bypassed by a capacitor (ii) RS un-bypassed.**