

BE Semester- __V__ (Instrumentation & Control) Question Bank

(CONTROL SYSTEM COMPONENTS)

All questions carry equal marks(10 marks)

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| Q.1 | Explain the criteria for the selection of control valves. |
| Q.2 | Explain following valve terminology 1) Galling 2) Bonnet 3) Valve capacity 4) Trim 5) Yoke |
| Q.3 | What is the significant of control valve flow characteristic? Explain selection of flow characteristics based on application with reason. |
| Q.4 | Classify the actuators of control valves and explain them in brief. |
| Q.5 | Explain the noise problems associated with control valve and their remedies. |
| Q.6 | Which are various types of three way control valve? Explain their application with suitable example. |
| Q.7 | Explain the working of safety valve or relief valve. |
| Q.8 | Explain Globe valve and its type in detail. |
| Q.9 | Enlist the pressure relieving devices. Also describe relief valve in detail. |
| Q.10 | Explain valve selection guidelines for control valve |
| Q.11 | Given the comparative advantage and disadvantage of single and double port globe valve with application. |
| Q.12 | Explain the pressure drop requirements for good control valve and also explain how it control flow? |
| Q.13 | List out various control valve accessories. Explain any three control valve accessories with figure and its role in control valve. |
| Q.14 | Which are safety considerations we follow in control valve design and operation. |
| Q.15 | What is the purpose of pressure relief valve? Explain the rupture disc operation. |
| Q.16 | Basic and FCI equation of control valve sizing |

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| Q.17 | What is the need of valve positioner for the operation of control valve? Explain the operation of spilt range with example. |
| Q.18 | Differentiate between single port & double port design of globe valve. Also explain three basic trim designs of control valves with respect to their inherent flow characteristics. |
| Q.19 | What do you mean by chattering of safety valve? Why is the rupture disc preferred in series with safety valve? |
| Q.20 | What is actuator? Explain any one type of actuator with appropriate diagram. |
| Q.21 | Draw the neat diagram of Pneumatic relay and explain its construction and working. |
| Q.22 | Draw the neat diagram and explain Electro pneumatic actuators in detail. |
| Q.23 | Draw the neat diagram and explain Force balance and motion balance positioners in detail. |
| Q.24 | Draw the neat diagram and explain pneumatic hydraulic actuator in detail. |
| Q.25 | Draw the neat diagram and explain piston actuators and rotary valve actuator in detail. |
| Q.26 | Explain backlash in gears, also explain techniques to reduce backlash. Also explain the cam terminology with neat sketch. |
| Q.27 | Classify the different types of gears and explain them in brief. |
| Q.28 | Which are the components of cam? Explain the various types of followers. |
| Q.29 | What is the application of gear? Explain the working any one type of gear in detail. |
| Q.30 | What is need of gear? How we design the gear train? Explain backlash and gear ratio in gear terminology. |
| Q.31 | List out various cams and followers. Explain any two cam and follow pair with its output profile. |
| Q.32 | Explain the characteristics of electromechanical relays and Also any two dynamic characteristic of relay. |
| Q.33 | Draw and explain characteristics of pick-up type electromechanical relay with neat sketch. |
| Q.34 | Define gyroscope. State two basic principle of gyroscope and explain any one type of gyroscope. |

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| Q.35 | Draw and explain reed relay and also explain its merits and demerits. |
| Q.36 | Draw the neat diagram and explain proximity switch in detail. |
| Q.37 | List out various types of hydraulic control system pump. Explain any one in detail |
| Q.38 | Draw the neat diagram and explain centrifugal pump in detail. Also give its application |
| Q.39 | Draw the neat diagram and explain vane pump and ball pump in detail. Also give its application |
| Q.40 | Draw the neat diagram and explain positive displacement pump and negative displacement pump in detail. |