

22391

12425

03 Hours / 70 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
(2) Answer each next main Question on a new page.
(3) Illustrate your answer with neat sketches wherever necessary.
(4) Figures to the right indicate full marks.
(5) Assume suitable data, if necessary.
(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

- 1. Attempt any FIVE of the following:** **10**
- a) Need of tuned amplifier.
 - b) List application of Strain Gauge.
 - c) Draw block diagram of OP-AMP with symbol.
 - d) Characteristics of IC-741.
 - e) Draw pin diagram of IC555.
 - f) List application of PLL.
 - g) State any two selection criterion of transducers.

P.T.O.

- 2. Attempt any FOUR of the following:** **12**
- a) Explain working of single tuned amplifier with neat circuit diagram.
 - b) Difference between inverting and non-inverting amplifier.
 - c) Explain Miller's sweep generator with circuit diagram.
 - d) Explain PLL as a frequency multiplier.
 - e) Explain with neat sketch construction and working of LVDT.
- 3. Attempt any FOUR of the following:** **12**
- a) Difference between RC coupled, transformer coupled and direct coupled amplifier.
 - b) Draw the Schmitt Trigger using OP-AMP. Describe its working with input and output waveforms.
 - c) Explain crystal oscillator with suitable diagram.
 - d) Draw pin diagram of PLLIC565.
 - e) Calculate the resistance of PT 100 for 50°C and sketch the characteristics of PT 100.
- 4. Attempt any THREE of the following:** **12**
- a) Explain transistor as an amplifier.
 - b) Differentiate between open loop and closed loop configuration of OP-AMP.
 - c) State the application of positive and negative feedback.
 - d) Differentiate between Astable, Mono-stable and Bistable multi vibrators.
 - e) Draw block diagram and explain instrumentation system.

5. Attempt any THREE of the following: 12

- a) Describe single stage CE amplifier with Ckt diagram and frequency response.
- b) Explain the working of inverting zero crossing detector with circuit diagram.
- c) Explain Hartley Oscillator with circuit diagram.
- d) Draw block diagram of LM723. Write the function of LM723.
- e) Draw sample and hold circuit using OP-AMP.

6. Attempt any TWO of the following: 12

- a) Define following parameters of OP-AMP.
 - i) CMRR
 - ii) Slew Rate
 - iii) Input Impedance
 - iv) Bandwidth
 - v) Input bias current
 - vi) Output Impedance.
 - b) Describe the operation of Bootstrap sweep circuit with help of circuit diagram and associated waveforms.
 - c) Compare the fixed voltage regulators using 78XX and 79XX.
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