6435

BOARD DIPLOMA EXAMINATION, (C-16)

MARCH / APRIL — 2021

DECE — FOURTH SEMESTER EXAMINATION

LINEAR ICs AND APPLICATIONS

Time : Three Hours]   [*Maximum Marks* : 80

PART-A   3×10=30

Instructions :   (*i*)   Answer **all** questions.

(*ii*) Each question carries **three** marks.

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

1. List the advantages of Integrated circuits over Discrete circuits.

2. Define the Op-amp parameters :
   (*a*) Open loop gain
   (*b*) CMRR
   (*c*) Slew rate

3. List the different types of IC regulators.

4. Distinguish between voltage and current time base generators.

5. List out the applications of operational amplifier.

6. Define Lock range and Capture range of PLL.

7. Draw the pin configuration of 555 timer IC.

8. Define Monotonicity and Resolution of D/A converter.

9. List the applications of voltage to current converter.

10. State the function of following pins of serial ADC chip MAX1112 :
    (*a*) SSTRB
    (*b*) SCLK

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

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

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

11. (*a*) Explain the Surface Mount Technology (SMT). 7

(*b*) List six merits of SMT Technology. 3

12. What is differential amplifier ? Explain its working with circuit diagram using BJT.

13. Explain the working of Bootstrap sweep circuit using Op-amp.

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

15. Draw and explain the working of Astable multivibrator using 555 IC.

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

17. Draw and explain the Instrumentation amplifier using three amplifiers.

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

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