No. of Printed Pages : 03 **Roll No. .....**

F-34

B. Tech. EXAMINATION, May 2018

(Sixth Semester)

(B. Scheme) (Main & Re-appear)

(ME)

ME308B

AUTOMATIC CONTROL

Time : 3 *Hours*] [*Maximum Marks :* 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit.

Unit I

1. (a) How a Typical Block Diagram is represented ? **7**

(b) Compare the following :

(i) Feedback and feed forward control system

(ii) Stable and unstable control system. **8**

2. (a) Explain Mason's formula with suitable examples. **7**

(b) Explain Proportional cum Integral Controller. **8**

Unit II

3. (a) Draw the response of a second order control system if unit step signal is applied. Draw graph for the same and mention each term on graph. **10**

(b) Write short note on error constants. **5**

4. (a) How do we plot closed loop frequency response for first order and second order system in rectangular coordinates. **8**

(b) Explain polar plots and inverse polar plots with example. **7**

Unit III

5. (a) Explain Routh's Hurwitz criterion for the stability of the system. **7**

(b) Explain Nyquist criterion for stability of the system. **8**

6. (a) Give the relation between root locus locations and transient response. **5**

(b) Explain hold device and pulse transfer function. **5**

(c) Explain zeroes and poles of a transfer function. **5**

Unit IV

7. Give the generalized state equation. Discuss the techniques for driving system state space equations. **15**

8. Explain short notes on any *three* of the following :

(i) Hydraulic controller

(ii) Engine governing

(iii) Electronic governors

(iv) Diesel fuel ignition control.