No. of Printed Pages : 3

BIEE-035

DIPLOMA - ELECTRICAL ENGG - V SEM

Term-End Examination

00215

June, 2012

BIEE-035 : CONTROL SYSTEMS

Time : 2 hours *Maximum Marks : 70*

Note : *There are total **eight** questions. All questions carries **equal** marks. Question No. **1** is **compulsory**. **Four** questions are to be attempted out of question No **02** to **08**.*

1. Write *'True'/'False'* and justify. **14**

(a) Automatic controllers operate on the difference between set - point and measurement, which is called offset.

(b) The Bode - diagram describes gain and phase shift through the usable frequency range.

(c) Laplace transform of integral of f(t) is SF (s).

(d) Differential gap is often purposely designed above a certain minimum quantity to prevent excessive hysterisis.

(e) Rate Controller Mode is used alone.

(f) Reset Controller Mode is phase - reversing.

(g) Stepper motors are usually controlled by IC chips.

2. Comment on the following statements

(a) Proportional controller can be used as ON-OFF controller 7

(b) Anticipatory controller mode cannot be used independently. 7

3. (a) Write two examples of closed loop control system and identify (by writing) the error amplifier, the controller, the output actuator and the process for each. 7

(b) What is Micro - Stepping : Compare stepper Motor with DC-Servo Motor. 7

4. (a) Write the steps for drawing the Bode Plots. 7

(b) Write a note on PID controllers. 7

5. (a) Define servomechanism. How Synchro can be used as an Error Detector. 1+6

(b) Find the Transfer Function for the block diagram shown in Fig 1. 7

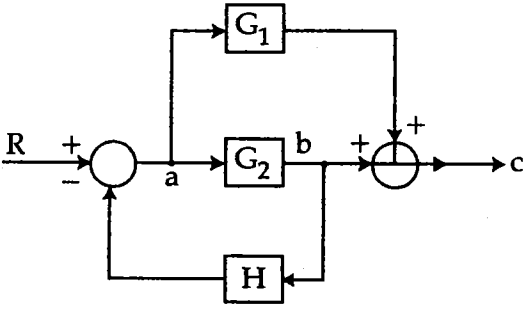

Fig. (1)

6. (a) What are the different test inputs, name them and explain any one. 7

(b) Define order of system. Find the transfer function of any system with unity feedback. 1+6

7. (a) Draw the transient response of a control system to a unit step function and define Delay time, Rise time, Peak time and settling time. 3+4

(b) Examine the stability of a system having characteristic equation as : 7

$3s^4 + 10s^3 + 5s^2 + 5s + 3 = 0$, using Routh's criterion.

8. Write short notes on (***any four***) 14

(a) Classification of Robotics

(b) End Effectors

(c) Characteristic Curve of AC Servomotor.

(d) Circuit Diagram of P controller using op - amp.

(e) Floating Controller Mode

(f) Reluctance Type Stepper Motor