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BOARD DIPLOMA EXAMINATION, (C-16)

OCTOBER/NOVEMBER—2023

DECE – FOURTH SEMESTER EXAMINATION

LINEAR ICs 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. List six merits of SMT technology.

2. Define input impedance and slew rate of op-amp.

3. Explain the concept of virtual ground in op-amp.

4. Distinguish between voltage and current time base generators.

5. Draw the circuit diagram of summer using op-amp.

6. Draw the pin configuration of 555 IC.

7. List the applications of PLL.

8. Define monotonicity and settling time of D/A converter.

9. List any three applications of current to voltage converters.

10. State the need for A/D and D/A conversion.

PART—B

10×5=50

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

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

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

11. *(a)* Explain various levels of integration. 4

(b) List and explain the different types of IC packages and mention their power rating. 6

12. Explain the working of differential amplifier using BJT with a neat circuit diagram. 10

13. Explain the working of bootstrap sweep circuit using op-amp. 10

14. Draw and explain the RC phase shift oscillator using op-amp. 10

15. Draw and explain the block diagram of 555 IC. 10

16. Explain the working of frequency multiplier and FM demodulator using PLL. 10

17. *(a)* Explain the working of voltage to current converter circuit. 5

(b) Explain the pinout diagram of MAX1112 serial ADC. 5

18. Explain the D/A converter using R-2R ladder network. 10

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