Total No. of Questions : 8] *[Total No. of Printed Pages : 2*

MEIC-103

M.E./M.Tech., I Semester

Examination, December 2017

Discrete Data and Non Linear Control

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.

ii) All questions carry equal marks.

iii) Assume suitable data wherever necessary.

1. a) Explain time response analysis of sampled data system. 7

   b) Explain reconstruction of sampled data system. 7

2. a) What is sampling process? Write the steps in sampling process. 7

   b) Explain modified transformation in respect to sampling data process. 7

3. a) Explain optimization of digital controller. 7

   b) Explain multirate sampling as zero dynamics from linear to nonlinear system. 7

4. Explain design of digital controllers, with the help of a suitable data. 14

5. a) What is phase plane technique in non-linear system explain. 7

   b) Discuss point transformation method. 7

6. a) Discuss classification of non-linear phenomenon. 7

   b) Explain Poincare and Bendixson's theorem. 7

7. Show how the stability analysis of a third order type-1 system having relay with dead zone type nonlinear element is explained. Draw neat Nyquist diagram to show the analysis. 14

8. Write short notes on any two : 14

   a) Various methods of stability

   b) Canonical form of Lure

   c) Popovs stability criterion

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