

Chevron Nigeria Limited Operator Skills Test Questions and Answers focusing on core safety, instrumentation, and process operations knowledge required for field and control room operator roles:

1. What is the purpose of a Pressure Safety Valve (PSV)?
Answer: To automatically release pressure from a vessel or system when it exceeds the preset limit to prevent equipment damage or explosions.
2. What does the acronym PPE stand for?
Answer: Personal Protective Equipment
3. What is the function of a flow transmitter?
Answer: It measures the rate of flow of liquids or gases and sends this data to a controller or display.
4. What is the primary function of a control valve?
Answer: To regulate the flow of a fluid by varying the size of the flow passage as directed by a controller.
5. What should you do first in the event of a gas leak?
Answer: Raise the alarm and evacuate the area immediately following site emergency procedures.
6. How is Lockout/Tagout (LOTO) used?
Answer: To ensure equipment is properly shut off and not started again before maintenance or servicing is completed.
7. What is a P&ID?
Answer: Piping and Instrumentation Diagram – a detailed diagram showing the piping and process equipment with instrumentation and control devices.
8. What is cavitation in pumps?
Answer: It occurs when vapor bubbles form in the pump suction and collapse in the impeller, causing damage and loss of performance.
9. What is a hydrostatic test?
Answer: A pressure test using water to check the strength and leak tightness of a pipeline or vessel.
10. What instrument measures liquid level in a tank?
Answer: A level transmitter or level gauge.
11. How is calibration performed?
Answer: By comparing an instrument's output with a known standard and making necessary adjustments.
12. What is the function of an Emergency Shutdown System (ESD)?
Answer: To safely shut down operations during an emergency to protect personnel, environment, and equipment.
13. What is meant by the term "dead leg" in piping?

Answer: A section of pipe where flow is stagnant, increasing the risk of corrosion or contamination.

14. What does SCADA stand for?

Answer: Supervisory Control and Data Acquisition – a system used for remote monitoring and control.

15. What is the normal color of a gas flame in proper combustion?

Answer: Blue

16. What action should be taken if a control panel alarm is triggered?

Answer: Acknowledge the alarm, investigate the cause, and follow standard operating procedures (SOPs).

17. What is meant by the term “purging”?

Answer: Removing unwanted gases or liquids from equipment, often using inert gas before startup or maintenance.

18. What is the main hazard associated with H₂S gas?

Answer: It is toxic and can be lethal even at low concentrations.

19. What device is used to measure pressure?

Answer: Pressure gauge or pressure transmitter.

20. What is the difference between preventive and corrective maintenance?

Answer: Preventive is scheduled maintenance to prevent failure; corrective is done after a fault has occurred.

21. What is the significance of a Material Safety Data Sheet (MSDS)?

Answer: It provides information on handling, hazards, and emergency measures related to chemicals.

22. What is the purpose of a flare system?

Answer: To burn off excess or hazardous gases safely.

23. What is “bleeding” in instrumentation?

Answer: Releasing trapped air or fluid from a system to ensure accurate readings.

24. What is the standard unit of pressure?

Answer: Pascal (Pa) or commonly psi (pounds per square inch) in industry.

25. What are the three main elements of the fire triangle?

Answer: Fuel, Oxygen, and Heat

26. What is a check valve used for?

Answer: To allow fluid flow in one direction only and prevent backflow.

27. What is a trip in process operations

Answer: An automatic shutdown of equipment or system when parameters exceed safe limits.

28. What is the function of a thermocouple?

Answer: To measure temperature by generating a voltage based on the temperature difference between two metals.

29. What is slug flow in a pipeline?

Answer: An intermittent flow of gas and liquid which can cause pressure surges.

30. What is meant by “commissioning”?

Answer: The process of starting up a new system or equipment and ensuring it operates correctly.

31. What is flash point?

Answer: The lowest temperature at which a substance can vaporize to form an ignitable mixture with air.

32. What is the purpose of earthing (grounding)?

Answer: To protect people and equipment from electric shock by discharging current to the earth.

33. How often should safety equipment be inspected?

Answer: As per manufacturer’s instructions and site safety schedules—typically daily, weekly, or monthly.

34. What is a hot work permit?

Answer: A document that allows welding, cutting, or other ignition-producing activities in hazardous areas under controlled conditions.

35. What is the purpose of a root cause analysis?

Answer: To identify the underlying cause of a problem or incident to prevent recurrence.

36. Define LEL.

Answer: Lower Explosive Limit – the lowest concentration of gas/vapor that can ignite in air.

37. What is a tag number on equipment?

Answer: A unique identifier used for tracking, maintenance, and documentation purposes.

38. Why are pressure relief valves important?

Answer: They prevent over-pressurization that could cause equipment failure or explosions.

39. What does an interlock system do?

Answer: Prevents incorrect operations by ensuring a sequence of events occurs in the correct order.

40. What is a batch process?

Answer: A production process where materials are processed in set amounts or batches.

41. How is a gas leak detected in a plant?

Answer: By using gas detectors, odorants, or visual inspection for frost or bubbles.

42. What is the difference between open loop and closed loop control?

Answer: Open loop has no feedback; closed loop uses feedback to adjust the process.

43. What is a blowdown?

Answer: A method of releasing pressure, sediment, or liquid from a system like a boiler or separator.

44. What does HAZOP stand for?
Answer: Hazard and Operability Study – a structured method to identify process hazards.
45. What is the purpose of insulation on process piping?
Answer: To reduce heat loss/gain and protect personnel from burns.
46. What is the difference between a globe valve and gate valve?
Answer: Globe valves control flow precisely; gate valves are better for on/off service.
47. What causes pump cavitation?
Answer: Low suction pressure leading to vapor bubbles that collapse in the pump impeller.
48. What is a barrier fluid in pumps?
Answer: A fluid used to isolate the process fluid from the atmosphere in dual mechanical seals.
49. What is a vibration sensor used for?
Answer: To detect abnormal vibration levels in rotating machinery.
50. What is the use of a control loop?
Answer: To maintain a process variable (like pressure or flow) at a desired setpoint.
51. Why is it important to follow standard operating procedures (SOPs)?
Answer: To ensure safety, consistency, and regulatory compliance.
52. What is a tank overfill protection system?
Answer: A system that prevents tanks from overflowing by using alarms or automatic shutoffs.
53. What does NPT stand for in piping?
Answer: National Pipe Thread – a standard for tapered threads used on pipes and fittings.
54. What is a PTW (Permit to Work)?
Answer: A formal authorization required before carrying out hazardous work.
55. What is a pig launcher/receiver?
Answer: A device used to insert or retrieve pipeline inspection or cleaning tools called "pigs."
56. What is the color code for a firewater line?
Answer: Typically red (but can vary by facility standards).
57. What does a VFD (Variable Frequency Drive) do?
Answer: It controls the speed and torque of electric motors by varying the input frequency and voltage.
58. What is fail-safe mode in valve operation?
Answer: The default position a valve moves to in case of power or signal loss (open or closed).
59. What is meant by "zero energy state"?
Answer: All forms of energy (electrical, hydraulic, pneumatic) have been isolated and released before work begins.

60. What is the primary hazard of working in a confined space?
Answer: Limited oxygen, toxic gases, or the risk of engulfment.
61. What does a colorless flame indicate?
Answer: Possible incomplete combustion or low heat output.
62. What is a fuse used for?
Answer: To protect electrical circuits by breaking the circuit during overload.
63. What is a split-range control?
Answer: A control strategy where one signal controls two valves or actuators based on set ranges.
64. What causes pressure surge or water hammer?
Answer: A sudden change in flow, like valve closure, causing a pressure wave.
65. What is the purpose of a sight glass?
Answer: To visually inspect liquid level in a vessel or flow in a line.
66. What is a trip setpoint?
Answer: The value at which a system triggers a shutdown or alarm.

67. What is meant by “fouling” in heat exchangers?
Answer: Accumulation of deposits that reduce heat transfer efficiency.

68. What is the function of an agitator?
Answer: To mix liquids or slurries for uniform composition.

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

70. What does a manometer measure?
Answer: Pressure, often differential or low pressure.

71. What is meant by “batching” in pipeline operations?
Answer: Transporting different products in sequence within the same pipeline.

72. What is the function of a compressor?
Answer: To increase the pressure of a gas by reducing its volume.

73. What does API stand for (in oil industry)?
Answer: American Petroleum Institute – also refers to API gravity (a measure of oil density).

74. What is meant by process upset?
Answer: An abnormal condition or deviation from normal operations.

75. What is the purpose of bleed rings or tapping points on flanges?
Answer: To allow sampling, pressure monitoring, or draining of the pipeline contents.

76. What is the role of a desalter in crude oil processing?
Answer: To remove salts and water from crude oil before it enters the refinery to prevent corrosion and fouling.

77. What is a trip valve?

Answer: A valve that automatically shuts off a process flow when a specific condition is met, part of safety shutdown systems.

78. What is meant by "line flushing"?

Answer: The process of cleaning a pipeline using a fluid (usually water or inert gas) to remove contaminants.

79. What is the primary hazard associated with static electricity?

Answer: It can cause sparks, which may ignite flammable gases or vapors.

80. What is a utility station in process plants?

Answer: A location where utilities like steam, air, and water are available for operational or maintenance use.

81. What is the first thing to check when a pump fails to start?

Answer: Power supply and electrical connections.

82. What is an isolation valve?

Answer: A valve used to stop the flow of fluid for maintenance or emergency situations.

83. What is a SCADA system used for?

Answer: Supervisory Control and Data Acquisition – used for remote monitoring and control of industrial processes.

84. What is the function of a seal pot in a pump system?

Answer: To supply barrier fluid to mechanical seals and maintain pressure between the seals.

85. What is purge air used for?

Answer: To prevent flammable or toxic gases from accumulating by displacing them with clean air.

86. What is a knockout drum?

Answer: A vessel used to remove liquid droplets from gas streams before they enter compressors or flares.

87. What does "double block and bleed" mean?

Answer: A safety isolation method using two valves with a bleed valve in between to ensure zero leakage.

88. What is meant by "trip logic"?

Answer: A programmed sequence of conditions that initiates a shutdown when certain parameters are met.

89. What is the use of a variable area flow meter (rotameter)?

Answer: To measure flow rate by allowing fluid to lift a float in a tapered tube.

90. What is the primary reason for equipment tagging?

Answer: To identify equipment status, indicate hazards, or control access during maintenance.

91. What is meant by "pressure equalization" before opening a vessel?

Answer: Matching internal and external pressure to safely open the vessel without sudden pressure release.

92. What is the use of a flame arrestor?

Answer: To stop flame propagation in gas lines and prevent explosions.

93. What is the difference between wet and dry gas?

Answer: Wet gas contains liquid hydrocarbons; dry gas is mostly methane with little or no liquids.

94. What causes foaming in separators?

Answer: Presence of surfactants or fine solids that trap gas bubbles, reducing separation efficiency.

95. What is a motor control center (MCC)?

Answer: A centralized system that houses starters, controls, and breakers for electric motors.

96. What does PSV stand for and what is its purpose?

Answer: Pressure Safety Valve – to protect vessels and pipelines from overpressure.

97. What is line pigging?

Answer: The use of a pig (cleaning device) to clean or inspect pipelines internally.

98. What does “permit to work” system ensure?

Answer: That all hazards are identified, and control measures are in place before work starts.

99. What is meant by “inerting” a vessel?

Answer: Displacing oxygen with inert gas (like nitrogen) to reduce the risk of fire or explosion.

100. Why is grounding necessary during product transfer?

Answer: To prevent static buildup that could ignite flammable vapors.