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C14–AEI–503

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BOARD DIPLOMA EXAMINATION, (C–14)

OCT/NOV—2017

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) Answer should be brief and straight to the point and shall not exceed *five* simple sentences.

1. List any three basic specifications of ideal operational amplifier.

2. List different package styles of analog ICs.

3. Draw the circuit of integrator using op-amp.

4. Draw the circuit of different amplifiers using op-amp.

5. Draw the ideal and practical frequency response plots for a high-pass filter.

6. List the advantages of active filters.

7. Draw the pin diagram of 555 IC timer.

8. Mention the formula for output frequency of monostable multivibrator.

9. Draw the circuit diagram of a square wave generator using op-amp.

10. List any three applications of PLL.

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. Draw and explain the block diagram of typical integrated circuit operational amplifier.

12. Define the following terms :

(a) Input offset voltage

(b) Large signal voltage gain

(c) Slew rate

(d) Bandwidth

13. Draw the circuit diagram of instrumentation amplifier and explain the operation of the circuit.

14. *(a)* Draw the circuit of non-inverting amplifier and explain it.

(b) Draw the circuit of inverting amplifier and explain it.

15. Draw the circuit of band stop filter using op-amp and explain the operation of the circuit.

16. Draw the block diagram of 555 IC timer and explain function of each block in detail.

17. *(a)* Draw the circuit of square wave generator using 555 IC timer.

(b) Explain the operation of comparator using op-amp with a sketch.

18. Draw the circuit of Wein-Bridge oscillator using op-amp and explain it.

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