00678

No. of Printed Pages : 3

BIEEE-014

B.Tech. – VIEP – ELECTRICAL ENGINEERING (BTELVI)

Term-End Examination

December, 2015

BIEEE-014 : COMPUTER CONTROL PROCESS

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt any **seven** questions. All questions carry equal marks. Use of scientific calculator is permitted.*

1. (a) How can we improve control through multiple loops ? *5*

(b) What are the conditions for implementing ratio control ? *5*

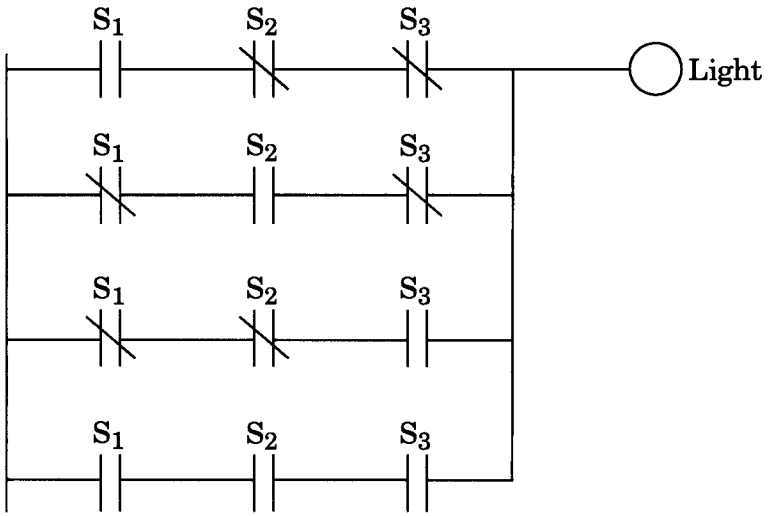
2. What are the stability norms for a MIMO system ? Discuss the solution for design of a multivariable control system using H_2/H_∞ theories. *10*

3. Explain the basic implementation process, including a description of equipment requirements and considerations for batch process control. *10*

4. What is multivariable control ? Derive the basic expression for MIMO systems. *10*

5. Differentiate between sequential function charts and ladder programming used in programmable logic controllers. What are the advantages of ladder programming ? *10*

6. For the ladder diagram shown below, draw the truth table for all possible combinations of switches. Comment on the result obtained. *10*



7. What are the distinct features of a real time system ? Give the complete specifications required for designing a real time system. *10*

8. Discuss the role of computers in the control of industrial processes. Enlist the control hierarchy for plant level automation. *10*

9. (a) Explain the multiple stack arrangement in memory management. *5*

(b) What is the importance of synchronisation during inter task communication in a real time system ? *5*

10. Write short notes on any ***two*** of the following : *2×5=10*

(a) Selective control loops in a multi-loop system.

(b) Robustness in a multi-variable control system.

(c) Architecture of programmable logic controllers.

(d) Man-machine interface.