



C20-AEI-402

7414

BOARD DIPLOMA EXAMINATION, (C-20)

OCTOBER/NOVEMBER—2023

DAEI – FOURTH SEMESTER EXAMINATION

LINEAR INTEGRATED CIRCUITS

Time : 3 Hours]

[Total Marks : 80

PART—A

3×10=30

- Instructions :** (1) Answer **all** questions.
(2) Each question carries **three** marks.
(3) Answers should be brief and straight to the point and shall not exceed five simple sentences.

1. State the need of high CMRR.
2. Define slew rate.
3. State any three effects of negative feedback on an amplifier.
4. Draw the circuit diagram of instrumentation amplifier using op-amp.
5. Draw the ideal frequency response of HPF and BPF.
6. List the disadvantages of active filters.
7. Draw the pin diagram of 555 IC.
8. What is the function of reset pin in 555 IC?
9. List any three applications of PLL.
10. Draw the basic comparator circuit using operational amplifier.

- Instructions :** (1) Answer either (a) or (b) from each question.
(2) Each question carries **eight** marks.
(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

- 11.** (a) (i) Draw the pin diagram of IC 741.
(ii) Draw the schematic symbol of an op-amp and state the typical values of input impedance and output impedance for an ideal operational amplifier.

(OR)

- (b) Explain the operation of differential amplifier.

- 12.** (a) Explain the operations of inverting and non-inverting amplifier using operational amplifier.

(OR)

- (b) Explain the operation of voltage to current converter using operational amplifier.

- 13.** (a) Explain the operation of BPF (wide and narrow) using operational amplifier with its frequency response.

(OR)

- (b) Explain the operation of BSF (wide and narrow) using operational amplifier with its frequency response.

- 14.** (a) Explain the operation of monostable multi vibrator using IC 555.

(OR)

- (b) Explain the operation of astable multi vibrator using IC 555.

- 15.** (a) Explain the operation of phase locked loop with block diagram.

(OR)

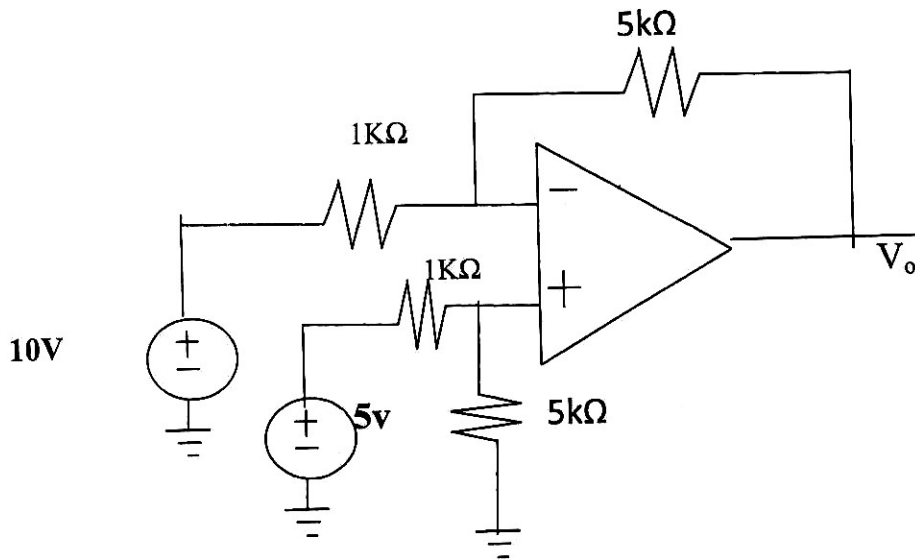
- (b) Explain the operation of triangular wave form generator using operational amplifier.

PART—C

10×1=10

- Instructions :** (1) Answer the following question.
(2) The question carries **ten** marks.
(3) Answer should be comprehensive and the criterion for valuation is the content but not the length of the answer.

16. Find the V_o for the operational amplifier circuit given below.



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