Model Question Paper
(Model III)

MAHATMA GANDHI UNIVERSITY

IV SEMESTER B.Sc. PROGRAMME EXAMINATION …20

B. Sc. PHYSICS -INSTRUMENTATION (Model III)

PH4B61U- PROCESS CONTROL INSRUMENTATION

Instructions:
1. Time allotted for the examination is 3 Hours.
2. Answer **all** questions in Part A. This contains 4 bunches of 4 objective type questions. For each bunch, Grade A will be awarded if all the 4 questions are correct, B for 3, C for 2, D for 1 and E for 0.
   Answer any 5 questions from Part B, any 4 from Part C and any 2 from Part D.
3. Candidates can use ……………………….(type of calculator/tables)

Part A (Objective type- weight 1 each)

Bunch 1

Choose the correct answer from the bracket given below

1. Input variable are clarified into --------types(2,3)

2-------------is a process in which the materials are worked stationary at one physical location while being treated.(Batch process, continuous process)

2. A electronic of pneumatic controllers are------------(Analog/Digital)

4. In ---------control, many no of process needed to be controlled.(Radio, Multi variable)

Bunch 2

Fill in the blanks

5.----------is one of the purpose of process control.

6.The PI mode -------------the offset problem of proportional controller.

7. -----------is a digital controller

8. Expansion of DDC is------------------

Bunch 3

.   State True or False

9.In pneumatic controller air flow is used as controlling element(T/F)

10.PI does not eliminate any offset (T/F)

11. Zeigler –Nicholas method is a semipherical rule.(T/f)

12. Spring actuator is a hydrautic actuator(T/F)

Bunch 4

. Match the following

13. On OFF controller   Kpdep/dt

14. Double seated control value   (m1-m0) A=Kx

15. Spring actuator   Kv.86cv

16. PD   ep=r-b

Part B (Short answer questions-weight 1 each)

17. Define process control.

18. Draw the block diagram of process control.

19. What are actuators.

20.What is PID control mode.

21.What are the design consideration of Analog controllers.

22.What is PLC

23.What is DDC

24.Define dead time.

Part C (Short Essay/Problems-weight 2 each)

25.What is the principle of process control.

26.What are the 3 control modes of define it.

27.What are computer based controls.

28.What is meant by cascade control.

29.Explain frequency response method.

30.Explain multiposition mode.

Part D (Essay type questions-weight 4 each)

31.Describe hydraulic actuator with neat diagram.

32.Describe PID Controller with neat diagram.

33.The output voltage ranges from 0-5v and the input voltage changes 2-8v .kp

=4%/% . Design an electric proportional controller.

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