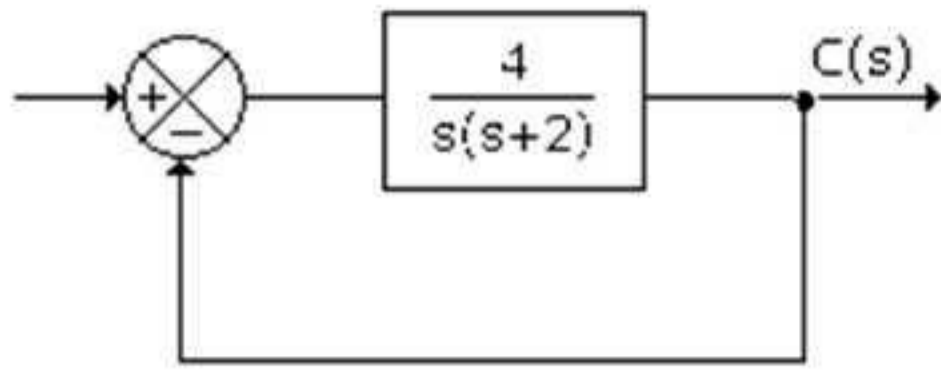


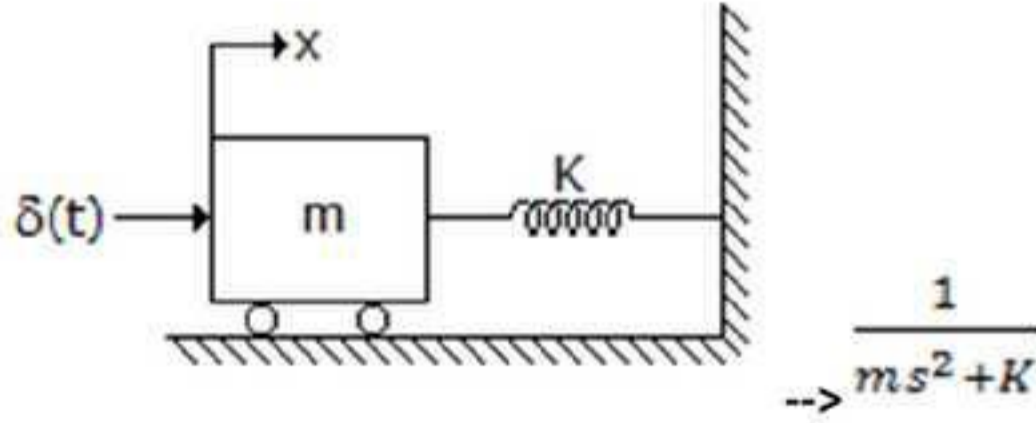
- Q)The main characteristics of an Open-loop system is--> **Each input setting determines a fixed operating position for the controller**
- Q)The main characteristics of Closed-loop Control is--> **To reduce errors by automatically adjusting the systems input**
- Q)If an open loop system is unstable, applying feedback--> **Will always improve its stability**
- Q)For open control system which of the following statements is incorrect--> **Recalibration if not required for maintaining the required quality of the output**
- Q)Which of the following is an open loop control system--> **Field controlled D.C. motor**
- Q)Which of the following is used for high-frequency pressure measurements for crystal microphones--> **Piezoelectric pressure transducer**
- Q)Measurement range of metal strain gage is--> **0.1- 40,000  $\epsilon$**
- Q)Which of the following is used for high-frequency pressure measurements for sonar applications--> **Piezoelectric pressure transducer**
- Q)Which of the following uses Wheatstone bridge circuit with a galvanometer as the indicator--> **Electrical strain gage**
- Q)Which of the gage has unlimited pane configuration for strain measurement--> **Foil-Type Guage**
- Q)In a resistance strain gage, the central gage is subjected to--> **Tension**
- Q)Which of the following is not a desirable Properties of Grid Material--> **High temperature sensitivity**
- Q)Gauge factor of semiconductor strain gage is--> **50-200**
- Q)Measurement range of semiconductor strain gauge is--> **0.01-3000  $\epsilon$**
- Q)Gauge factor of metal strain gage is--> **2.0-4.5**
- Q)Which of the following arm bridge provides temperature compensation--> **Four-arm bridge**
- Q)Which of the following arm bridge is sensitive to torsion--> **Four-arm bridge**
- Q)In case of a T- delta rosette gage, the angle between each rosette is--> **60**
- Q)In dual element gage, The two elements have different temperature characteristics so that the net temperature-induced strain is--> **Minimized**
- Q)In case of a rectangular rosette gage, the angle between each rosette is--> **45**
- Q)Which of the following is not an absorption type dynamometer--> **Gear dynamometer**
- Q)Which of the following is not Limitation of mechanical torsion meter-->
- Q)Precision micrometer is used for--> **Measuring deflection**
- Q)Which of the following is an Elastic transducer used for measurement of force--> **Proving ring**
- Q)Which of the following is used as pressurized medium for Pneumatic Load Cell--> **Air**
- Q)Psychrometer can read temperature in increments of--> **0.1°C**
- Q)Which of the following is not an advantage of The Sling Psychrometer--> **flexibility**
- Q)The dewpoint temperature is determined as a function of--> **vapor pressure**
- Q)Dew point temperature is defined as the temperature to which the air would have to cool at-->
- Q)The dewpoint temperature is usually--> **Equal to or lower than the actual air temperature.**
- Q)A car is racing at a constant speed of 50 km/h. which of the following is the feedback element for the driver?--> **Needle of the speedometer**
- Q)A automatic toaster is a \_\_\_\_\_ loop control system--> **Open**
- Q)In open loop system--> **The control action is independent of the output**
- Q)In an open loop control system--> **Output is independent of control input**
- Q)In closed loop control system, with positive value of feedback gain the overall gain of the system will--> **Only decrease**
- Q)Transfer function of a system is used to calculate which of the following ?--> **The output for any given input**
- Q)In a control system the output of the controller is given to--> **Final control element**
- Q)A control system with excessive noise, is likely to suffer from--> **Saturation in amplifying stages**
- Q)A closed loop system is distinguished from open loop system by which of the following?--> **Feedback**
- Q)\_\_\_\_\_ is a part of the human temperature control system--> **Perspiration system**
- Q)For the system of the given figure the closed loop poles are located



at

-->  $s = -1 \pm j3$

Q)The system in the given figure,  $x(0) = 0$  and  $\dot{x}(0) = 0$ , At  $t = 0$  the unit impulse  $\delta(t)$  is applied

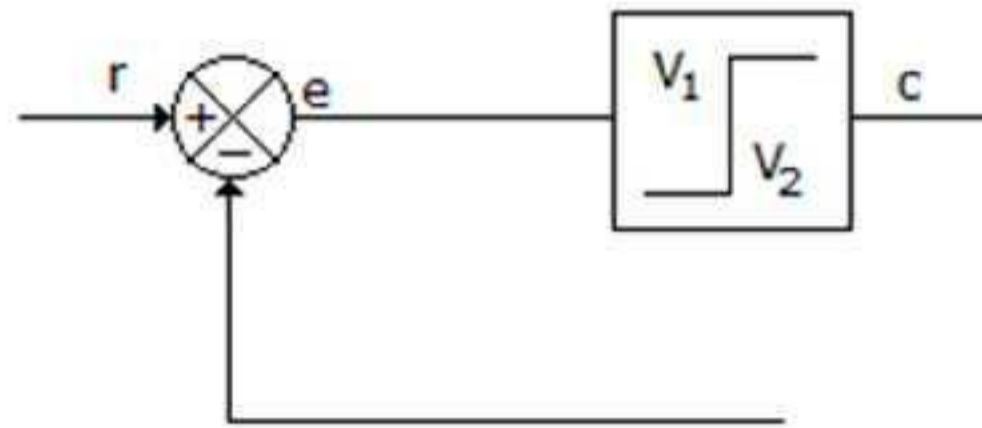


$X(s)$

Q)With feedback \_\_\_\_\_ increases--> **System stability**

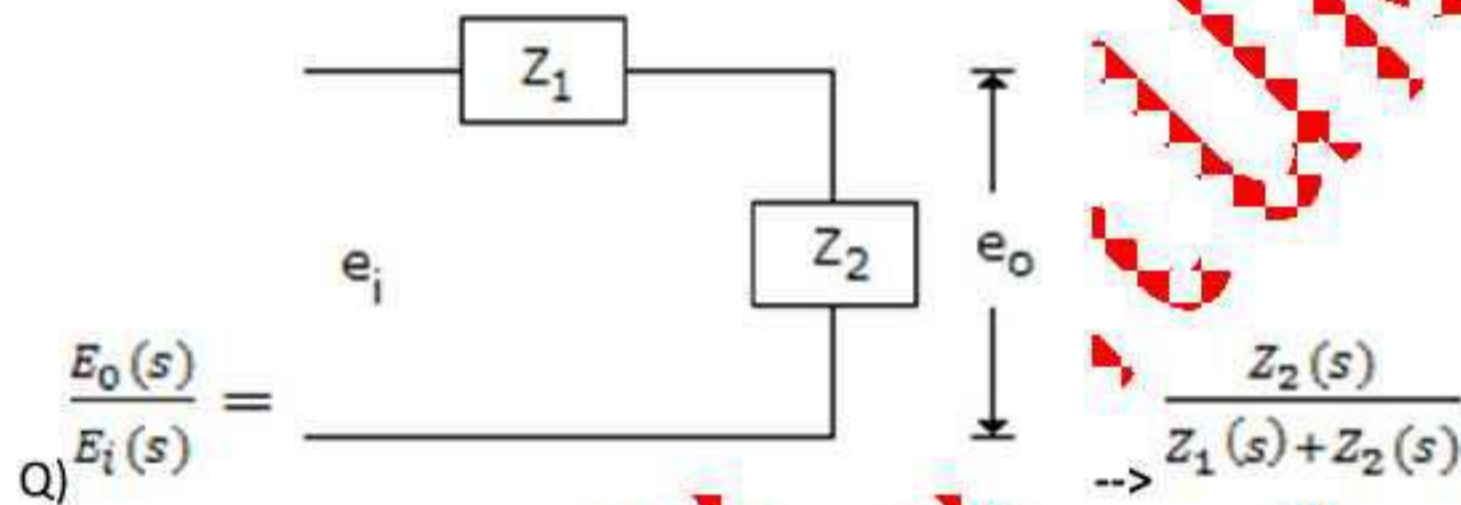
Q)A controller, essentially is a--> **Comparator**

Q)The temperature, under thermal and electrical system analogy, is considered analogous to--> **Voltage**



Q)The block diagram of the given figure for

--> **On-off controller**



Q)

Q)The open loop transfer function of a control system is  $\frac{KR}{1+TS}$ . This represents--> a **first order system**.

$$G(s) = \frac{1}{(s+2)^2}$$

Q)The open loop transfer function of a unity feedback system is  $\frac{1}{s^2 + 4s + 4}$ . The poles of closed loop system are at-->  $-2, -2$

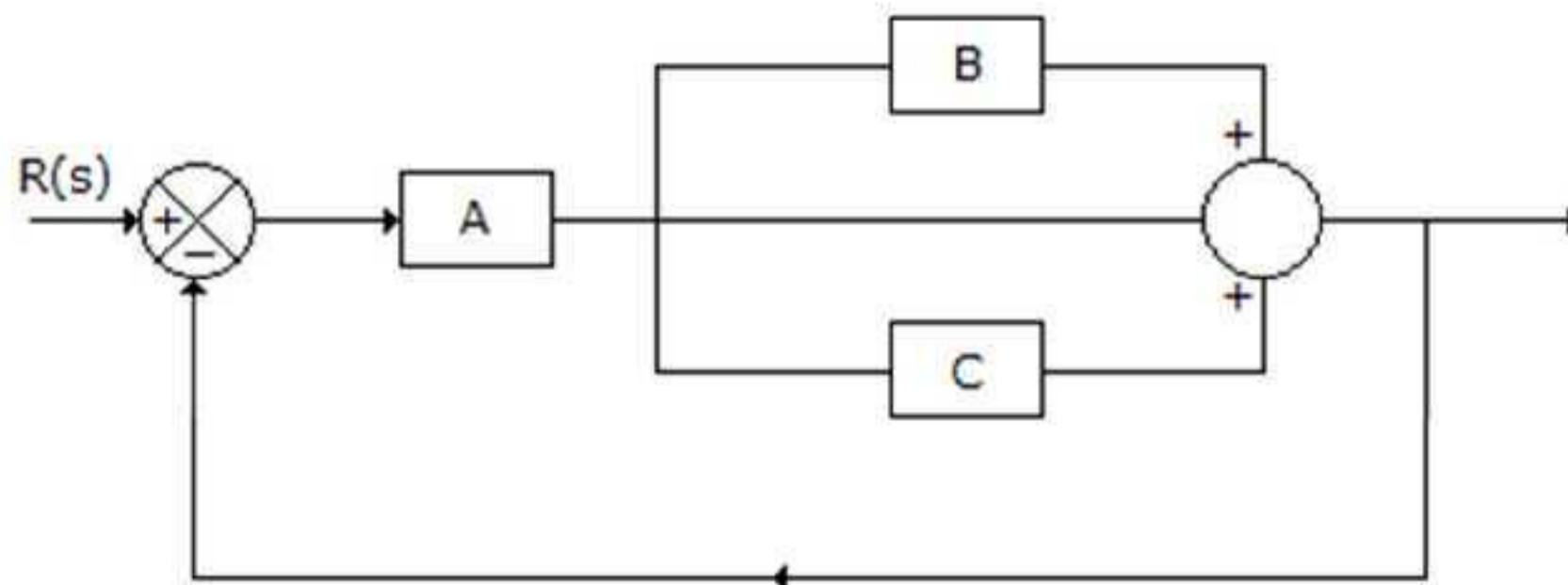
The poles of closed loop system are at-->  $-2, -2$

Q)Servo valves are operated by \_\_\_\_\_ motors.--> **Torque**

Q)Typically, spool and bore straightness and diametrical tolerances are held to \_\_\_\_\_.--> **1 mm**

Q)A servomechanism is defined as an automatic device for controlling a large amount of power by means of a very small amount of \_\_\_\_\_.--> **Power**

Q)For the system of the given figure the transfer function



is

-->  $\frac{AB+AC}{1+AB+AC}$

- Q) Servo that uses feedback electronics is \_\_\_\_\_ accurate--> **More**
- Q) There is \_\_\_\_\_ dead zone for a servo valve--> **One**
- Q) The maximum operating frequency of a servo valve is \_\_\_\_\_ Hz--> **10**
- Q) \_\_\_\_\_ valves may be used where the flow requirements usually less than 20 LPM Stage--> **Single**
- Q) Closed loop systems have different characteristics when compared to open-loop systems--> **More accurate and less sensitive to disturbances, parameter variations and have a tendency to oscillate**
- Q) For a transfer function  $H(s) = P(s) / Q(s)$ , where  $P(s)$  and  $Q(s)$  are polynomials in  $s$ . Then--> **degree of  $P(s)$  is independent of degree of  $Q(s)$ .**
- Q) The main objective of the controller design is--> **Speed, Accuracy and stability**
- Q) Determine the speed of the hydraulic motor in the circuit shown in

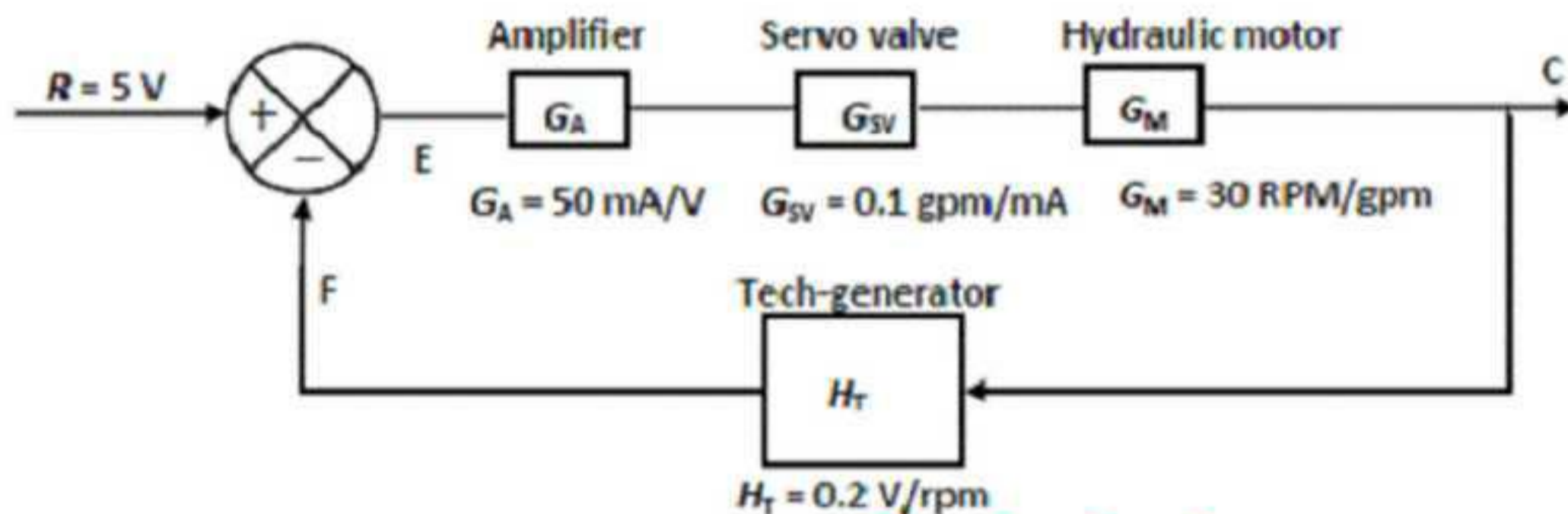


Figure  
rpm

--> 24.2

- Q) \_\_\_\_\_ has the tendency to oscillate. --> **Closed loop system.**
- Q) A semi conductor strain gauge has \_\_\_\_\_ --> **Much gauge factor -- R**
- Q) Which of the following is an open loop control system? --> **Field controlled dc motor.**
- Q) A control system in which control action is somehow dependent on output is known as--> **closed loop system.**
- Q) In bonded strain gauge general resistance value is \_\_\_\_\_ --> **120-1000  $\Omega$**
- Q) In semiconductor strain gauge \_\_\_\_\_ is high--> **Resistance change**
- Q) Wire wound gauges are \_\_\_\_\_ types--> **2**
- Q) Resistance type strain gauges are \_\_\_\_\_ groups--> **3**
- Q) Nickel resistivity \_\_\_\_\_  $\Omega \text{ m}$ -->  **$6.5 \times 10^{-8}$**
- Q) Platinum resistivity \_\_\_\_\_  $\Omega \text{ m}$ -->  **$10 \times 10^{-8}$**
- Q) Constantan resistivity \_\_\_\_\_  $\Omega \text{ m}$ -->  **$48 \times 10^{-8}$**
- Q) In semiconductor strain gauge \_\_\_\_\_ is low--> **Hysteresis**
- Q) Lad cell uses--> **Strain gauge**
- Q) Piezo electric load cells are used for measuring load in the range of--> **0.5 kg to 2000 kg**
- Q) Isoelastic temperature range is \_\_\_\_\_  $^{\circ}\text{C}$ --> **1200**
- Q) Nichrome temperature range is \_\_\_\_\_  $^{\circ}\text{C}$ --> **1200**
- Q) The accuracy of proving rings force measurement device is--> **0.1%**
- Q) Measurement of shaft rigidity is used in the calculation of--> **Torsional deflection**
- Q) Instrument used for measurement of relative humidity--> **Hygrometer**
- Q) Load cell used for the measurement of weight has--> **No moving parts and incurs negligible deflection under load**
- Q) Humidity of air can be determined by a--> **Sling psychrometer**
- Q) Eddy current dynamometer is used to measure--> **Load**
- Q) The unit of modulus of elasticity is same as those of--> **Stress Pressure and modulus of rigidity**
- Q) The brake horsepower of a car is measured by--> **Dynamometer**
- Q) As the air temperature increases with no addition of water vapour to the air, the dew point will--> **Remain the same**
- Q) The problem of nose picking occurs in which devices--> **Thermocouple**
- Q) The temperature at which air must be cooled in order to become saturated is--> **Dew point temperature**
- Q) As the difference between air temperature and dew point increases, the relative humidity--> **Decreases**