

T. E. Electronics sem V may-13
sub - LIC & D

17/5/13

AGJ 1st half (d+) 17

Con. 6956-13.

(3 Hours)

GS-8862
[Total Marks : 100

- N.B. :** (1) Question No. 1 is **compulsory**.
(2) Answer any **four** out of the remaining **six** questions.
(3) Assumption made should be clearly **stated**.
(4) Assume any **suitable** data wherever required but justify the **same**.
(5) **Figures** to the **right** indicate **full** marks.
(6) **Illustrate** answers with sketches wherever **required**.

1. Solve any **ten** :-

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- Define input Bias current and offset current
- Explain in brief input offset-Error compensation
- Write the 741 specification rating's
- Write the 555 Ic specification rating's
- Write the 78xx Ic specification rating's
- Write the phase-Locked loop's Monolithic Ic Number and specification rating's
- Disadvange's of Analog Switches
- Advantages of precision Rectifier
- Write the list of Application for Voltage Comparator
- Draw the buffer circuit using IC 741
- Draw the power supply diagram, (Input 230V (50Hz) and o/p 5V dc supply)
- Draw the power supply diagram for output-5Vdc, Supply.

2. Solve any **four** :-

- Compare the inverting and noninverting Amplifier 5
- Explain UGB. Unity gain bandwidth with formula. 5
- Draw current to voltage circuit diagram and give the list of Application's 5
- Draw sample and Hold Amplifier and give the list of the Application's 5
- Draw Instrumentation Amplifier circuit's and give the list of the Advantages and disadvantages. 5

3. (a) Explain in details cascade design for the Active filter. 10
(b) Design a High pass second order filter for the cut off frequency of 1kHz. Passband gain $A_f = 2$. 10

4. (a) Design 10kHz generator with $0.1 \mu\text{F}$ capacitor; IC 741. 10
(b) Design the schmitt trigger circuit, (Draw the circuit). 10

$$V_{in} = 1V_{pp}, \quad V_{ut} = 25\text{mV}, \quad V_{it} = -25\text{mV}$$

Voltage swinge ± 14 Volt,

Calculate R_1 and R_2 , and R_{OM}

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5. (a) Design the 15kHz generator with IC 555 **10**
Capacitor $C = 47 \mu\text{F}$, duty cycle = 60%
Calculate R_A, R_B ,
Draw waveforms.
- (b) Explain if above circuit diagram –
- (i) Duty cycle only adjusted. 40% – What is modification required ? **5**
- (ii) If duty cycle 50% – What is modification required ? **5**
6. (a) Explain 4 bit A to D convertor successive approximation method with tree. **10**
- (b) Draw functional block diagram of Dual slope – A to D converter. Explain its working **10**
with neat sketches.
7. Write short notes on any **four** each :- **5**
- (a) Waveform generator IC 8038
- (b) DAC
- (c) Operational Amplifier block diagram
- (d) IC 555 internal block diagram
- (e) IC 723 internal block diagram
- (f) IC 1M-317 internal block diagram.
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