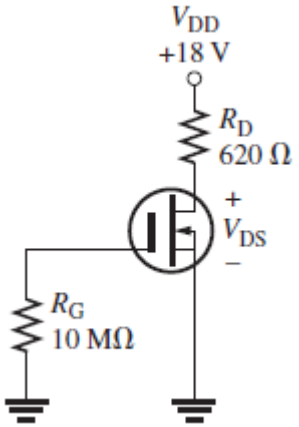
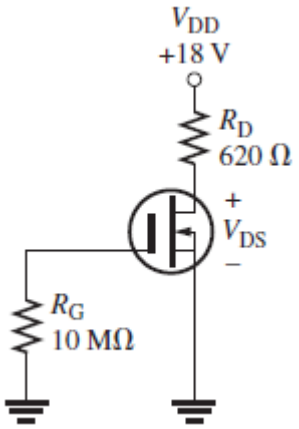
Electronic Circuits II - Tutorial 05

T & F

1	A D-MOSFET has a physical channel and an E-MOSFET has an induced channel.	T
2	ESD means *electronic semiconductor device.*	F
3	MOSFETs must be handled with care.	T

MCQ

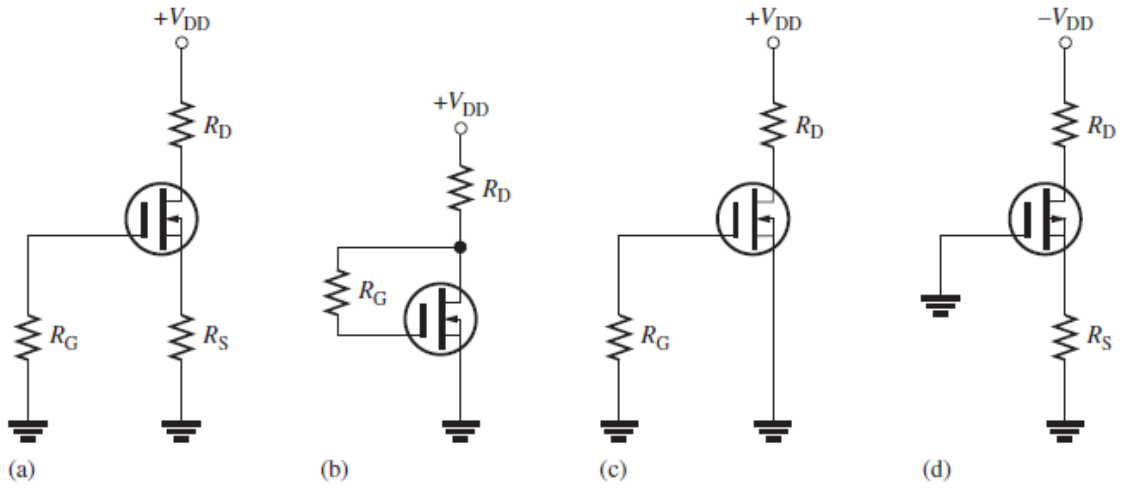
#	Question	Answer
1	If the value of *R*G in Figure is increased, *V*G will  **(a)** increase **(b)** decrease **(c)** not change	c
2	If the value of *I*DSS in Figure is increased, *V*DS will  **(a)** increase **(b)** decrease **(c)** not change	b
3	A certain *p*-channel E-MOSFET has a If *V*GS _ 0 V, the drain current is **(a)** 0 A **(b)** *I*D(on) **(c)** maximum **(d)** *I*DSS	a
4	A certain *p*-channel E-MOSFET has a If *V*GS _ 0 V, the drain current is **(a)** 0 A **(b)** *I*D(on) **(c)** maximum **(d)** *I*DSS	a

Problems

Q1	Determine I_{DSS}, given $I_D = 3$ mA, $V_{GS} = -2$ V, and $V_{GS(off)} = -10$ V.
Sol 1	..... 4.69 mA .....

Q2

Determine in which mode (depletion, enhancement or neither) each D-MOSFET in Figure is biased.



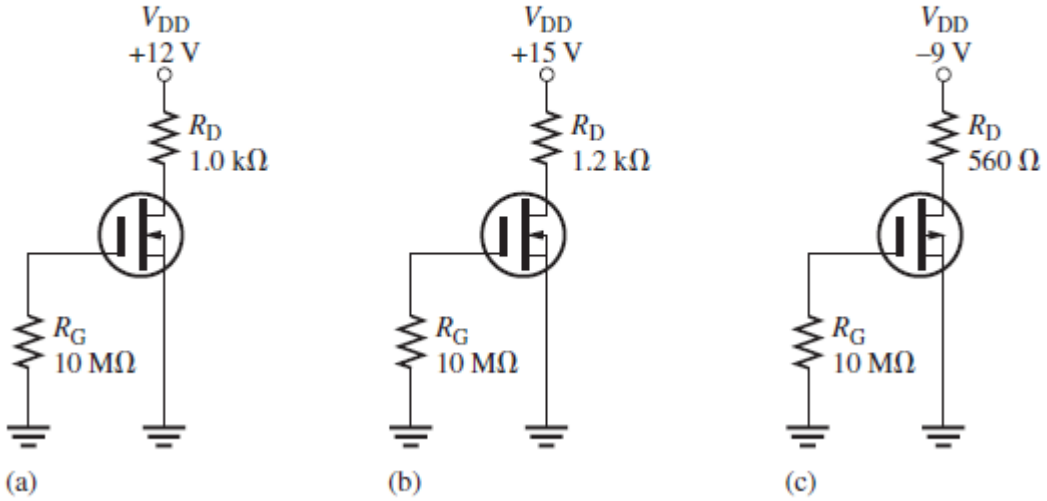
Sol 2

(a) Depletion (b) Enhancement

(c) Zero bias (d) Depletion

Q3

Determine V_{DS} for each circuit in Figur . $I_{DSS} = 8$ mA.

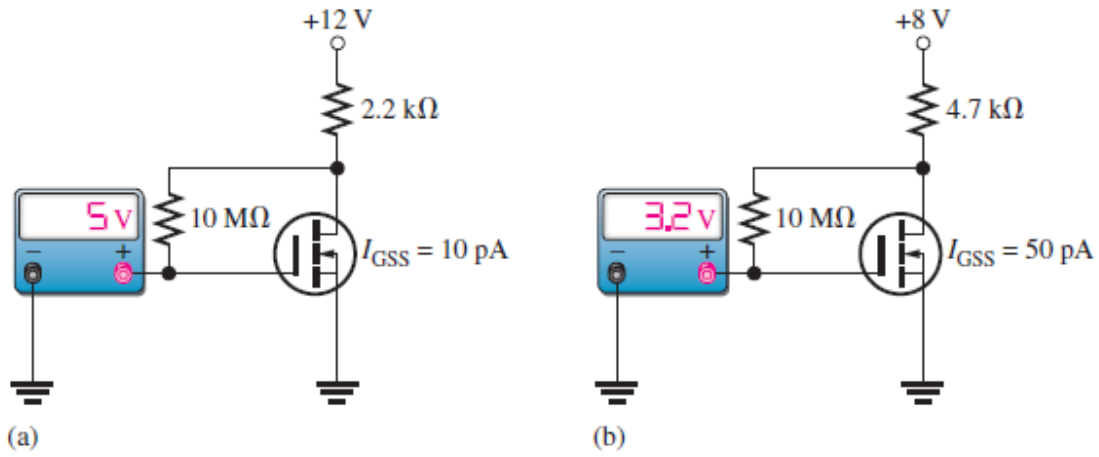


Sol 3

(a) 4 V **(b)** 5.4 V **(c)** −4.52 V

Q 4

Based on the V_{GS} measurements, determine the drain current and drain-to-source voltage for each circuit in Figure



Sol 4

... **(a)** 5 V, 3.18 mA **(b)** 3.2 V, 1.02 mA .....