

Seat  
No.

--	--	--	--	--	--



मुख - 003

**ELECTIVE - I**  
**Linear System Theory**  
**(1053)**

P. Pages : 1

Time : Three Hours

Max. Marks : 100

Instructions to Candidates :

1. Do not write anything on question paper except Seat No.
2. Answersheet should be written with blue ink only. Graph or diagram should be drawn with the same pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. Assume suitable data if necessary.
5. Solve **any five** questions.

1. a) Discuss the properties of State Transition Matrix. 10  
b) Explain the Various operations of Matrices. 10
2. a) Explain Sampling as Impulse Modulation. 10  
b) Explain State Space representation of discrete system. 10
3. a) Draw and explain the state model for a linear single input and single output system. 10  
b) What are the limitations of Conventional Control Theory. 10
4. a) Explain Empirical rules for the selection of sampling interval ? 10  
b) Explain Principle of Discretisation. 10
5. a) Explain Stability improvement by State Feedback. 10  
b) Explain Signal Processing in digital Control. 10
6. a) State and Explain Cayley Hamilton Theorem. 10  
b) What is Controllability ? Explain matrix Controllability. 10
7. Write Note on :  
a) Kalman's Test 10  
b) Gilbert's Test 10

\*\*\*\*\*