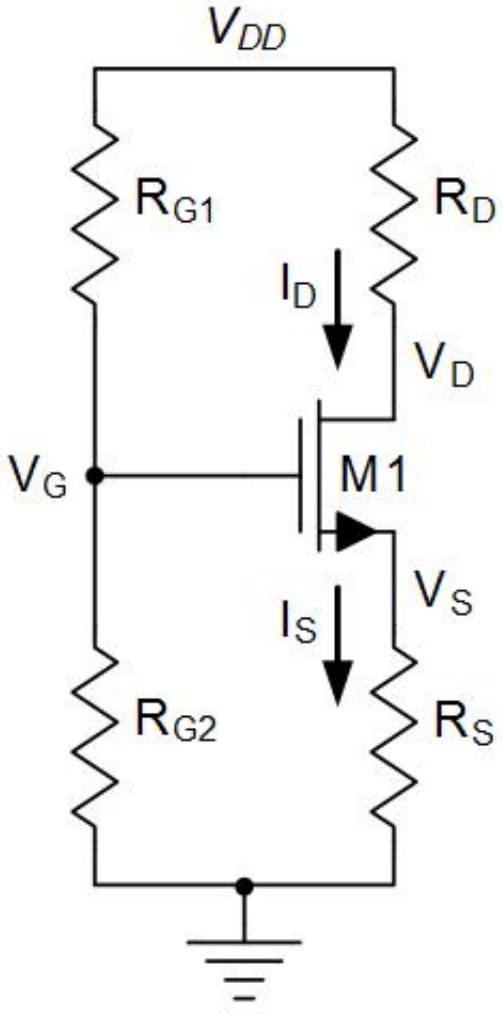
Started on	Saturday, 25 November 2017, 9:23 PM
State	Finished
Completed on	Saturday, 25 November 2017, 10:03 PM
Time taken	39 mins 17 secs
Grade	**10.00** out of 10.00 (**100**%)

Question 1

Correct

Mark 2.00 out of 2.00

For the MOSFET bias circuit shown, what is the source current, Is, in milliamps? Assume that the transistor is in the saturation region, and use: Vdd = 14V, Rg1 = 51.5kΩ, Rg2 = 49.9kΩ, Rd = 3.1kΩ, Rs = 4.9kΩ, Vt = 0.7V, and Von = 0.26. (Remember that Von = Vov = Vgs-Vt) Neglect the effect of channel-length modulation and body effect.



Answer: 1.185

The correct answer is: 1.21

Correct

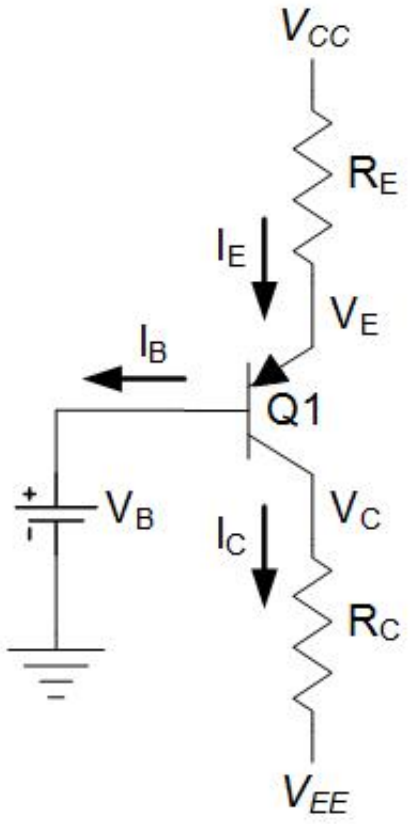
Marks for this submission: 2.00/2.00.

Question 2

Correct

Mark 2.00 out of 2.00

For the BJT bias circuit shown, what is the base current, Ib, in microamps? Use Vcc = 10V, Vee = -6V, Vb = -1.6V, Rc = 3.3kΩ, and Re = 9.4kΩ. Assume that the transistor is in the forward-active region, with β = 32 and |Vbe(on)| = 0.7V. Neglect the effects of base-width modulation.



Answer: 35.1386

The correct answer is: 35.1

Correct

Marks for this submission: 2.00/2.00.

Question 3

Correct

Mark 2.00 out of 2.00

MOSFET amplifiers use DC bias circuits to keep the transistors “on” so they can respond to small variations in the input signal.

Select one:

- (•) True ✓
- ( ) False

The correct answer is 'True'.

Correct

Marks for this submission: 2.00/2.00.

Question 4

Correct

Mark 2.00 out of 2.00

What is the gate-to-source capacitance, Cgs, in fF for an NMOS FET operating in triode with W = 57μm, L = 0.39μm and tox = 29 angstroms?

Answer: 132.287 ✓

The correct answer is: 132.35

Correct

Marks for this submission: 2.00/2.00.

Question 5

Correct

Mark 2.00 out of 2.00

What is the transconductance, gm, in mA/V for an PNP BJT operating in the forward-active region at 27° C with Ic = 369μA? Use Vt = kT/q = 26mV.

Answer: 14.19 ✓

The correct answer is: 14.19

Correct

Marks for this submission: 2.00/2.00.