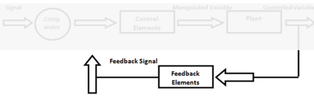
Control Systems Questions and Answers – Classification of Control Systems

This set of Control Systems Multiple Choice Questions & Answers (MCQs) focuses on "Classification of Control Systems".

1. What is the algebraic sum of the reference input and feedback?
a) Error Signal
b) Error Detector
c) Controlled system
d) Controlled output

View Answer

Answer: a
Explanation: In the block diagram of a basic control system we see that the reference input is passed through Error detector or Comparator. The signal which leaves the same is the algebraic sum of reference input and feedback as the feedback wire is connected to the detector, so we call it error signal.



2. Feedback control systems are referred to as closed loop systems.
a) True
b) False

View Answer

Answer: a
Explanation: Feedback control systems are also referred to as closed loop systems. In a closed loop, the actuating error signals, which is the difference between the input signal and the feedback signal is fed to the controller so as to reduce the error and bring the output of the system to the desired value.

3. Which principle does the linear system follow?
a) Principle of energy conservation
b) Principle of mass conservation
c) Principle of electromagnetism
d) Principle of superposition

View Answer

Answer: d
Explanation: A linear system is one who obeys the principle of superposition. The principle of superposition states that the response produced by simultaneous application of two different forcing functions is equal to the sum of individual responses.

4. _____ control systems have unpredictable & non-repeatable.
a) Static
b) Dynamic
c) Deterministic
d) Stochastic

View Answer

Answer: d
Explanation: Stochastic control systems are those who have unpredictable and non-repeatable response due to involvement of random parameters. Static systems is the system whose current output depends only on current input, dynamic system is a time dependent system and deterministic system's response is predictable and repeatable.

5. The pressure inside the furnace is measured by _____
a) Gauge
b) Thermometer
c) Manometer
d) Barometer

View Answer

Answer: a
Explanation: The pressure inside the furnace is measured by pressure gauge. In case the pressure increases or decreases beyond the desired value, the controller and the actuator will cause a change in the position of the damper.

6. On what difference does the pneumatic system works?
a) Speed
b) Pressure
c) Area
d) Length

View Answer

Answer: b
Explanation: A pneumatic system works due to pressure difference of air or any other gas. Air at a pressure, pi is injected through the input manifold. It also consists of mass, coefficient of viscous friction and spring constant and the pressure difference created due to that, gives rise to pneumatic system.

7. In a thermal system, the temperature of the medium is _____
a) increasing
b) decreasing
c) zero
d) uniform

View Answer

Answer: d
Explanation: To analyze a thermal system and determine its transfer function the temperature of the medium should be uniform. If the temperature is varying or zero the analysis will not be proper and a legitimate transfer function will not be the result.

8. How many parameters does process control refer to?
a) 1
b) 3
c) 5
d) 7

View Answer

Answer: c
Explanation: Process control refers to control of five parameters which are level, flow, pressure, temperature, acidity of the process variable. A particular parameter has only one desired value.

9. What is the effect of feedback in the overall gain of the system?
a) Increases
b) Decreases
c) Zero
d) No change

View Answer

Answer: b
Explanation: The feedback reduces the overall gain of the system. As soon as we introduce feedback in the system to make the system stable, gain is reduced.

10. In a temperature control system, what conversion in signal takes place?
a) Digital to Analog
b) Analog to Digital
c) Error to Digital
d) Error to Analog

View Answer

Answer: b
Explanation: In a temperature control system, analog to digital conversion of signals take place. Automatic systems don't understand analog signals as they only take digital inputs in the form of 0 & 1 so we use a analog to digital converter which converts the signal.

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