|  |
| --- |
| Q 1.**Why is fluid power preferred in mobile vehicles?** |
| a) power can be transmitted without any delay | b) when overloaded, fluid power systems stop without damaging the components |
| c) speed variation cannot be achieved | d) fluid is non-compressible |
| Correct answer: **a,b and d** |
| Q 2. **Pressure of 1 bar is equal to** |
| a) 14.5 psi | b) 145 psi |
| c) 12.5 psi | d) 145 x 10-6 psi |
| Correct answer: **14.5 psi** |
| Q 3. **What effect does overloading have on fluid power and electrical systems?** |
| a) electrical components get damaged in electrical systems | b) fluid power system stops working without damaging the components |
| c) both a. and b | d) none of the above |
| Correct answer: **c. both a. and b.** |
| Q 4. **How is power transmitted in fluid power systems?** |
| a) power is transmitted instantaneously | b) power is transmitted gradually |
| c) both a. and b. | d) none of the above |
| Correct answer: **power is transmitted instantaneously** |
| Q 5. **Which of the following statements is/are false?** |
| a) air is non-compressible | b) less power is developed in fluid power systems than conventional systems |
| c) mechanical linkages used for load handling purposes have high efficiency | d) all the above |
| Correct answer: **d. all the above** |
| Q 6. Fluid Power circuits use schematic drawings to  |
| a) simplify component function details | b) make it so that only trained persons can understand the fuctions |
| c)make the drawing look impressive | d) none of the above |
| Correct answer: 1 |
| Q 7. **In which systems, spool of the servo valve is operated by a torque motor?** |
| a) hydromechanical servo systems | b) electrohydraulic servo systems |
| c) conventional servo valve | d) all the above |
| Correct answer: **electrohydraulic servo systems** |
| Q 8. **Which of the following systems generate more energy when used in industrial applications?** |
| a) hydraulic systems | b) pneumatic systems |
| c) both systems generate same energy | d) cannot say |
| Correct answer: **a. hydraulic systems** |
| Q 9. **Which type of compressor requires a reservoir for compressed air and why?** |
| a) rotary compressor to avoid pulsating effect | b) reciprocating compressor to avoid pulsating effect |
| c) both rotary and reciprocating compressors to avoid pulsating effect | d) none of the above |
| Correct answer: **reciprocating compressor to avoid pulsating effect** |
| Q 10. **Which of the following factors is considered while selecting a compressor?** |
| a) type of oil filter required | b) volumetric efficiency |
| c) viscosity of the liquids used | d) all the above |
| Correct answer: **b. volumetric efficiency** |
| Q 11. **Which of the following is a component used in air generation system?** |
| a) pressure switch | b) pressure gauge |
| c) drier | d) intercooler |
| Correct answer: **c. drier** |
| Q 12. **Where is an intercooler connected in a two stage compressor?** |
| a) intercooler is connected after the two stage compressor | b) intercooler is connected between the two stages of the compressor |
| c) . intercooler is connected before the two stage compressor | d) none of the above |
| Correct answer: **b. intercooler is connected between the two stages of the compressor** |
| Q 13. **Select the correct order of process occurring in pneumatic system** |
| a) Air preparation – air generation – air control – air consumption | b) Air preparation – air control– air generation– air consumption |
| c) Air generation - air preparation – air control – air consumption | d) none of the above |
| Correct answer: **Option: c.** |
| Q 14. **What is difference between regulator and pressure switch?** |
| a) regulator operates at set value pressure while pressure switch operates with slight fluctuation in pressure | b) . pressure switch operates at set value pressure while regulator operates with slight fluctuation in pressure |
| c) regulator and pressure switch are same | d) none of the above |
| Correct answer: **a. regulator operates at set value pressure while pressure switch operates with slight fluctuation in pressure** |
| Q 15. **Select the correct standard symbols for the hydraulic** check valve |
| a) http://www.careerride.com/images/Mechanical/Standard-Symbol-1.png | b) http://www.careerride.com/images/Mechanical/Standard-Symbol-2.png |
| c) http://www.careerride.com/images/Mechanical/Standard-Symbol-3.png | d) http://www.careerride.com/images/Mechanical/Standard-Symbol-4.png |
| Correct answer: **b** |
| Q 16. **Select the correct standard symbols for the** hydraulic motor |
| a) http://www.careerride.com/images/Mechanical/Standard-Symbol-1.png | b) http://www.careerride.com/images/Mechanical/Standard-Symbol-2.png |
| c) http://www.careerride.com/images/Mechanical/Standard-Symbol-3.png | d) http://www.careerride.com/images/Mechanical/Standard-Symbol-4.png |
| Correct answer: d |
| Q 17. **Select the correct standard symbols for the** pneumatic motor |
| a) http://www.careerride.com/images/Mechanical/Standard-Symbol-1.png | b) http://www.careerride.com/images/Mechanical/Standard-Symbol-2.png |
| c) http://www.careerride.com/images/Mechanical/Standard-Symbol-3.png | d) http://www.careerride.com/images/Mechanical/Standard-Symbol-4.png |
| Correct answer: c |
| Q 18. **Select the correct standard symbols for the** shut-off valve |
| a) http://www.careerride.com/images/Mechanical/Standard-Symbol-1.png | b) http://www.careerride.com/images/Mechanical/Standard-Symbol-2.png |
| c) http://www.careerride.com/images/Mechanical/Standard-Symbol-3.png | d) http://www.careerride.com/images/Mechanical/Standard-Symbol-4.png |
| Correct answer: a |
| Q 19. **Mass of water vapour in unit volume of air is known as** |
| a) relative humidity | b) absolute humidity |
| c) saturation quantity | d) none of the above |
| Correct answer: **b. absolute humidity** |
| Q 20. **Which valve is also known as memory valve?** |
| a) single pilot signal valve | b) double pilot signal valve |
| c) roller lever valve | d) logic valve |
| Correct answer: **double pilot signal valve** |
| Q 21. **Which of the following logic valve is known as shuttle valve?** |
| a) OR gate | b) AND gate |
| c) NOR gate | d) NAND |
| Correct answer: **a. OR gate** |
| Q 22. **In pneumatic systems, AND gate is also known as** |
| a) check valve | b) shuttle valve |
| c) dual pressure valve | d) none of the above |
| Correct answer: **c. dual pressure valve** |
| Q 23. **What is a pressure sequence valve?** |
| a) . it is a combination of adjustable pressure relief valve and directional control valve | b) it is a combination of nonadjustable pressure relief valve and directional control valve |
| c) . it is a combination of adjustable pressure reducing valve and check valve | d) it is a combination of adjustable pressure reducing valve and flow control valve |
| Correct answer: **a. it is a combination of adjustable pressure relief valve and directional control valve** |
| Q 24. **Which of the following is used to sense the initial and final positions of a piston rod?** |
| a) lever operated direction control valve | b) limit switch |
| c) roller lever valve | d) all the above |
| Correct answer: **d. all the above** |
| Q 25. **Which valve gets activated only in one direction that is forward or backward movement of the piston rod?** |
| a) roller lever valve | b) idle roller lever valve |
| c) both a and b | d) none of the above |
| Correct answer: **b. idle roller lever valve** |
| Q 26. **Which numbers are used to denote retraction of a piston rod?** |
| a) even numbers | b) odd numbers |
| c) both even and odd numbers | d) none of the above |
| Correct answer: **b. odd numbers** |
| Q 27. **Which of the following is an element of time delay valve?** |
| a) flow control valve | b) direction control valve |
| c) both a and b | d) none of the above |
| Correct answer: **c. both a and b** |
| Q 28. **Which of the following is the correct displacement diagram for a single acting cylinder, where 0 and 1 on the left hand side are initial and final positions of piston rod respectively and a, b, c are stages of extension and retraction?** |
| a) http://www.careerride.com/images/Mechanical/Dislpacement-Diagram-1.png | b) http://www.careerride.com/images/Mechanical/Dislpacement-Diagram-2.png |
| c) http://www.careerride.com/images/Mechanical/Dislpacement-Diagram-3.png | d) http://www.careerride.com/images/Mechanical/Dislpacement-Diagram-4.png |
| Correct answer: **b.**  |
| Q 29. **Overlapping of signals in pneumatic systems can be avoided by using** |
| a) rolling lever valve | b) idle roller lever valve |
| c) both a and b | d) none of the above |
| Correct answer: **c. both a and b** |
| Q 30. **What is the notation used for the sequence of operations mentioned below?**1. Cylinder A undergoes forward stroke2. Cylinder B undergoes forward stroke3. Cylinder A undergoes backward stroke4. Cylinder B undergoes backward stroke |
| a) A– B– A+ B+ | b) A+ B– A+ B– |
| c) A+ B+ A– B–  | d) A+ B–  A+ B– |
| Correct answer: **c. A+B+A–B–**  |
| Q 31. **Which of the following statements is true for cascade method which is used to draw a pneumatic circuit?** |
| a) signal processing valves are connected in parallel | b) when the number of signal processing valves are greater than 4, the signals are strong |
| c) cascade method does not consider the cost factor | d) all the above |
| Correct answer: **c. cascade method does not consider the cost factor** |
| Q 32. **What is the part, shown in below diagram of 3/2 valve, called?**http://www.careerride.com/images/Mechanical/3-2-Direction-Control-Valve.png |
| a) manually operated valve | b) pilot operated valve |
| c) pressure electric converter | d) none of the above |
| Correct answer: **b. pilot operated valve** |
| Q 33. **How is proximity switch differentiated from limit switch?** |
| a) proximity switch is activated when moving parts have physical contact with it | b) . proximity switch is activated when non-moving parts have physical contact |
| c) proximity switch is activated when moving parts are close to it | d) none of the above |
| Correct answer: **c. proximity switch is activated when moving parts are close to it** |
| Q 34. **Which of the following statements is true?** |
| a) electromagnetic relays have high reliability at more cost  | b) electromagnetic relays use low current and voltage, to have open or close contact in high voltage and current circuit |
| c) air pressure passed to pressure electric converter opens a contact which energizes a circuit for the flow of electric contact | d) all the above |
| Correct answer: **b. electromagnetic relays use low current and voltage, to have open or close contact in high voltage and current circuit** |
| Q 35. **In which circuits, relay of low voltage and low current is used to make open or close contact?** |
| a) high voltage and high current circuit | b) low voltage and low current circuit |
| c) high voltage and low current circuit | d) low voltage and low current circuit |
| Correct answer: **a. high voltage and high current circuit** |
| Q 36. **In electropneumatic circuits,** |
| a) spool is shifted by signal air | b) spool is shifted by control air |
| c) spool is shifted by electromotive force | d) all the above |
| Correct answer: **c. spool is shifted by electromotive force** |
| Q 37. **Why are electromechanical relays more popular than solid state relays?** |
| a) they are reliable | b) less costly |
| c) both a and b | d) none of the above |
| Correct answer: **c. both a and b** |
| Q 38. **What is the DC range of of solenoids in pneumatic systems?** |
| a) 12 V and 24 V | b) 110 V and 220 V |
| c) both a and b | d) none of the above |
| Correct answer: **a. 12 V and 24 V** |
| Q 39. **Which of the following statements are true?**  |
| a) piston pumps are self priming | b) piston pumps require high maintenance |
| c) piston pumps have low cost of production | d) piston pumps have low volumetric efficiency |
| Correct answer: **1 and 2** |
| Q 40. **)   \_\_\_\_\_\_\_\_\_\_ of PLCs can be done in very little time.** |
| a) Programming | b) Installation |
| c) Commissioning | d) All of the above |
| Correct answer: **All of the above** |
| Q 41. **The PLC is used in \_\_\_\_\_\_\_.** |
| a) machine tools | b) automated assembly equipment |
| c) moulding and extrusion machines | d) all of the above |
| Correct answer: **all of the above** |
| Q 42. **Which of the following can be the output of PLC?** |
| a) Relay coils | b) Solenoids |
| c) Motors | d) Lamps |
| Correct answer: **All the a, b, c, d** |
| Q 43. **Which of the following cannot be an input that is given to the PLC?** |
| a) Manual switches | b) Relays |
| c) Sensors | d) None of the above |
| Correct answer: **None of the above** |
| Q 44. Which of the figures shown below represents the exclusive-NOR gate? http://www.indiabix.com/_files/images/digital-electronics/digital-systems/mcq4_1012_1.gif |
| a) a | b) b |
| c) c | d) d |
| Correct answer: Option b |
| Q 45. Exclusive-OR (XOR) logic gates can be constructed from what other logic gates? |
| a) AND gates, OR gates, and NOT gates | b) OR gates only |
| c) AND gates and NOT gates | d) OR gates and NOT gates |
| Correct answer: AND gates, OR gates, and NOT gates |
| Q 46. The output of an AND gate with three inputs, A, B, and C, is HIGH when \_\_\_\_\_\_\_\_. |
| a) A = 1, B = 1, C = 0 | b) A = 0, B = 0, C = 0 |
| c) A = 1, B = 1, C = 1 | d) A = 1, B = 0, C = 1 |
| Correct answer: Option **C** |
| Q 47. (a+b+c)'= |
| a) a'b'c' |  b) a'+b'+c' |
| c) abc | d) a+b+c |
| Correct answer: a a’b’c’  |
| Q 48. PLC means ------------- logic controller |
| a) Programmable | b) Peripheral |
| c) Periodic | d) None of the above |
| Correct answer: Programmable |
| Q 49. A check valve is a/an: |
| 1. a) directional control valve
 | 1. b) counterbalance valve
 |
| 1. c) reducing valve
 | d) none of the above |
| 1. Correct answer: directional control valve
 |
| Q 50. Pilot-operated check valves have \_\_\_\_\_\_\_\_\_\_\_flow in one direction. |
| 1. a) increased
 | 1. b) controlled
 |
| 1. c) decreased
 | d) none of the above |
| 1. Correct answer: controlled
 |
| Q 51. What is the name for information sent from robot sensors to robot controllers? |
| a) temperature  | b) pressure |
| c) feedback | d) signal |
| Correct answer: feedback |
| Q 52. Which one of the following terms refers to the up - down motion of a robot arm? |
| a) yaw | b) pitch |
| c) roll | d) elevate |
| Correct answer: pitch |
| Q 53. Which of the following terms refers to the left – right movement of a robot arm? |
| a) yaw | b) vertical |
| c) pitch | d) swing |
| Correct answer: yaw |
| Q 54. Which of the following terms refer to the rotational motion of a robot arm?  |
| a) swivel | b) axle |
| c) roll | d) yaw  |
| Correct answer: roll |
| Q 55. What is the name for the space inside which a robot unit operates? |
| a) environment | b) work envelop |
| c) danger zone | d) exclusion zone |
| Correct answer: work envelop |
| Q 56. Which of the following terms IS NOT one of the five basic parts of a robot?  |
| a) peripheral tools | b) end effector |
| c) controller | d) drive |
| Correct answer: peripheral tools |
| Q 57. The number of moveable joints in the base, the arm, and the end effector of the robot determines ............... ? |
| a) degrees of freedom | b) payload capacity |
| c) flexibility | d) operational limits |
| Correct answer: degrees of freedom |
| Q 58. For a robot unit to be considered a functional industrial robot, typically, how many degrees of freedom would the robot have? |
| a)three  | b) four |
| c) six | d) eight |
| Correct answer: six |
| Q 59. Which of the following terms refers to the use of compressed gasses to drive (power) the robot device? |
| a) pneumatic | b) hydraulic |
| c) piezo electric | d) photo sensitive |
| Correct answer: pneumatic |
| Q 60. With regard to the physics of power systems used operate robots, which statement or statements is most correct? |
| a) hydraulics involves the compression of liquids | b) hydraulics involves the compression of air |
| c) pneumatics involve the compression of air | d) chemical batteries produce AC power |
| Correct answer: pneumatics involve the compression of air  |