Q.31 Draw and explain briefly characteristics of P+D control mode.

Q.32 How temperature switch is used in Industry?

Q.33 Write a short note on magnetic amplifier.

Q.34 Explain single loop temperature control system.

Q.35 Write five difference between hydraulic and pneumatic control system.

SECTION-D

Note : Long Answer type question. Attempt any two questions. (2x10=20)

Q.36 Explain principle of operation and constructional details of solenoid valve.

Q.37 Define actuators explain in detail hydraulic actuator and valve.

Q.38 Explain the concept of PID control mode, also write its merits and demerits.

Roll No.....

5th Sem / Instrumentation & Control
Subject : Process Control

Time : 3 Hrs. **M.M. : 100**

SECTION-A

Note : Multiple choice questions. All questions are compulsory. (10x1=10)

Q.1 In automatic control system

a) Feedback is absent
b) Feedback is present
c) Feedback sometimes occur
d) None of these

Q.2 In a PID control, D stands for

a) Derivative b) Delay
c) Degree d) All of these

Q.3 A controller is essentially a

a) Sensor b) Motor
c) Comparator d) Amplifier

Q.4 The time for the process control loop to make necessary adjustments to the final control elements in known as

a) Process lag b) Dead time
c) Error d) None of these

Q.5 In integral control mode

a) Offset = Maximum b) Offset = Zero
c) Error = Maximum d) Error = Zero

Q.6 In switches, NC stands for
a) Normally closed b) Never closed
c) Not clear d) None of these

Q.7 An air-conditioner is an example of
a) Open loop system b) Closed loop system
c) Both A & B d) None of these

Q.8 Flapper Nozzle system converts the pressure to ____ motion and vice versa
a) Mechanical b) Digital
c) Analog d) None of these

Q.9 Solenoid is device that converts an electrical signal into _____ motion
a) Mechanical b) Derivative
c) Integral d) Proportional

Q.10 Flow switches normally open or closed when a predetermined flow is
a) Open b) Closed
c) Reached d) None of these

SECTION-B

Note : Objective type questions. All questions are compulsory. (10x1=10)

Q.11 Write two applications of actuators.

Q.12 Expand PID.

Q.13 Define damping ratio.

Q.14 Write two pneumatic control elements.

Q.15 Define process.

Q.16 Define comparator.

Q.17 Integral time is given by _____.

Q.18 Define limit switch.

Q.19 Solenoid valve is an example of On-Off control. (True/False)

Q.20 Write two applications of globe valve.

SECTION-C

Note : Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

Q.21 Describe process lag and Measurement lag.

Q.22 Write different process variables and their units.

Q.23 Describe briefly pneumatic actuator.

Q.24 Write applications of control valve.

Q.25 Describe the concept of On-Off control system.

Q.26 Write principle of operations of butterfly valve.

Q.27 Discuss the need of interlocking and sequencing circuit.

Q.28 Explain integral control mode with diagram.

Q.29 Draw and explain working principle of pressure switch.

Q.30 Write applications of process control in instrumentation and control industry.