BE (Bio) Analog and Digital circuits Design 10/12/14

SEM-V (CBGS)

Q.P. Code : 14976

(3 Hours) **[Total Marks :80**

N.B. : (1) Question No.**1** is **compulsory**.
(2) Attempt any **three** questions from **remaining.**
(2) Assume suitable **data** wherever **necessary.**

1. (a) Explain monostable multivibrator as a missing pulse detector. 5
   (b) Explain regenerative action of SCR with help of two transistor analogy. 5
   (c) Explain frequency to voltage convertor. 5
   (d) Explain different types of analog switches. 5

2. (a) Draw and Explain functional diagram of IC 555 as Astable multivabraer. Derive the expression for Ton, Toff, T and Duty cycle. Design for output frequency = 5KHz with duty cycle = 65%. 12
   (b) Draw and Explain Low pass KRC filter along with derivation for Q & F. 8

3. (a) Explain working of voltage control oscillator. 5
   (b) Explain working of optocouplers in detail. 5
   (c) Design a voltage regulator using IC723 for following specifications. Output frequency = 7V and Im = 150mA. 10

4. (a) Explain construction and working of basic stepper motor. 10
   (b) Design a 2nd order High pass Butterwith filter with cutoff frequency of 1.5KHz. Also plot its frequency response. 10

5. (a) Explain UJT as a relaxation Oscillator. 10
   (b) Explain functional block diagram of IC 8038. 6
   (c) Design IC 8038 function generator with 50% duty cycle and output frequency fo = 10KHz. Assume, Vcc = 15V, Assume the suitable value for R_p & R_{THD}. 4

6. (a) Design Instrumentation Amplifier using AD620 for gain of 1200 and Explain its application. 10
   (b) Draw and Explain Bipolar driver system for stepper motor. 10

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