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RN-6821

B. E. - III (Sem. V) (Instrumentation & Control) Examination

May / June – 2010

Control System Component

Time : **3** Hours] [Total Marks : **100**

Instructions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **B. E. - 3 (Sem. 5) (I & C)**

Name of the Subject :

☛ **Control System Component**

☛ Subject Code No. : **6 8 2 1** ☛ Section No. (1, 2,.....) : **1&2**

Seat No. :

Student's Signature

(2) Answer to the two sections must be written in separate answer books.

(3) Figures to the right indicate full marks.

(4) Draw neat figure wherever required.

SECTION - I

1	(a)	(i)	Define circular pitch of gear.	**2**
		(ii)	What is spur gear ?	**2**
		(iii)	Write down the application of gyroscope.	**2**
		(iv)	Define gyroscopic torque.	**2**
		(v)	Write down the application of potentiometer.	**2**
	(b)		Define gear train. Explain any two types of them ?	**8**
2	(a)		Draw the neat diagram of pneumatic relay and explain its construction and working.	**8**
	(b)		What is the difference between cams and follower ? Which are the different types of cams ? Explain any two of them.	**8**

OR

2	(a)		What is gear ? Give their classification and explain any two of them.	**8**
	(b)		Define gyroscope. State two basic principle of gyroscope and explain any one type of gyroscope.	**8**

3 Attempt any two of the following : **8×2 = 16**

(a) Types of follower

(b) Electromagnetic relay

(c) Types of potentiometer.

SECTION - II

1 (a) (i) Write down the drawbacks of DC tachometer. **2**

(ii) What is Synchro ? **2**

(iii) Explain flapper nozzle system. **2**

(iv) What are the major application of stepper motor ? **2**

(v) Give the application of magnetic amplifier. **2**

(b) Draw the diagram of synchro as error detector and explain its working. **8**

5 (a) Explain any two contactless tacho generator. **8**

(b) Explain permanent magnet stepper motor construction and its principle in detail. **8**

OR

5 (a) Explain the concept of amplidyne field. **8**

(b) Explain the basic principle of AC tachogenerator. Also give its advantages. **8**

6 Attempt any two of the following : **8×2 = 16**

(a) Hydraulic valve

(b) Magnetic amplifier with DC load

(c) Explain flapper nozzle system. Also give its application.