Total No. of printed pages = 4

Ch-601/APC/6th Sem/2018/J/A

AUTOMATIC PROCESS CONTROL

Full Marks – 70

Time – Three hours

The figures in the margin indicate full marks for the questions.

Answer *all* the questions from PART – A and any *three* from PART – B.

PART – A

Marks – 25

1. Fill in the blanks : 1×10=10

(a) _____ is often linked to Second Industrial Revolution.

(b) Comparing element is that part of the controller which generates _____ proportional to the _____.

(c) Two position control has two output namely _____ and _____.

[Turn over

(d) The difference between _____ of the _____ and the _____ is known as deviation.

(e) Full form of DDCS is _____.

(f) In Deviation control the output is proportional to _____.

2. Give short and direct answers : 1×10=10

(a) Name two industries where Automatic Process Control is widely used.

(b) Distinguish between manual control and automatic control system.

(c) Define proportional sensitivity (K).

(d) What is the commonly known name for Reset Control ?

(e) What are comparing elements ?

(f) What is Data Transmission ?

(g) Define final control element.

(h) In proportional control the output is proportional to which value ?

(i) Define Set Value.

(j) Define Process.

3. Write true or false : 1×5=5

(a) Electrical transmission is concerned with low voltage appliances.

(b) Feedback system is commonly known as open loop system.

(c) Single seat valve consists of two parts opening between seat ring and plug.

(d) Flow type self-operated regulator consists of a relief valve.

(e) All other independent variables except controlled and manipulated variable are called load variable.

PART – B

Marks – 45

Answer any *three* questions : 15×3=45

4. What are the different modes of control ? Explain any one from the following with suitable diagram.

(i) Proportional control

(ii) Integral control 5+10=15

5. What are controlling elements ? Describe with a neat sketch the construction of different types of self operated pressure regulators. 3+12=15

6. What do you mean by Automatic Process Control ? State some advantages of it. With the help of a suitable example explain the following terms : 3+5+7=15

(a) Set Point

(b) Controlled variable

(c) Manipulated variable

7. Write short notes on any *three* : 5×3=15

(a) Pneumatic Transmission System

(b) Open-loop control

(c) Double seat valve

(d) Control of furnace temperature.