Code No: 125EB **R15**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year I Semester Examinations, May - 2018
LINEAR AND DIGITAL IC APPLICATIONS
(Common to ECE, ETM)

Time: 3 hours **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

1.a) List the AC characteristics of op-amp. [2]
b) What are the different features of IC 723? [3]
c) What is the significance of VCO in PLL? [2]
d) Compare active and passive filters. [3]
e) What are the applications of ADC? [2]
f) An 8 bit D/A converter as a resolution of 8mV/bit. Find the analog output voltage for the input 10111010. [3]
g) Which IC is used as BCD code converter? [2]
h) How to drive CMOS gate to TTL gate? [3]
i) How to convert JK flip-flop to D flip flop? [2]
j) List different types of memories. [3]

PART - B

(50 Marks)

2.a) Explain the working of Non-Inverting amplifier and derive the equation of its Gain.
b) How op-amp is used as a differentiator? Explain. [6+4]

OR

3.a) Explain the working of a Schmitt trigger with neat circuit diagram.
b) How op-amp is used for comparator? Explain its working. [5+5]

4.a) Design an active high pass filter with cutoff frequency of 4KHz.
b) How to generate a sawtooth wave form? Explain the working of such a circuit with neat circuit diagram. [5+5]

OR

5.a) Draw the functional block diagram of 565IC and explain its working.
b) Explain the working of an Astable multivibrator using IC555 with circuit diagram. [5+5]

6. Explain the working of R-2R ladder DAC with neat circuit diagram and write its limitations. [10]

OR

7. Explain the working of dual slope ADC with neat circuit diagram and compare its performance with other ADC. [10]

8. Design a driving circuit for LED and which 74XX series IC is used for it. [10]

OR

9. Design a Priority encoder circuit and which 74XX series IC is used for it. [10]

10. Design a synchronous counter using 74XX ICs and explain its working with neat timing waveforms. [10]

OR

11. Design a decode counter using Jk-Flip-Flops. [10]

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