DIPLOMA IN ECE ENGINEERING

Term-End Examination

December, 2013

00191

BIELE-006 : ELECTRONIC PRODUCT DESIGN

Time : 2 hours   *Maximum Marks : 70*

Note : *(i)* Attempt **any five** questions in all.

(ii) Question no. **1** is **compulsory**.

1. (a) Mention specifications of regulated power
         supply.   **7x2=14**

    (b) Which material is used for fuse and why?

    (c) Comment on MSI and LSI devices.

    (d) Give a comparison of FSM and ASM.

    (e) List the merits of analog filter design over
         digital filter design.

    (f) Compare transducer and sensor.

    (g) Describe analog signal conditioning circuit.

2. (a) Explain regulated dc power supply with the   7
         help of circuit diagram and also explain
         various types of filters used for dc power
         supply.

    (b) Explain the functions of EMI filters and   7
         MCB.

3. Analyze the synchronous circuit given in **14** figure-1 and

(a) Write excitation and output function.

(b) Form the excitation and state table.

(c) Give word description of the circuit.

Fig - 1.
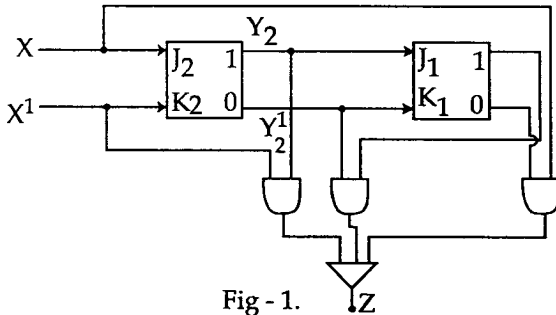
4. (a) Implement the following function using **7** 8 to 1 Mux : $F(x,y,z) = \Sigma m(0,2,3,5)$.

(b) Explain Moose and Mealy machines, with **7** state diagrams in detail.

5. Explain various realization techniques of shallon **14** key and KRC filters.

6. (a) Design a third order 0.1dB chebyshev high **7** pass filter with $f_c = 100Hz$ and high frequency gain $H_0 = 20dB$.

(b) Derive the formulas for transfer functions **7** of band pass and band stop filters.

7. Explain the procedure to select a transducer and A/D converter for data acquisition system for assumed specifications, with suitable example. **14**

8. Write short note on **any four** : **3½x4=14**

   (a) Circuit design verification using simulation software.

   (b) Combinational design using PLD's.

   (c) Sensitivity analysis.

   (d) Cascading of filters.

   (e) DAC Interfacing.

   (f) Selection of Microcontroller.

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