

No. of Printed Pages : 03

Roll No.

W-632

B. Tech. (Weekend)

EXAMINATION, May 2018

(Sixth Semester)

(Re-appear Only)

(ME)

MEW304

AUTOMATIC CONTROLS

Time : 3 Hours]

[Maximum Marks : 100

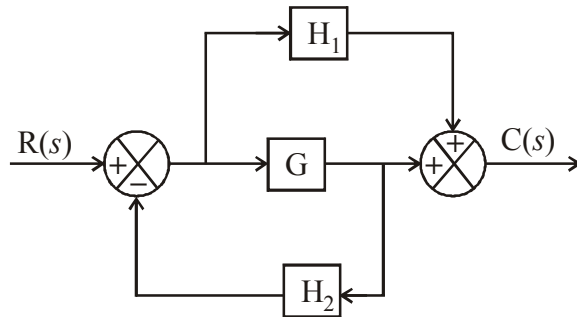
Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt any *Five* questions.

1. What is a block diagram ? Simplify the block diagram as shown in Fig. **20**

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2. Explain with the help of neat sketch the working of a pneumatic controller. **20**
3. What is steady state error ? Obtain unit step response of first order physical system with response curve. **20**
4. Consider the following second order transfer function : **20**

$$G(s) = \frac{1}{s(Ts + 1)}$$

Sketch the polar plot of this transfer function.

5. Consider the following characteristic equation :
 $s^4 + 2s^3 + (4 + K)s^2 + 9s + 25 = 0$
 Using Routh stability criterion, determine the range of K for stability. **20**

6. Draw the Nyquist plot for a control system with open loop transfer function of
 $G(s)H(s) = \frac{1}{s(s+1)}$ and find if the system is stable or not. **20**

7. (a) What is a digital control system ? Explain with the help of neat sketch. **10**
 (b) What are the advantages of getting frequency response of a control system and also explain sinusoidal transfer function. **10**
8. Obtain state space model for the following system : **20**

