Unit 3 - WEEK 1

Week 1 Assignment 1

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-02-12, 23:59 IST.

1) For the circuit shown in Fig 1.1. Find the current I_1 flowing through the resistor 5kΩ. Select the correct option from the following: *2 points*

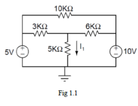

Fig 1.1

a) $\frac{135}{88}$ mAmp
b) $\frac{4}{7}$ mAmp
c) $\frac{26}{21}$ mAmp
d) $\frac{5}{7}$ mAmp
e) 0 Amp

a) b) c) d) e)

No, the answer is incorrect.
Score: 0
Accepted Answers:
c)

2) For the circuit shown in Fig 1.2, find the DC voltage at its output node. Select the correct option from the following: *2 points*

a) 5 V
b) 2.5 V
c) 4 V
d) 2.6 V
e) 3.25 V

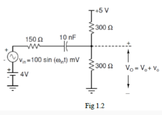

Fig 1.2

a) b) c) d) e)

No, the answer is incorrect.
Score: 0
Accepted Answers:
b)

3) For the circuit shown in Fig 1.2, assuming the capacitor is "shorted" for the input signal frequency, calculate the amplitude of the output signal (in mV). Select the correct option from the following: *2 points*

a) 0
b) 25
c) 50
d) 75
e) 100

a) b) c) d) e)

No, the answer is incorrect.
Score: 0
Accepted Answers:
c)

4) For the circuit shown in above Fig 1.2, calculate the minimum input frequency, ω_{in} (in krad/sec) to get the output signal is at least $25\sqrt{2}$ mV. Select the correct option from the following: *2 points*

a) 100
b) 200
c) 400
d) 500
e) 1000/3

a) b) c) d) e)

No, the answer is incorrect.
Score: 0
Accepted Answers:
e)

5) For the circuit shown in the Fig 1.3, find its input-output transfer characteristics by assuming the diode is an ideal. Select the correct option from the following: *2 points*

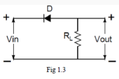

Fig 1.3

a)

b)

c)

d)

e)

a) b) c) d) e)

No, the answer is incorrect.
Score: 0
Accepted Answers:
a)

6) For the circuit shown in Fig 1.4, what is the closest option (given below) for the voltage across the diode obtained after the 2nd iteration? [*Given:* For the diode, reverse saturation current = 10^{-13} Amps and non-ideality factor = 1. Thermal equivalent voltage = 25 mV] *2 points*

a) 0.7854 V
b) 0.6954 V
c) 0.6255 V
d) 0.6 V
e) 0.5954 V

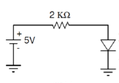

Fig 1.4

a) b) c) d) e)

No, the answer is incorrect.
Score: 0
Accepted Answers:
e)

7) For the circuit shown in Fig 1.4 , what is the closest option (provided below) for the diode current (in mA) obtained after the 3rd iteration? Select the correct option from the following: *2 points*

a) 10^{13}
b) 2.606
c) 2.503
d) 2.202
e) 2.304

a) b) c) d) e)

No, the answer is incorrect.
Score: 0
Accepted Answers:
d)

8) For the circuit shown in Fig 1.5, find the value of the d.c. current through the diode (I_D) and the corresponding value of the on-resistance of the diode (r_D) using piece-wise-linear model (practical model) of diode having cut-in voltage, V_γ = 0.6 V. [*Given:* Non-ideality factor of the diode = 1 and thermal equivalent voltage = 25 mV]. Select the correct option from the following: *2 points*

a) I_D = 1mA and r_D = 25 Ω
b) I_D = 0.94 mA and r_D = 26.6 Ω
c) I_D = 1.06 mA and r_D = 24.5 Ω
d) I_D = 0 A and r_D = ∞ Ω
e) I_D = 1mA and r_D = 0 Ω

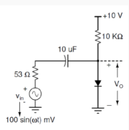

Fig 1.5

a) b) c) d) e)

No, the answer is incorrect.
Score: 0
Accepted Answers:
b)

9) Find the DC output voltage for the above circuit shown in the Fig 1.5. Select the correct option from the following: *2 points*

a) 575 mV
b) 600 mV
c) 650 mV
d) 625 mV
e) 1.25 V
f) 10.0 V

a) b) c) d) e) f)

No, the answer is incorrect.
Score: 0
Accepted Answers:
d)

10) Find the amplitude of the output signal voltage for the above circuit shown in the Fig 1.5 at the signal frequency, ω = 1 Mrad/sec. Select the correct option from the following: *2 points*

a) 33.35 mV
b) 100 mV
c) 50.00 mV
d) 53.67 mV
e) 79.53 mV

a) b) c) d) e)

No, the answer is incorrect.
Score: 0
Accepted Answers:
a)