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C16–EC–**401**

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BOARD DIPLOMA EXAMINATION, (C–16)
SEPTEMBER/OCTOBER - 2020
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. Distinguish between linear and digital ICs.

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

3. Explain the concept of virtual ground.

4. Define sweep voltage.

5. Draw differentiator circuit using op-amp.

6. Draw the block diagram of PLL.

7. Draw the circuit diagram of FM demodulator using PLL.

8. List any three applications of current to voltage converter circuit.

9. List the advantages of instrumentation amplifier.

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

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. *(a)* Distinguish between various levels of integration (SSI, MSI, LSI, VLSI, ULSI).   6

       (b) List different types of IC packages and also mention the power rating of each type.   4

12. *(a)* Explain the working of differential amplifier constructed using BJTs with diagram.   5

       (b) Explain the operation of fixed negative voltage IC regulator.   5

13. Explain the working of Wien bridge oscillator using op-amp with neat diagram.   10

14. Explain the working of monostable multivibrator using op-amp with waveforms.   10

15. Draw and explain the working of 555 IC based astable multivibrator.   10

16. *(a)* Explain the working of VCO (LM 566).   6

       (b) Explain the frequency multiplier using PLL.   4

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

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

18. Explain D/A conversion using R-2R ladder network with neat diagram.   10

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