Fluid Power Hydraulics and Pneumatics 3rd edition Daines Test Bank

SKU: 9781635634730-TEST-BANK

1. A central hydraulic and/or pneumatic power system is most often used in ____.

a. mobile construction equipment

b. situations requiring flexibility

*c. large industrial applications

d. agricultural applications

2. Hydraulic systems typically operate at pressures ____.

a. of several thousand psi

*b. higher than pneumatic systems

c. lower than pneumatic systems

d. within the same pressure range of pneumatic systems

3. Pneumatic system loads can involve rotary actuator speeds as high as ____ rpm.

a. 250

b. 1,000

c. 10,000

*d. 20,000

4. Which of the following characteristics is considered to be an advantage of fluid power systems?

a. Free from fluid leakage and spills.

b. Safety factors associated with fluid medium.

*c. Readily adapts to external control methods.

d. Cost of compressing air.

5. Hydrostatic transmissions and servo systems are used in both hydraulic and pneumatic operation.

*a. True
b. False

6. Either liquids or gases may be pressurized in a fluid power system.

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*a. True
b. False

7. A prime mover is the part of a system that actually completes the work.

a. True
*b. False

8. Fluid power transmission systems generally are suitable for all applications.

a. True
*b. False

9. In contrast to hydraulic systems, pneumatic systems are capable of operating at extremely high pressures.

a. True
*b. False

10. Many theories associated with early hydraulics and pneumatics were based on proven physical principles.

a. True
*b. False

11. Average-size windmills and waterwheels typical of the Middle Ages developed a maximum of only 100 horsepower.

a. True
*b. False

12. Compact hydraulic units made up of a power source, pump, and reservoir were first used in the 1920s.

*a. True
b. False

13. Match the system component with the appropriate function.

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[d] 1. Transfer power in a mechanical system

[c] 2. Complete a work task

[b] 3. Drive a pump

[a] 4. Pressurize fluid

[e] 5. Transfer power in a fluid power system

a. Pump

b. Prime mover

c. Actuator

d. Gears, belts, shafts

e. Pipes, hoses

14. Match the industry with the fluid power application used in that industry.

[d] 1. Specialized harvesting equipment

[b] 2. Crane operation

[c] 3. Hydraulic and pneumatic braking systems

[f] 4. Positioning parts for machining

[e] 5. Operate drilling equipment

[a] 6. Precision positioning of rocket launchers

a. Military

b. Construction

c. Automotive

d. Agriculture

e. Mining

f. Manufacturing

15. When accuracy is of primary importance, a(n) ____ type of fluid power system should be used.

Correct Answer(s):
a. hydraulic

16. The three power transfer systems commonly used today are fluid power, mechanical, and ____.

Correct Answer(s):
a. electrical

17. The ____ fluid power system is usually selected when an application requires a high operating pressure.

Correct Answer(s):
a. hydraulic

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18. Fluid power systems use ____ fluids to transmit power.

Correct Answer(s):
a. pressurized

19. The ____ fluid power system is usually selected when an application requires a high operating pressure.

Correct Answer(s):
a. pneumatic

20. The ____ fluid power system can usually provide the best solution where lightweight and easily handled tools are a requirement.

Correct Answer(s):
a. pneumatic

21. Many of the concepts involved in current fluid power systems were first used during the Industrial Revolution to remove water from ____.

Correct Answer(s):
a. mines

22. ____ pumping stations were commonly used in Britain in the late 1800s and early 1900s to distribute pressurized water up to 15 miles.

Correct Answer(s):
a. Centralized

23. Both hydraulic and pneumatic systems provide an easy means of multiplying and controlling force and ____.

Correct Answer(s):
a. torque

24. Average-size windmills typical of the Middle Ages produced only 4–5 ____.

Correct Answer(s):
a. horsepower

25. Name the five areas that contribute to the success of the fluid power industry.

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Correct Answer:
Component design and manufacture, system design and assembly, service including troubleshooting and maintenance, component and systems sales and distribution, and education.

26. List the three power transfer systems commonly used today.

Correct Answer:
Fluid power, mechanical, and electrical.

27. Clean operation with minimum fire hazards are characteristics of which fluid power system(s)?

Correct Answer:
Both hydraulic and pneumatic

28. What three items essential to human existence and comfort have been closely related throughout history to the development of fluid power?

Correct Answer:
Transportation, movement of water, and power generation and transmission.

29. What type of fluid power system should be used when accuracy is of primary importance?

Correct Answer:
Hydraulic

30. In early times, the movement and control of water for what three purposes also produced ideas that eventually were used in fluid power systems?

Correct Answer:
Irrigation, flood control, and municipal water systems.

31. List three factors that have promoted progress in fluid power applications in recent years.

Correct Answer:
Development of new materials, miniaturization of components, effective electrical/electronic control.

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32. Identify three fluid-power related inventions of the 18th and 19th centuries that contributed to the Industrial Revolution.

Correct Answer:
Steam engine, internal combustion engine, gas turbine.

33. Ideas eventually used in fluid power systems came from early efforts to move and control water for what three purposes?

Correct Answer:
Irrigation, flood control, and municipal water systems.

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