

T.E-V Sem - Biomed

Analog & Digital Circuits Design
TE/D/CBGS/BNO/A DCD
Q.P. Code : 31222

(12)

12/06/2016

(3 Hours)

(Total Marks:80)

- NB: (1) Question no1. Is compulsory
 (2) Attempt any 3 questions from remaining
 (3) Assume suitable data wherever necessary

1. a. Explain Astable Multivibrator for 50% duty cycle. [20]
 b. Explain working of VCO.
 c. Explain advantages of active filters
 d. Explain the working of opto-couplers in detail.
 e. Explain regenerative action of SCR with the help of two transistor analogy.
2. a. Explain low pass KRC filter and derive the equation for Q [08]
 b. Draw and explain the functional block diagram of PLL. Explain Lock [12]
 range, Capture range and pull in time related to PLL along with its applications
3. a. Design a voltage regulator using IC 723 to meet the following specifications:- [10]
 $V_o = 9V, I_o = 100mA, V_{in} = 15 \pm 20V, I_{sc} = 150mA$ & $V_{sense} = 0.7V$
 b. Explain working and construction of a basic stepper motor. [10]
4. a. Explain the functional block diagram of IC8038 [06]
 b. Explain frequency to voltage converter [05]
 c. Design a band pass filter for $F_L = 800\text{ Hz}$ and $F_H = 2\text{ KHz}$ [05]
 d. Design a Monostable Multivibrator for $T_{on} = 1\text{ ms}$ [04]
5. a. Explain Load and Line regulation, in voltage regulator [05]
 b. Explain different applications of AC and DC motors [05]
 c. Design an Instrumentation Amplifier using AD620 for gain of 800 and [10]
 explain its applications.
6. Write short notes on any four:- [20]
 - a) FSK
 - b) Servomechanism
 - c) Types of analog switches
 - d) UJT as relaxation oscillator
 - e) Missing pulse Detector

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