Register No.: 

# 494

## October 2017

*Time – Three hours*
*(Maximum Marks: 75)*

*[N.B: (1) Q.No. 8 in PART – A and Q.No. 16 in PART – B are compulsory. Answer any FOUR questions from the remaining in each PART - A and PART - B.*

*(2) Answer division (a) or division (b) of each question in PART-C.*

*(3) Each question carries 2 marks in PART – A, 3 marks in Part – B and 10 marks in PART – C.]*

### PART – A

1. What is operational amplifier?
2. What is the voltage gain of non-inverting amplifier?
3. What is meant by voltage follower?
4. Define lock range in PLL.
5. Write some applications of PLL.
6. Define voltage regulator.
7. What is the output frequency of astable multivibrator?
8. Define monotonicity in DAC.

### PART – B

9. What is the difference between virtual ground and ordinary ground?
10. Write the advantages of IC over discrete comp nents.
11. Draw an operational amplifier circuit to divide the input signal by 2?
12. Draw the pin diagram of IC VCO 566.
13. Explain how PLL is used as frequency translator.
14. Define any three specifications of ADC.
15. Why do we need ADC?
16. Draw the pin diagram of IC LM723.

PART – C

17. (a) What is differential amplifier? Explain how Op. Amp. is used as differential amplifier.

*(Or)*

(b) (i) Explain CMRR and slew rate.
(ii) Explain the equivalent circuit of Op. Amp.

18. (a) With neat diagram, explain the operation of triangular wave generator.

*(Or)*

(b) Briefly explain the operation of voltage to current converter and current to voltage converter.

19. (a) Draw the block diagram of PLL and explain each block.

*(Or)*

(b) With neat block diagram, explain the operation of VCO 566.

20. (a) With neat diagram, explain successive approximation type ADC.

*(Or)*

(b) Explain: (i)Sample and hold circuit (ii)Quantization.

21. (a) With neat diagram, explain the operation of Schmitt trigger using IC 555.

*(Or)*

(b) Draw the block diagram of IC 555 and explain each block.

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