Unit 13 - WEEK 11

Week 11 Assignment 11

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

Due on 2020-04-15, 23:59 IST.

Common data for Q 11.1 to Q 11.6:

The circuit shown in Fig 11.1 is a current amplifier due to feedback.

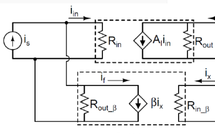

Fig 11.1

The values of the components of the forward current amplifier are given as: R_{in} = 4 kΩ and R_{out} = 4 kΩ.

The current gain of the forward current amplifier is given as A_I = 100 and the current gain of the feedback current amplifier is given as β = 0.19.

The values of the components of the ideal feedback current amplifier are given as: R_{in_fl} = 0 Ω and R_{out_fl} = ∞ Ω.

The values of the components of the non-ideal feedback current amplifier are given as: R_{in_fl} = 100 Ω and R_{out_fl} = 5 kΩ.

1) Refer to the circuit as shown in Fig 11.1, find the value of overall current gain $|A_{I\_fl}| = \left|\frac{i_o}{i_s}\right|$ for an ideal feedback network. Select the closest option from the following: *1 point*

a) 5 b) 19 c) 100 d) 1000 e) 2000

a) b) c) d) e)

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

2) Refer to the circuit as shown in Fig 11.1, find the value of input resistance for the current amplifier due to an ideal feedback network. Select the closest option from the following: *1 point*

a) 40 Ω b) 200 Ω c) 800 Ω d) 20 kΩ e) 80 kΩ

a) b) c) d) e)

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

3) Refer to the circuit as shown in Fig 11.1, find the value of output resistance for the current amplifier due to an ideal feedback network. Select the closest option from the following: *1 point*

a) 40 Ω b) 200 Ω c) 800 Ω d) 20 kΩ e) 80 kΩ

a) b) c) d) e)

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

4) Refer to the circuit as shown in Fig 11.1, find the value of overall current gain $|A_{I\_fl}| = \left|\frac{i_o}{i_s}\right|$ for a non-ideal feedback network. Select the closest option from the following: *2 points*

a) 97.5 b) 20 c) 11.3 d) 8.6 e) 2

a) b) c) d) e)

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

5) Refer to the circuit as shown in Fig 11.1, find the value of input resistance for the current amplifier due to a non-ideal feedback network. Select the closest option from the following: *2 points*

a) 114 Ω b) 354 Ω c) 197 Ω d) 2.2 kΩ e) 796 Ω

a) b) c) d) e)

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

6) Refer to the circuit as shown in Fig 11.1, find the value of output resistance for the current amplifier due to a non-ideal feedback network. Select the closest option from the following: *2 points*

a) 46.3 kΩ b) 1.1 kΩ c) 362 Ω d) 100 Ω e) 4.1 kΩ

a) b) c) d) e)

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

Common data for Q 11.7 to Q 11.12:

The circuit shown in Fig 11.2 is a transimpedance amplifier due to feedback.

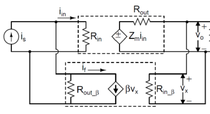

Fig 11.2

The values of the components of the forward transimpedance amplifier are given as: R_{in} = 2 kΩ and R_{out} = 1 kΩ.

The transimpedance gain of the forward transimpedance amplifier is given as Z_m = 10 kΩ and the transconductance gain of the feedback transconductance amplifier is given as β = 1.1 mΩ.

The values of the components of the ideal feedback transconductance amplifier are given as: R_{in_fl} = ∞ Ω and R_{out_fl} = ∞ Ω.

The values of the components of the non-ideal feedback transconductance amplifier are given as: R_{in_fl} = 5 kΩ and R_{out_fl} = 4 kΩ.

Consider, the value of load resistor R_L = 5 k Ω for every problem.

7) Refer to the circuit as shown in Fig 11.2, find the value of overall transimpedance gain $|Z_{m\_fl}| = \left|\frac{v_o}{i_s}\right|$ for an ideal feedback network. Select the closest option from the following: *2 points*

a) 8.3 kΩ b) 820 Ω c) 10 kΩ d) 5 kΩ e) 2 kΩ

a) b) c) d) e)

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

8) Refer to the circuit as shown in Fig 11.2, find the value of input resistance for the transimpedance amplifier due to an ideal feedback network. Select the closest option from the following: *1 point*

a) 160 Ω b) 2 kΩ c) 82 Ω d) 24 kΩ e) 197 Ω

a) b) c) d) e)

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

9) Refer to the circuit as shown in Fig 11.2, find the value of output resistance for the transimpedance amplifier due to an ideal feedback network. Consider the load resistor R_L is also a part of transimpedance amplifier. Select the closest option from the following: *2 points*

a) 82 Ω b) 12 kΩ c) 833 Ω d) 3.5 kΩ e) 5 kΩ

a) b) c) d) e)

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

10) Refer to the circuit as shown in Fig 11.2, find the value of overall transimpedance gain $|Z_{m\_fl}| = \left|\frac{v_o}{i_s}\right|$ for a non-ideal feedback network. Select the closest option from the following: *2 points*

a) 1.1 kΩ b) 7.1 kΩ c) 44.5 kΩ d) 595 Ω e) 1.6 kΩ

a) b) c) d) e)

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

11) Refer to the circuit as shown in Fig 11.2, find the value of input resistance for the transimpedance amplifier due to a non-ideal feedback network. Select the closest option from the following: *2 points*

a) 1.3 kΩ b) 960 Ω c) 8.3 kΩ d) 214 Ω e) 6 kΩ

a) b) c) d) e)

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

12) Refer to the circuit as shown in Fig 11.2, find the value of output resistance for the transimpedance amplifier due to a non-ideal feedback network. Consider the load resistor R_L is also a part of transimpedance amplifier. Select the closest option from the following: *2 points*

a) 714 Ω b) 4.4 kΩ c) 115 Ω d) 8.3 Ω e) 6 kΩ

a) b) c) d) e)

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