

(OLD COURSE)**QP Code : 14354****(3 Hours)****[Total Marks : 100**

- N.B. :**
- (1) Question No. 1 is **compulsory**.
 - (2) Attempt any **four** questions out of remaining **six** questions.
 - (3) Assumptions made should be **clearly** stated.
 - (4) Assume any **suitable** data wherever **required** but **justify** the same.
 - (5) **Figures** to the **right** indicate marks.
 - (6) Illustrate answer with **sketches** wherever **required**.
 - (7) Answers to questions should be **grouped** and written **together**.
 - (8) Use a **blue/black pen** to write answers. Use of **pencil** should be **done** only to **draw sketches** and **graphs**.

1. (a) Explain current amplifier. 5
 (b) Explain the log Amplifier. 5
 (c) Compare static RAM and dynamic RAM. 5
 (d) Explain Switched capacitor filter. 5
2. (a) Explain basic requirement of Instrumentation amplifier and find output voltage expression for Instrumentation Amplifier using three op-amp. 10
 (b) List ideal characteristics of amp. 5
 (c) Explain Difference Amplifier. 5
3. (a) Design second order KRC highpass filter with cut off frequency $f_c = 1\text{KHZ}$ and $Q = 5$ and draw circuit diagram. 12
 (b) Explain filter approximations. 8
4. (a) Explain Sample and Hold circuit. Draw input and output waveform. 10
 (b) Draw the block diagram of IC 565 PLL. Explain in detail FSK demodulation using PLL. 10
5. (a) Write the VHDL code for 8 bit shift right register. 10
 (b) Draw and explain block diagram of CPLD 10
6. (a) Design Astable Multivibrator using 555 with output frequency 10 KHZ and duty cycle 70%. 10
 (b) Explain inverting Schmitt trigger and find the expression for the hysteresis width for it also mention transfer characteristics. 10
7. Write short notes on :— 20
 - (a) Function generator IC 8038
 - (b) V to I convertor using grounded load
 - (c) Comparator circuit.