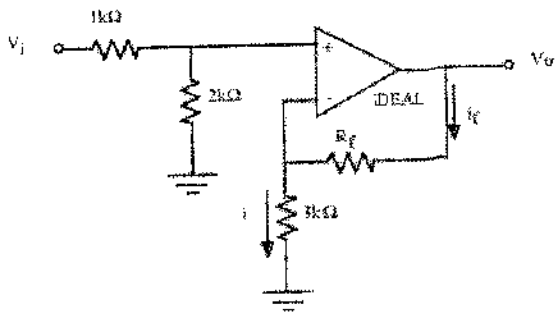




This exam measures ILOs no: a.1 .a.4, b.5, b.9, C.13 and C.14, d.8
from 1 to 13 each one [1Mark] and from 15 to 18 each one [3Marks]

- | | |
|--|--|
| 1. What is a filter?
a) Frequency selective circuit
b) Amplitude selective circuit
c) Frequency damping circuit
d) Amplitude damping circuit | 2. Name the filter that has two stop bands?
a) Band-pass filter
b) Low pass filter
c) High pass filter
d) Band-reject filter |
| 3. What are filters created by using resistors and capacitors or inductors and capacitors called?
a) Active filters b) Passive filters
c) Continuous filters d) Differential filters | 4. What is the value of notch frequency if the values of resistance and capacitance are 100 kV and 0.02 μ F?
a) 79.6Hz b) 21.5Hz
c) 82.4Hz d) 40Hz |
| 5. In a positive clipper, the diode conducts when
a) $V_{in} < V_{ref}$ b) $V_{in} = V_{ref}$
c) $V_{in} > V_{ref}$ d) None of the mentioned | 6. A third-order filter will have a roll off rate of
a) 20 dB/decade b) 40 dB/decade
c) 60 dB/decade d) 30 dB/decade |
| 7. Storage capacitance in the PN junction is due to: a) The majority carriers
b) The minority carriers
c) The majority and the minority carriers, equally d) None of these | 8. The basic purpose of filter at the output of a rectifier is to
a) minimize variations in ac input signal
b) suppress harmonics in rectified output
c) remove ripples from the rectified output
d) stabilize dc output voltage |
| 9. The reverse current in a diode is of the order of
a) kA b) mA c) μ A d) A | 10. An ideal crystal diode is one which behaves as a perfect when forward biased.
a) conductor b) insulator
c) resistance material d) none of the above |
| 11. If the temperature of a crystal diode increases, then leakage current
a) remains the same b) decreases
c) increases d) becomes zero | 12. A crystal diode is a device
a) non-linear b) bilateral
c) linear d) none of the above |
| 13. Find the input voltage of an ideal op-amp. It's one of the inputs and output voltages are 2v and 12v. (Gain=3)
a) 8v b) 4v c) -4v d) -2v | |

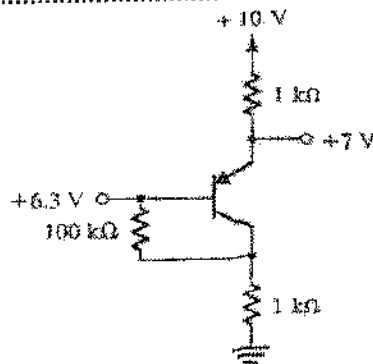
14. For the ideal op amp shown, what should be the value of resistor R_f to obtain a gain of 5?



- a) 12.0 kΩ b) 19.5 kΩ c) 22.5 kΩ d) 27.0 kΩ

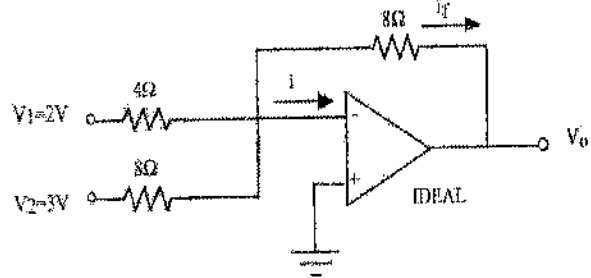
16. For this circuit β equal.....

- a) 900
b) 9
c) 0.9
d) 90



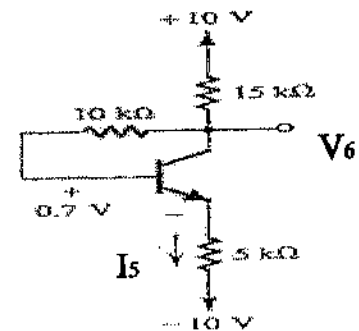
15. Evaluate the following amplifier circuit to determine the value of resistor R_4 in order to obtain a voltage gain (v_o/v_i) of -120.

- a) -6 V b) -7 V c) -1 V d) 6 V



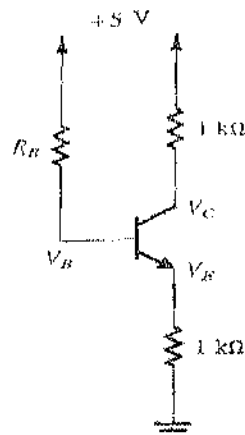
17. For this circuit I_s equal..... β is very large

- a) 1.965mA
b) 0.65mA
c) 0.965mA
d) 0mA

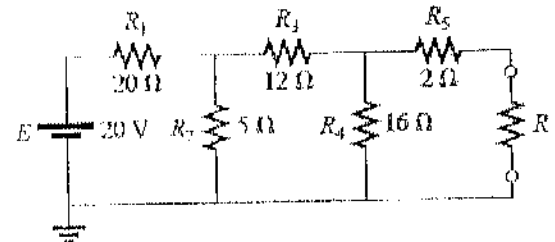


18. For this circuit $R_B=10k$

- V_C , V_E and V_B respectively
a) 2.86v, 4.16v, 2.86v
b) 1.13v, 3.91v, 4.61v
c) 1.13v, 2.86v, 1.16v
d) 0v, 1.13v, 0v



[5Marks]



For the following circuit:

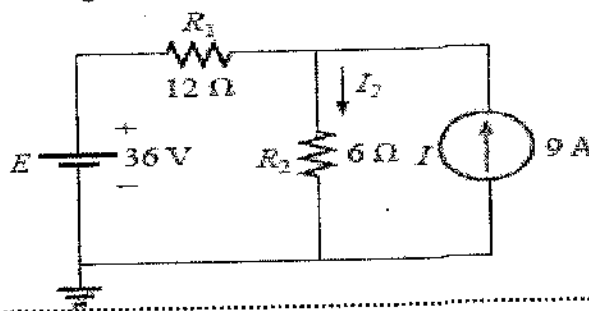
19. The Thévenin equivalent resistance [5Marks]

- a) 8Ω b) 10Ω c) 18Ω d) 25Ω

20. Thévenin equivalent voltage: [5Marks]

- a) 0.53V b) 1V c) 2V d) 13.2V

Answer the following questions (21, 22, 23, and 24) using superposition method for the following network: each one [5Marks]



21. Considering the effect of the 36V source, current in 6Ω resistor is:

- a) 2A b) 4A c) 8A d) 6A

22. Considering the effect of the 9A source, the current in 6Ω resistor is:

- a) 2A b) 4A c) 8A d) 6A

23. The total current in the 6Ω resistor is:

- a) 2A b) 4A c) 8A d) 6A

24. The total power in the 6Ω resistor is:

- a) 24W b) 240W c) 384W d) 216