Chevron Nigeria Limited Operator Skills Test Past Questions and Answers

1. What is the Primary purpose of a valve in a pipeline?
   Answer: To control the flow of fluids within a pipeline, either by regulating, stopping, or starting the flow.

2. What is the function of a pump in a process plant?
   Answer: A pump is used to move liquids or gases through pipelines, maintaining the required flow rate and pressure.

3. How can you detect a pump failure?
   Answer: By checking for signs such as abnormal noises, vibration, low discharge pressure, or lack of flow.

4. What is cavitation in a pump?
   Answer: Cavitation occurs when the local pressure in the pump drops below the vapor pressure of the liquid, leading to the formation of vapor bubbles that collapse and damage the pump impeller.

5. What is a flow meter used for?
   Answer: A flow meter measures the rate of flow of a fluid (liquid or gas) within a pipeline.

6. What is a control valve?
   Answer: A control valve regulates the flow of a fluid by adjusting the size of the flow passage as directed by a controller.

7. What does a pressure relief valve (PRV) do?
   Answer: A pressure relief valve protects a system from overpressure by automatically releasing pressure when it exceeds a preset limit.

8. What is a compressor used for?
   Answer: A compressor increases the pressure of a gas by reducing its volume, often used in systems like air conditioning or gas transport.

9. What is the difference between a globe valve and a gate valve?
   Answer: A globe valve is used for throttling flow and precise control, while a gate valve is used for on/off flow control without regulating it.

10. What is the significance of the pH level in industrial processes?
    Answer: The pH level is important in controlling corrosion, scaling, and ensuring optimal reaction conditions in various chemical processes.

11. What is a level transmitter used for?
    Answer: A level transmitter measures the level of liquid or solid in a vessel and sends the measurement to a control system for monitoring.
12. What does the acronym "PPE" stand for?

Answer: Personal Protective Equipment – used to protect workers from hazards in the workplace.

13. What is a shutdown system used for in a plant?
    Answer: A shutdown system is used to safely shut down equipment or processes when a hazardous condition is detected, such as overpressure or high temperature.

14. What is an emergency stop button?
    Answer: An emergency stop button is a safety feature used to immediately stop a machine or process in the event of an emergency to prevent accidents.

15. What is the purpose of a heat exchanger?
    Answer: A heat exchanger is used to transfer heat between two or more fluids, typically to either heat or cool the process fluid.

16. What is the primary function of a filter in a process plant?
    Answer: Filters remove particulates, contaminants, or impurities from a fluid stream to maintain system efficiency and prevent damage to equipment.

17. What is an interlock in process control?
    Answer: An interlock is a safety feature that ensures certain equipment or processes cannot be started or operated unless specific conditions are met.

18. What is the difference between an open loop and closed loop control system?
    Answer: An open loop system does not use feedback to control the process, while a closed loop system adjusts the process based on feedback from sensors to maintain a setpoint.

19. What is a material safety data sheet (MSDS)?
    Answer: An MSDS provides information about the properties, hazards, and safe handling practices for chemicals used in the workplace.

20. What is the function of a strainer in a pipeline?
    Answer: A strainer removes debris, dirt, and particles from a fluid stream to protect pumps, valves, and other equipment from damage.

21. What is the purpose of a pressure transmitter?
    Answer: A pressure transmitter measures the pressure within a system or vessel and transmits the reading to a control system.

22. What is the function of an emergency shutdown valve (ESD)?
    Answer: An ESD valve automatically shuts off the flow of a fluid in case of an emergency, such as high pressure, high temperature, or gas leak, to protect personnel and equipment.

23. What is a "lockout/tagout" procedure?
    Answer: Lockout/tagout is a safety procedure used to ensure that equipment is properly shut off and cannot be started up again before maintenance work is completed.

24. How is gas detected in a facility?

Answer: Gas detection can be done using sensors or detectors that identify specific gases, often through infrared, electrochemical, or catalytic methods.

25. What is the function of a valve actuator?
    Answer: A valve actuator provides the mechanical force to open or close a valve, often powered by electricity, hydraulic fluid, or pneumatic pressure.

26. What is the purpose of a heat exchanger in a process plant?
    Answer: To transfer heat between two or more fluids without mixing them, typically used to heat or cool process fluids.

27. What is the significance of a pressure gauge in process operations?
    Answer: A pressure gauge provides a visual reading of the pressure within a system, helping operators monitor and control system conditions.

28. What does a PSV (Pressure Safety Valve) do when activated?
    Answer: A PSV opens to release excess pressure from a system to prevent overpressure and potential equipment failure.

29. What is the purpose of a surge tank in a pipeline system?
    Answer: A surge tank helps absorb pressure surges or water hammer that can occur due to sudden changes in flow, protecting equipment and pipes.

30. What is a pig used for in pipeline operations?
    Answer: A pig is used to clean, inspect, or maintain pipelines, typically by removing debris or checking for integrity.

31. What is meant by "boiler blowdown"?
    Answer: Boiler blowdown refers to the process of removing a portion of water from the boiler to control the concentration of dissolved solids and prevent scaling or corrosion.

32. What is a control loop in process control?
    Answer: A control loop involves a sensor, controller, and actuator to monitor and adjust process variables, such as temperature, pressure, or flow, to maintain optimal conditions.

33. What is an ESD (Emergency Shutdown) system?
    Answer: An Emergency Shutdown (ESD) system automatically stops operations or shuts down equipment to prevent hazardous conditions during emergencies, such as fires or leaks.

34. What is the difference between a centrifugal pump and a positive displacement pump?
    Answer: A centrifugal pump uses rotational energy to move fluid and is best for high-flow, low-pressure applications, while a positive displacement pump moves a fixed amount of fluid per cycle and is used for high-pressure applications.

35. What is the purpose of a vacuum system in a plant?
    Answer: A vacuum system removes air or other gases from a system, typically used in distillation, drying processes, or to prevent contamination.

36. What is the function of a relief valve in a pressure system?
    Answer: A relief valve opens to release pressure when it exceeds a set limit, helping to prevent overpressure and equipment damage.

37. What is a differential pressure transmitter?
    Answer: A differential pressure transmitter measures the difference in pressure between two points in a system, often used to monitor flow, filter, or level conditions.

38. What is meant by “locked rotor” in motor terminology?
    Answer: A locked rotor refers to a situation where an electric motor’s rotor is unable to turn, often due to excessive load or mechanical blockage.

39. What is the purpose of a vapor recovery system?
    Answer: A vapor recovery system captures and recycles vapors or gases that would otherwise be released into the atmosphere, preventing pollution and conserving valuable resources.

40. What is the function of a strainer in a process line?
    Answer: A strainer is used to filter out unwanted debris or particles from a fluid stream to prevent damage to pumps, valves, and other equipment.

41. What are the typical components of a SCADA system?
    Answer: A SCADA system typically consists of sensors, Remote Terminal Units (RTUs), programmable logic controllers (PLCs), human-machine interface (HMI), and communication networks to monitor and control industrial processes remotely.

42. What is meant by "line packing" in a pipeline system?
    Answer: Line packing refers to the temporary storage of gas in a pipeline during periods of low demand to ensure supply during high demand periods.

43. What is the function of a shutdown valve?
    Answer: A shutdown valve is used to stop the flow of fluid in a pipeline or system to prevent unsafe conditions, typically activated during emergencies or planned shutdowns.

44. What are the types of fire extinguishers used in process plants?
    Answer: Types of fire extinguishers include water, CO2, dry chemical powder, foam, and wet chemical extinguishers, each used for specific types of fires (e.g., electrical, chemical, etc.).

45. What is a process upset?
    Answer: A process upset refers to an abnormal operating condition or deviation from normal processes, often resulting in safety concerns or operational inefficiencies.

46. What is the significance of a safety relief valve in a system?
    Answer: A safety relief valve prevents overpressure in a system by opening and releasing excess pressure when it exceeds a set limit, ensuring the safety of the equipment and operators.

47. What is an air compressor used for in industrial operations?

Answer: An air compressor is used to convert power (usually from an electric motor) into potential energy stored in compressed air, which is then used for powering tools, machines, or operating control systems.

48. What is the importance of a pressure transmitter?
Answer: A pressure transmitter converts pressure readings from a system into an electrical signal that can be monitored and controlled remotely.

49. What is a pigging system used for in pipelines?
Answer: A pigging system is used to clean pipelines, inspect for integrity, or remove debris or scale by pushing a "pig" through the pipeline to perform these functions.

50. What is a gas scrubber used for in a gas processing plant?
Answer: A gas scrubber removes unwanted contaminants, such as dust, water vapor, and other impurities from natural gas, to protect downstream equipment and ensure quality.

51. What is the purpose of a temperature transmitter in a process system?
Answer: A temperature transmitter measures temperature changes and sends the data to a control system, allowing for monitoring and control of temperature-sensitive processes.

52. What is meant by "flaring" in a plant?
Answer: Flaring is the controlled burning of excess or waste gases to safely dispose of them, often done during maintenance, startup, or emergency situations.

53. What is the significance of routine maintenance in a process plant?
Answer: Routine maintenance ensures the reliable operation of equipment, reduces downtime, prevents failures, and enhances safety by addressing potential issues before they lead to major problems.

54. What is the purpose of using a valve actuator?
Answer: A valve actuator is used to open or close a valve automatically, typically driven by electric, pneumatic, or hydraulic power, based on control signals.

55. What is the function of a manometer?
Answer: A manometer is used to measure the pressure of liquids or gases, often in small systems or applications.

56. What is a centrifugal separator?
Answer: A centrifugal separator uses centrifugal force to separate different phases (such as oil, water, and gas) from a mixture in a process flow.

57. What is meant by "water hammer" in a pipeline?
Answer: Water hammer is a pressure surge caused by a sudden change in fluid velocity, often when a valve is closed too quickly, leading to damage to pipes or equipment.

58. What is the role of a sampling system in process plants?

Answer: A sampling system is used to extract representative samples from a process flow for analysis, ensuring product quality and process optimization.

59. What does a variable frequency drive (VFD) do?
Answer: A VFD adjusts the speed of an electric motor by varying the frequency of the supplied power, allowing for energy savings and better control of motor-driven equipment.

60. What is a flare stack used for in an oil and gas facility?
Answer: A flare stack is used to safely burn off excess gases, often from a processing plant or refinery, preventing the release of hazardous gases into the atmosphere.

61. What is meant by the "dead leg" in a piping system?
Answer: A dead leg is a section of pipe where the flow is stagnant or limited, increasing the risk of contamination or corrosion.

62. What is the role of an orifice plate in a flow system?
Answer: An orifice plate is used to measure the flow rate of a fluid by restricting flow and creating a pressure drop across the plate.

63. What is a separator in a process plant?
Answer: A separator is used to divide multi-phase mixtures (such as oil, gas, and water) into their components based on differences in physical properties.

64. What is a material safety data sheet (MSDS)?
Answer: An MSDS provides detailed information about chemicals used in the plant, including their hazards, handling instructions, and emergency measures.

65. What is a desalter in crude oil processing?
Answer: A desalter removes water and salts from crude oil to prevent corrosion in pipelines and refining equipment.

66. What is a backflow preventer used for in a process system?
Answer: A backflow preventer is a valve that ensures fluid only flows in one direction, preventing reverse flow that could contaminate the system.

67. What is the difference between a ball valve and a butterfly valve?
Answer: A ball valve uses a rotating ball to control the flow of fluid, while a butterfly valve uses a rotating disk, providing a quicker and more cost-effective solution for large-diameter pipes.

68. What is an actuator in an automated system?
Answer: An actuator is a device that converts control signals into physical action to operate valves, dampers, or other mechanisms in automated systems.

69. What is the role of a PLC in process control?
Answer: A Programmable Logic Controller (PLC) automates the control of processes by receiving inputs, processing them according to programmed logic, and sending control signals to actuators.

70. What is the role of a PLC in process control?

Answer: A PLC (Programmable Logic Controller) automates industrial processes by receiving input signals, processing logic instructions, and sending output signals to control equipment like pumps, valves, and motors.

71. What is meant by interlocking in process systems?
Answer: Interlocking is a safety mechanism that prevents equipment from operating unless specific conditions are met, ensuring safe sequence and operation.

72. What is the purpose of an accumulator in a hydraulic system?
Answer: An accumulator stores energy in the form of hydraulic fluid under pressure to absorb shocks, maintain pressure, or provide additional flow.

73. What is a fire and gas detection system?
Answer: It's a safety system that detects fire, gas leaks, or smoke and activates alarms or automatic shutdowns to protect personnel and equipment.

74. What is meant by instrument calibration?
Answer: Calibration is the process of adjusting instruments to ensure their accuracy by comparing and correcting them against a known standard.

75. What is a safety integrity level (SIL)?
Answer: SIL is a measure of safety system performance, in terms of the probability of failure on demand. Higher SIL = higher safety assurance.

76. What are the components of a centrifugal pump?
Answer: Key components include the impeller, casing, shaft, mechanical seal, and bearings.

77. What causes excessive vibration in rotating equipment?
Answer: Imbalance, misalignment, worn bearings, or loose components.

78. What is a mechanical seal used for?
Answer: To prevent fluid leakage from rotating equipment like pumps.

79. What is the function of a lube oil system?
Answer: To reduce friction and wear by supplying oil to moving parts of machinery.

80. What is meant by system redundancy?
Answer: The duplication of critical components or systems to increase reliability and ensure continuous operation in case of failure.

81. What is the purpose of a control panel?
Answer: To house electrical components and interfaces for monitoring and controlling industrial equipment and processes.

82. What is the purpose of a level switch?
Answer: To detect the presence or absence of material at a specific level and trigger control actions.

83. What is a knock-out drum used for?

Answer: To remove liquids from gas streams before they enter compressors or flares.

84. What is the difference between a sensor and a transmitter?
Answer: A sensor detects physical parameters (like temperature or pressure), while a transmitter converts that signal into a standardized output for monitoring/control

85. What is a HAZOP study?
Answer: Hazard and Operability Study – a structured review to identify and mitigate risks in process systems.

86. What is meant by start-up and shut-down procedures?
Answer: Standard steps followed to safely start or stop a plant/process system, ensuring safety and equipment protection.

87. What are the types of maintenance?
Answer: Preventive, Predictive, and Corrective maintenance.

88. What is the function of a PLC HMI (Human-Machine Interface)?
Answer: To provide operators with a visual interface to monitor, control, and interact with automated systems.

89. What does LOTO stand for?
Answer: Lockout-Tagout – a safety procedure to ensure equipment is properly shut off and not restarted during maintenance.

90. What is the meaning of “fail-safe” in control systems?
Answer: A design that causes equipment to move to a safe condition (e.g., valve closes) in case of failure.

91. What is a thermowell?
Answer: A protective tube that shields temperature sensors from process fluid while allowing accurate measurement.

92. What are the risks of over-pressurization?
Answer: Equipment rupture, fire, explosion, and safety hazards to personnel.

93. What is the difference between upstream and downstream operations?
Answer: Upstream involves exploration and production; downstream involves refining, marketing, and distribution.

94. What is a gas turbine used for?
Answer: To convert natural gas or liquid fuel into mechanical energy for power generation or driving compressors.

95. What is the purpose of a chemical injection system?
Answer: To inject chemicals (e.g., corrosion inhibitors, demulsifiers) into process lines to ensure system integrity and product quality.

96. What is an MCC (Motor Control Center)?
Answer: A centralized cabinet that controls and distributes power to electric motors.

97. What is meant by purge time in safety procedures?
Answer: The time required to remove hazardous gases or vapors from equipment before maintenance or entry.

98. What is the function of a coalescer?
Answer: To separate emulsified liquids (usually water) from hydrocarbons or gas streams.

99. What is a trip set point?
Answer: A predefined limit where a system initiates an automatic shutdown or alarm to prevent unsafe conditions.

100. What is meant by process control stability?
Answer: The ability of a system to maintain steady operation without oscillation or drift after disturbances.

101. What is the purpose of regular equipment inspection?
Answer: To detect faults early, prevent failures, ensure safe operation, and maintain compliance with safety regulations.