Total No. of Questions—**8**] [Total No. of Printed Pages—**3**

Seat No.	

[5057]-272

S.E. (Instrumentation and Control Engineering) (I Sem.)

EXAMINATION, 2016

LINEAR INTEGRATED CIRCUITS

(2012 PATTERN)

Time : Two Hours **Maximum Marks : 50**

N.B. **:—** (*i*) Solve Q. No. **1** *or* Q. No. **2**, Q. No. **3** *or* Q. No. **4**, Q. No. **5** *or* Q. No. **6**, Q. No. **7** *or* Q. No. **8**.

(*ii*) Neat diagrams must be drawn wherever necessary.

(*iii*) Figures to the right indicate full marks.

(*iv*) Your answers will be valued as a whole.

(*v*) Use of logarithmic tables, slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.

(*vi*) Assume suitable data, if necessary.

1. (*a*) Explain the difference between open-loop and closed-loop OP-AMP with neat diagrams. [6]

(*b*) Explain different types of Noise in OP-AMP. [6]

Or

2. (*a*) How to measure the Common Mode Rejection Ratio of OP-AMP with neat circuit diagrams ? [6]

P.T.O.

(*b*) Derive the voltage equation for the voltage-series feedback amplifier with neat circuit diagram. [6]

3. (*a*) Explain chopper stabilized amplifier with neat circuit diagram. [6]

(*b*) State Barkhausen criteria for suitable oscillation. Design Wein-bridge oscillator for the output frequency of F_o = 1 kHz with neat circuit diagram. Assume suitable data. [6]

Or

4. (*a*) Explain current booster circuit using OP-AMP with neat diagrams. [6]

(*b*) Explain Inverting Schmitt trigger with neat circuit diagram, waveforms and hysteresis. [6]

5. (*a*) Explain Astable Multivibrator using IC 555 with neat circuit diagram and waveforms. [8]

(*b*) Draw and Design High Voltage Regulator (HVR) using IC 723 for 12 V output. Assume suitable data. [5]

Or

6. (*a*) Design One-shot multivibrator using IC 555 with neat circuit diagrams for the pulse width of 2.97 ms. [5]

(*b*) What is Regulator ? State advantages of switching regulator over linear regulators. [8]

7. (*a*) Explain second order Butterworth high-pass filter and also draw circuit diagram. [8]

(*b*) What is "Q" of filter ? Draw a detailed ideal and practical responses for all types of filters. [5]

Or

8. (*a*) Explain Butterworth Twin-T filter using neat circuit diagram and its response. [6]

(*b*) Design first order Butterworth non-inverting low-pass filter for the cut-off frequency of 1000 Hz. Assume suitable data with neat circuit diagrams. [7]