

DIPLOMA IN ECE ENGINEERING

Term-End Examination

December, 2012

BIELE-006 : ELECTRONIC PRODUCT DESIGN

Time : 2 hours

Maximum Marks : 70

- Note :** 1. Attempt *any five* questions.
2. Question no. 1 is *compulsory*.

1. (a) Name any simulation software for verification of the design. 2x7=14
(b) Why thermal consideration is necessary for Designing ?
(c) Differentiate between moore and mealy state machines.
(d) Name the building block of an algorithmic state machine.
(e) What is sensitivity of filter Parameters ?
(f) What do you mean by data acquisition system ?
(g) Compare R-2R and Ladder type D to A Converter.
2. Describe DAC interfacing for generating sine wave. Aid your answer with suitable diagram and programming steps. 14

3. Discuss the input power considerations and protection circuits. 14

4. Describe design steps for a washing machine using ASM concept. Illustrate the implementation of the design. 14

5. Design a sequence detector that detects 0010 in the incoming data bit sequence. Draw the circuit diagram using D Flip flop. 14

6. Given the circuit of fig.1 show that 14

$$T(S) = (-) \frac{(R_2/R_3) (1/R_1 R_2 C_1 C_2)}{S^2 + \frac{(R_1+R_2+R_1R_2/R_3)}{R_1 R_2 C_2} S + \frac{1}{R_1 R_2 C_1 C_2}}$$

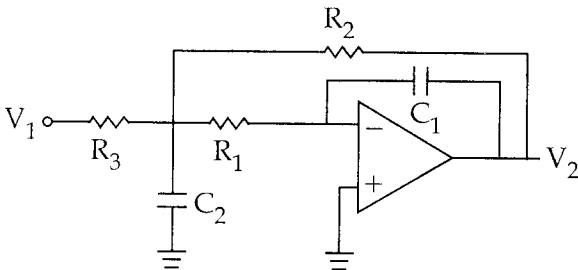


Fig. 1

7. Describe Sallen key architecture for low pass filter and derive its transfer function. 14

8. Write short notes on *any four* of the following :
- (a) Indicators for over current 3.5x4=14
 - (b) Transducers
 - (c) Regulated DC powersupply
 - (d) Cascaded filters
 - (e) Fuse map generation
 - (f) Sequence generator
 - (g) Combinational circuit designing using mux.
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