MCQ Control System

1. It is speed control system output rate feedback is used to
2.

    A. Limit the speed of motor
    B. Limit the acceleration of the motor thing
    C. Reduce the damping of the system
    D. Increase the gain margin

2. The most commonly used input signal in control system is/are

    A. Step function
    B. Ramp or velocity function
    C.Accelerating function
    D. All of the above

3. What is the characteristic of a good control system?

    A. Sensitive to parameter variation
    B. Insensitive to input commands
    C. Neither sensitive to parameter variation nor sensitive to input commands
    D. Insensitive to parameter variation nor sensitive to input commands

4. Feedback control systems are

A. Insensitive to both forward and feedback path parameter changes

B. Less sensitive to feedback path parameter changes than to forward path parameter changes

C. Less sensitive to forward path parameter changes than to feedback path parameter changes

D. Equally sensitive to forward and feedback path parameter changes

5. In a control system the use of negative feedback
   A. Eliminates the chances of instability
   B. Increases the reliability
   C. Reduces the effects of disturbance and noise signals in the forward path
   D. Increases the influence of variations of component parametres on the system performance

6. A good control system has all the following features except

   A. Good stability
   B. Slow response
   C. Good accuracy
   D. Sufficient power handling capacity

7. Due to which of the following reasons excessive bond width in control systems should be avoided?

   A. It leads to slow speed of response
   B. It leads to low relative stability
   C. Noise is proportional to band width
   D. None of the above

8. In a control system integral error compensation ....steady state error.
   A. Increases
   B. Minimizes
   C. Does not have any effect on
   D. Any of the above

9. In order to decrease the time constant of the control system its............. should be decreased
   A. Viscous damping
   B. Steady state error
   C. Inertia
   D. Damping constant

10. In radars the control system used is

   A. Relay control system
   B. Discrete data control system
   C. Continuous control system
   D. None of the above

11. In a control system, noise can be reduced by.........
   A. Reducing bandwidth and attenuating frequencies at which external signal gets coupled to the system
   B. Increasing bandwidth
   C. Reducing bandwidth
   D. None of the above

12. In control systems stepper motors can be used for
   A. Tape drives
   B. Capstan drives
   C. Computers
   D. None of the above

13. By which of the following methods the steady-state error of control system can be reduced ?
   A. By increasing time constant of the system
   B. By increasing gain constant of the system
   C. By increasing but time constant and gain constant
   D. None of the above

14. In pneumatic control systems compensation is provided by which of the following ?
   A. Bimetal strips
   B. Extension tubes
   C. Flapping nozzle mechanism
   D. Restriction volume combinations

15. In compressed air, in pneumatic control systems, is not
   A. Lubricated
   B. Filtered
   C. Regulated
   D. All of the above

16. A control system in which the control action is somehow dependent on the output is known as
   A. Closed loop system
   B. Semiclosed loop system
   C. Open system
   D. None of the above

17. A control system working under unknown random action is called ....
   A. Computer control system
   B. Digital data system
   C. Stochastic Control system
   D. Adaptive control system

18. In a stable control system saturation can cause which of the following?
- A. Low-level oscillations
- B. High-level oscillations
- C. Conditional stability
- D. Over damping

19. In pneumatic control systems the control panel used as final control element converts
- A. Pressure signal to electric signal
- B. Pressure signal to position change
- C. Electric signals to be sure signal
- D. Position change to pressure signal

20. The first order control system, which is well designed, has a
- A. Small bandwidth
- B. Negative time constant
- C. Large negative transfer function pole
- D. None of the above

21. In a non-linear control system limit cycle is self sustained oscillations of
- A. Fixed frequency
- B. Variable frequency
- C. Variable amplitude
- D. Fixed frequency and amplitude

22. In a hybrid feedback control system carrier signals are
- A. Only A.C.
- B. Only D.C.
- C. Both A and B
- D. None of the above

23. The steady state output of a unity feedback control system is.............reference input
- A. Equal to
- B. Very near to
- C. Much more than
- D. Not related to

24. In control systems stepper motors can be used for
     A. Tape drives
     B. Capstan drives
     C. Computers
     D. None of the above

25. Backlash, in a stable control system, can cause which of the following?
     A. Low level oscillations
     B. Overdamping
     C. Underdamping
     D. All of the above

26. If the dumping factor of a control system is unity it will give
     A. No response
     B. Critically damped response
     C. Undamped response
     D.. Oscillatory response

27. When the gain margin is positive and the phase margin is negative, the system is
     A. Stable
     B. Unstable
     C. Probalistic
     D. Underterministic

28. In a control system an error detector

A. Detects the error and signal out an alarm
B. Detects the errors of the system
C. Produces an error signal as the actual difference of value and desired value of output
D. Any of the above

29. Bandwidth is used as a means of specifying performance of a control system related to
   - A. The constant gain
   - B. The speed of response
   - C. Relative stability of the system
   - D. All of the above

30. .... is not a form of nonlinearity for control system
   - A. Square-law transfer characteristics
   - B. Backlash
   - C. Saturation
   - D. All of the above

31. In a stable control system backlash can cause which of the following?
   - A. Underdamping
   - B. Overdamping
   - C. Poor stability at reduced values of open loop game
   - D. Low-level oscillations

32. In an automatic control system which of the following elements is not used ?
   - A. Error detector
   - B. Final control element
   - C. Sensor
   - D. Oscillator

33. In a control system output of the controller is given to
   - A. Final control element
   - B. Amplifire
   - C. Comparator
   - D. Sensor

34. A controller, essentially is a
    A. Sensor
    B. Clipper
    C. Comparator
    D. Amplifier

35. Bimetallic thermostat is ....controller
    A. On-off
    B. Zero-term
    C. One-term
    D. Two-term

36. In pneumatic systems time lags are obtained by
    A. Pneumatic-electric elements
    B. Making the air to fill a volume after passing through a restriction
    C. Elongating the path of air
    D. Any of the above

37. In pneumatic control systems compensation is provided by which of the following ?
    A. Bimetal strips
    B. Extension tubes
    C. Flapper nozzle mechanism
    D. Restriction volume combinations

38. The compressed air, in pneumatic control systems, is not
    A. Lubricated
    B. Filtered
    C. Regulated
    D. All of the above

40. A pneumatic amplifier
    A. Amplifiers flow
    B. Amplifiers differential pressure
    C. Amplifiers change in air volume
    D. Any of the above

41. In pneumatic systems the medium used is
    A. Air
    B. Liquid
    C. Hydrogen
    D. Oil

42. In pneumatic instrumentation systems the pressure of compressed air used is around
    A. 1 bar
    B. 1.4 bar
    C. 2.5 bar
    D. 5.5 bar

43. In pneumatic systems a restriction-volume combination is equivalent to
    A. R.L. circuit
    B. R.C. circuit
    C. Rectifier
    D. Resonant circuit

44. In pneumatic-electrical analogy, the electrical resistance is analogous to
    A. Field helical tube
    B. Volume of air
    C. Restriction to flow
    D. None of the above

45. .... cannot be the final control element
    A. Potentiometer
    B. Electro-pneumatic converter
    C. Servomotor
    D. All of the above

46. A servomechanism with step displacement input will form...........system
    A. Type-3
    B. Type-2
    C. Type-1
    D. Type-0

47. A servomechanism usually consist of

    A. Error actuated signal
    B. Power amplifier
    C. Mechanical output
    D. All of the above

48. A servomechanism is a feedback control system required to control
    A. Servoamplifiers and drives
    B. Position
    C. Some derivative of position
    D. Either B or C

49. Which of the following is an essential feature of servo-mechanism?
    A. A closed loop system
    B. A power amplifying stage
    C. Ability to control position, velocity or acceleration of the system
    D. All of the above

50. The on-off controller is a..........system
    A. Digital
    B. Linear
    C. Non-linear
    D. Discontinuous

51. Proportional band of a controller is expressed as
    A. Percentage
    B. Range of control variable
    C. Ratio
    D. Gain

52. Drag type motors generally have
    A. Low inertia
    B. High inertia
    C. Low starting torque
    D. Low damping

53. Proportional band of a controller is defined as the range of:
    a) Measured variable to the set variable
    b) Air output as the measured variable varies from maximum to minimum
    c) Measured variables through which the air output varies from maximum to minimum
    d) None of the above

54. The term reset control refers to:
    a) Proportional
    b) Integral
    c) Derivative
    d) None of the above

55. The integral control:

    a) Increases the steady state error

    b) Decreases the steady state error

    c) Increases the noise and stability

    d) Decreases the damping coefficient

56. In a proportional temperature controller, if the quantity under the heater increases the offset will:

    a) Increase

    b) Reduce

    c) Remain uneffected

    d) None of the above

57. When derivative action is included in a proportional controller, the proportional band:

    a) Increases

    b) Reduces

    c) Remains unchanged

    d) None of the above

58. The number of operational amplifiers require for designing of electronic PID controller is:

    a) 1

    b) 2

    c) 3

    d) 6

59. Which of the following system provides excellent transient and steady state response:

    a) Proportional action

    b) Proportional + Integral action

    c) Proportional + Differential action

    d) Proportional + Integral + Differential action

60. In a PID controller, the offset has increased. The integral time constant has to be ___ so as to reduce offset:
a) Reduced
b) Increased
c) Reduced to zero
d) None of the above

61. In a PID controller, the overshoots has increased. The derivative time constant has to be __ so as to reduce the overshoots:
a) Increased
b) Reduced
c) Reduced to zero
d) None of the above

62. The input of a controller is
a) Sensed signal
b) Error signal
c) Desired variable value
d) Signal of fixed amplitude not dependent on desired variable value

63. Derivative output compensation:
a) Improvement in transient response
b) Reduction in steady state error
c) Reduction is settling time
d) Increase in damping constant

64. Derivative error compensation:
a) Improvement in transient response
b) Reduction in steady state error
c) Reduction is settling time
d) Increase in damping constant

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65. Which of the following are the not characteristics of the closed loop systems?

    a) It does not compensate for disturbance

    b) It reduces the sensitivity of plant-parameter variations

    c) It does not involve output measurements

    d) It does not has the ability to control the system transient response

66. Which one of the following effect in the system is not caused by negative feedback?

    a) Reduction in gain

    b) Increased in bandwidth

    c) Increase in distortion

    d) Reduction in output impedance

67. Insertion of negative feedback in control system affects:

    a) The transient response to vanish uniformly

    b) The transient response to decay very fast

    c) No change in transient response

    d) The transient response decays at slow rat

68. What is the relationship between the steady-state error, gain and the tendency of oscillations when the controller is supposed to be under the proportional action?

    a) Steady-state error increases with an increase in gain and oscillation tendency

    b) Steady-state error decreases with the decrease in gain and oscillation tendency

    c) Steady-state error decreases with an increase in gain and oscillation tendency

    d) Steady-state error increases with the decrease in gain and oscillation tendency

69. The term reset control refers to:

    a) Proportional

    b) Integral

    c) Derivative

    d) None of the above

70. .proportional gain for PID controller is more than the PI control.

    a) Leads to destabilizing effect

    b) Leads to stabilizing effect

    c) No action is taken

    d) All the above.

71. For PI control use a lower proportional gain because the pressure of the integral control mode introduces additional _____ in all the frequencies.

    a) Phase lead

    b) Phase lag

    c) Both (a) & (c)

    d) None of the above

72. The presence of the derivative control mode introduces _____ with strong _____ in the closed loop response.

    a) Phase lag and destabilizing effect

    b) Phase lead and stabilizing effect

    c) Phase lag and stabilizing effect

    d) Phase lead and destabilizing effect

73. Use of I-control along with P-control facilitates

    a) elimination of offset

    b) reduction of offset

    c) reduction of stability time

    d) none of these.

74. Which type of controller increases the stability of the system by keeping it at a consistent setting?

    a) Derivative
    b) Proportional
    c) ON OFF controller
    d) Integral

75. PID controller is also known as

    A) two term controller
    B) three term controller
    C) four term controller
    D) proportional controller

76. Which of the following controllers has maximum offset ?
    a) P-controller
    b) P-I controller
    c) P-I-D controller
    d) P-D controller