Code No: 155SN **RA**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year I Semester Examinations, February - 2022
LINEAR AND DIGITAL IC APPLICATIONS
(Electrical and Electronics Engineering)

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

Answer any five questions
All questions carry equal marks

1.a) Explain the working of Inverting amplifier and derive the equation of its Gain.
b) How op-amp is used as an Integrator? Explain. [8+7]

2.a) Explain the working of an Instrumentation amplifier with neat block diagram.
b) How IC723 is used for regulators? Explain its working with neat circuit diagram. [8+7]

3.a) Design an active low pass filter with cutoff frequency of 4KHz.
b) How to generate a triangular wave form? Explain the working of such a circuit with neat circuit diagram. [7+8]

4.a) Draw the functional block diagram of IC555 and explain its working.
b) Explain the significance of VCO in PLL and also write its applications. [8+7]

5. What are the limitations of R-2R ladder DAC? How to overcome these and draw such circuit and explain its working? Also, derive its output voltage expression. [15]

6. Explain the working of counter type ADC with neat circuit diagram and compare its performance with other ADC. [15]

7.a) Draw the internal structure of IC 74×151 and then design 16×1 MUX using thus 8×1 MUX.
b) Design a 4-bit binary adder and which IC is used for it. [9+6]

8.a) Design a four bit right shift register using 74XX ICs and explain its working with neat timing waveforms.
b) Draw the architecture of static ROM and explain how it stores the bit. [9+6]

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