R16

Code No: 136CH

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year II Semester Examinations, November/December - 2020

LINEAR AND DIGITAL IC APPLICATIONS

(Electrical and Electronics Engineering)

Time: 2 hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks

1.a) Draw the circuit diagram of an instrumentation amplifier using op-amp with its operation.
b) What are the features of IC 741? [10+5]

2.a) With neat circuit diagram explain the working principle of IC 723 voltage regulator.
b) What is slew rate? Discuss the methods of improving slew rate. [8+7]

3.a) Design and draw the square wave generator using op-amp and explain its operation.
b) Design a first -order active low pass filter such that it has a cut off frequency of 2 kHz and pass Band gain of '1'. [8+7]

4.a) Draw the block schematic of PLL and explain the operation of each block.
b) Design an Astable Multivibrator using 555 Timer to produce 1 KHz square wave for duty cycle=0.5. [8+7]

5.a) Discuss about the working of R-2R Ladder D-to-A Converter with neat circuit diagram.
b) What are the limitations of weighted resistor type D/A converter? [10+5]

6.a) Explain the operation of Successive approximation A-to-D Converter.
b) Explain in brief stability of a converter. [10+5]

7.a) With suitable example, explain how CMOS logic drived by TTL logic.
b) Design a 32:1 max using 74×151 IC and draw its logic diagram. [8+7]

8.a) Design a 4-bit bidirectional shift register with parallel load.
b) Explain the working of 4 bit asynchronous counter using ICs. [8+7]

---ooQoo---