



C14-AEI-503

4609

BOARD DIPLOMA EXAMINATION, (C-14)

SEPTEMBER/OCTOBER - 2020

DAEIE—FIFTH SEMESTER EXAMINATION

LINEAR INTEGRATED CIRCUITS AND APPLICATIONS

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 for high CMRR.
2. List different package styles of analog ICs.
3. State the open-loop operation of operational amplifier.
4. Draw the circuit of ideal integrator.
5. State the merits of active filters over passive filters.
6. Draw the ideal and practical frequency response plot for Band Select Filter (BSF).
7. State the functions of trigger and threshold pins in 555 timer IC.
8. List the types of multivibrators.
9. Draw the circuit for square wave generator using op-amp.
10. State the principle of triangular wave generator.

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PART—B

10×5=50

Instructions : (1) Answer *any five* questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. Explain typical Integrated Circuit (IC) operational amplifier with block diagram.

12. Explain voltage gain, output impedance, input impedance, bandwidth and input-offset voltage of an op-amp.

13. Explain the operation of non-inverting amplifier with waveforms.

14. Explain the operation of instrumentation amplifier with diagram.

15. Explain the operation of Low Pass Filter (LPF) using op-amp.

16. Explain the operation of various blocks of 555 timer IC with diagram.

17. Explain the operating principle of Phase Locked Loop (PLL) with block diagram.

18. (a) Explain the use of 555 timer IC to generate square wave using diode. 5

(b) Explain the operation of comparator circuit using op-amp. 5
