1. Why does pressure in a fluid increase with depth?
   A. Due to the weight of the fluid above
   B. Because molecules move faster deeper down
   C. Because density increases with depth
   D. Because gravity is stronger at lower depths
   E. Because atmospheric pressure disappears

2. Two objects have the same volume but different masses and are fully submerged in water. Which is true about the buoyant force on them?
   A. Larger for the heavier object
   B. The same for both
   C. Larger for the lighter object
   D. Depends on depth
   E. Zero for both

3. A block floats in water. If the block is moved to a deeper part of the same body of water, what happens to the buoyant force?
   A. It increases
   B. It decreases
   C. It becomes zero
   D. It depends on temperature
   E. It stays the same

4. Which factor directly determines whether an object floats or sinks in a fluid?
   A. Its mass
   B. Its volume
   C. The fluid's viscosity
   D. Its average density compared to the fluid
   E. Its shape only

5. A dam is built thicker at the bottom than at the top because:
   A. Water flows faster near the bottom
   B. Buoyant force is stronger near the bottom
   C. Pressure is independent of depth
   D. Density of water increases with depth
   E. Pressure increases with depth

6. A hydraulic lift works because:
   A. Fluids are compressible
   B. Pressure is lower in larger pistons

C. Pressure is transmitted equally in a confined fluid
D. Fluids flow faster in narrow tubes
E. Gravity increases pressure downward

7. If the cross-sectional area of a pipe decreases, the speed of an incompressible fluid flowing through it:
   A. Decreases
   B. Stays the same
   C. Increases
   D. Becomes zero
   E. Becomes turbulent

8. According to Bernoulli's principle, where fluid speed is higher, the pressure is:
   A. Higher
   B. Lower
   C. The same
   D. Zero
   E. Unrelated

9. An object sinks in a fluid because:
   A. The buoyant force is greater than its weight
   B. The fluid has low pressure
   C. The object displaces too much fluid
   D. Its density is greater than the fluid's density
   E. Gravity is weaker in the fluid

10. Water flows steadily through a horizontal pipe of varying diameter. Which quantity must remain constant throughout the pipe?
    A. Pressure
    B. Speed
    C. Density
    D. Volume flow rate
    E. Kinetic energy

11. Why does a floating object displace its own weight of fluid?
    A. Due to conservation of energy
    B. Because of Archimedes' principle
    C. Because of Pascal's principle
    D. Due to Bernoulli's equation

E. Because pressure is constant

12. A boat floats in a pool. When the boat is removed from the pool, the water level:
    A. Rises
    B. Stays the same
    C. Drops
    D. Depends on the boat's shape
    E. Depends on temperature

13. Which change would increase the buoyant force on a submerged object?
    A. Decreasing the fluid density
    B. Decreasing gravity
    C. Reducing the object's volume
    D. Increasing the fluid density
    E. Increasing the object's mass

14. Why does water squirt farther from holes near the bottom of a container?
    A. Water speed is constant
    B. Water density is higher
    C. Gravity pulls harder
    D. Pressure is greater at greater depth
    E. Air pressure is lower

15. Which statement about pressure in a static fluid is correct?
    A. Pressure depends on container shape
    B. Pressure is greater near the surface
    C. Pressure is the same everywhere
    D. Pressure depends on volume
    E. Pressure depends on depth and density

16. A block floats higher in saltwater than in freshwater because saltwater:
    A. Has lower pressure
    B. Has higher density
    C. Has greater viscosity
    D. Is deeper
    E. Has higher temperature

17. In a narrowing pipe, why does fluid speed increase?
    A. Pressure pushes it forward
    B. Gravity accelerates it

C. Mass flow rate must be conserved
D. Density increases
E. Viscosity decreases

18. Which situation best demonstrates Pascal's principle?
A. A dam holding back water
B. An airplane wing generating lift
C. A hydraulic car jack
D. Water flowing through a river
E. A boat floating

19. A solid cube is fully submerged and at rest in a fluid. The buoyant force equals:
A. The cube's mass
B. The cube's weight
C. The pressure at the bottom
D. The weight of displaced fluid
E. Zero

20. Why do streamlines get closer together in fast-moving regions of fluid flow?
A. Pressure is higher
B. Density decreases
C. Volume increases
D. Speed increases
E. Temperature rises

21. An object floats with half its volume submerged. If the fluid density increases, the object will:
A. Sink
B. Float lower
C. Float higher
D. Become fully submerged
E. Experience no buoyant force

22. Which variable does NOT affect pressure at a point in a static fluid?
A. Depth
B. Fluid density
C. Gravitational acceleration
D. Shape of the container
E. Height of fluid above

23. Why does a wider pipe generally have slower fluid flow than a narrow pipe?
    A. Because pressure is lower
    B. Because of friction
    C. Because continuity requires it
    D. Because density decreases
    E. Because gravity slows it

24. A helium balloon rises in air because:
    A. Its mass is small
    B. Air pressure pushes up
    C. Gravity is weaker on helium
    D. The buoyant force exceeds its weight
    E. Helium expands upward

25. Which condition must be true for Bernoulli's equation to apply?
    A. Compressible fluid
    B. Turbulent flow
    C. Vertical motion only
    D. Variable density
    E. Steady, non-viscous flow

26. An object sinks in oil but floats in water. What must be true?
    A. Oil is denser than water
    B. The object is denser than oil but less dense than water
    C. The object has greater mass in oil
    D. Buoyant force depends on viscosity
    E. Gravity is different in oil

27. Why is pressure the same at all points on a horizontal surface underwater at the same depth?
    A. Water flows evenly
    B. Fluid density changes horizontally
    C. Depth is constant
    D. Gravity is canceled
    E. Pressure equalizes instantly

28. If fluid speed increases, according to Bernoulli's principle, pressure:
    A. Increases
    B. Decreases
    C. Remains unchanged

D. Becomes zero
E. Becomes atmospheric

29. A metal block and a wooden block have equal volumes and are submerged in water. Which experiences a greater buoyant force?
A. The metal block
B. The wooden block
C. The one with greater mass
D. Both experience the same buoyant force
E. Neither experiences buoyant force

30. Which situation results in the greatest pressure at the bottom of a container?
A. Tall, narrow container
B. Short, wide container
C. Any container with the same fluid depth
D. Container with heavier fluid
E. Container with moving fluid

31. Why does lifting an object underwater feel easier than lifting it in air?
A. Gravity is weaker
B. The object loses mass
C. Water pushes downward
D. Buoyant force acts upward
E. Pressure decreases

32. If a fluid is incompressible, which quantity must be conserved in flow?
A. Pressure
B. Energy
C. Speed
D. Mass flow rate
E. Density

33. Which object will float highest in water?
A. Object with largest mass
B. Object with largest volume
C. Object with smallest density
D. Object with greatest weight
E. Object with least surface area

34. Why does air move faster over the top of an airplane wing?
    A. Air is compressed
    B. Pressure is higher above the wing
    C. Gravity pulls air upward
    D. Wing shape causes pressure differences
    E. Air density changes

35. Which change increases pressure at a point underwater?
    A. Decreasing depth
    B. Decreasing density
    C. Increasing gravity
    D. Decreasing gravity
    E. Increasing container width

36. Why does a submerged object feel an upward force?
    A. Water pulls upward
    B. Pressure decreases with depth
    C. Pressure increases with depth
    D. Density decreases with depth
    E. Gravity pushes upward

37. Which quantity is equal for all points along a streamline in ideal fluid flow?
    A. Speed
    B. Pressure
    C. Height
    D. Total mechanical energy per unit volume
    E. Density

38. A block floats in water. If water is replaced with a less dense fluid, the block will:
    A. Sink
    B. Float higher
    C. Float lower
    D. Experience the same buoyant force
    E. Become fully submerged

39. Why does a leaking tank drain faster at first than later?
    A. Density decreases
    B. Hole gets larger
    C. Pressure decreases as water level drops
    D. Gravity weakens

E. Flow becomes turbulent

40. Which statement about buoyant force is correct?
    A. Depends on object mass
    B. Depends on object shape only
    C. Depends on displaced fluid weight
    D. Depends on depth only
    E. Depends on pressure only

41. Why does a straw work when you suck on it?
    A. You pull liquid upward
    B. Gravity pushes liquid up
    C. Pressure inside straw decreases
    D. Liquid is attracted upward
    E. Density changes

42. In which case is fluid pressure greatest?
    A. Shallow depth, high density
    B. Deep depth, low density
    C. Shallow depth, low density
    D. Deep depth, high density
    E. Pressure is always constant

43. An object is neutrally buoyant in a fluid when:
    A. Its mass is zero
    B. Buoyant force is zero
    C. Its density equals the fluid density
    D. It is fully submerged
    E. It floats at the surface

44. Why is Bernoulli's principle not accurate for very viscous fluids?
    A. Pressure is constant
    B. Speed is constant
    C. Energy is dissipated
    D. Density changes
    E. Gravity disappears

45. What happens to buoyant force if gravity increases?
    A. Decreases
    B. Stays the same

C. Becomes zero
D. Increases
E. Depends on shape

46. Which fluid property resists flow?
A. Density
B. Pressure
C. Buoyancy
D. Viscosity
E. Volume

47. Why does pressure act equally in all directions at a point in a fluid?
A. Due to gravity
B. Due to fluid flow
C. Due to molecular motion
D. Due to container shape
E. Due to viscosity

48. A ship floats higher in freshwater than seawater. What explains this?
A. Freshwater is denser
B. Seawater has less pressure
C. Freshwater has less buoyant force
D. Seawater is less dense
E. Seawater provides greater buoyant force

49. Which factor does NOT affect buoyant force?
A. Fluid density
B. Displaced volume
C. Gravitational acceleration
D. Object's color
E. Fluid type

50. Which principle explains why squeezing a tube of toothpaste forces paste out?
A. Bernoulli's principle
B. Continuity equation
C. Conservation of energy
D. Archimedes' principle
E. Pascal's principle

Answer Key

1. A
2. B
3. C
4. D
5. E
6. C
7. C
8. B
9. D
10. D
11. B
12. C
13. D
14. D
15. E
16. B
17. C
18. C
19. D

20. D

21. C

22. D

23. C

24. D

25. E

26. B

27. C

28. B

29. D

30. C

31. D

32. D

33. C

34. D

35. C

36. C

37. D

38. C

39. C

40. C

41. C

42. D

43. C

44. C

45. D

46. D

47. C

48. E

49. D

50. E

51. Why does pressure increase with depth in a fluid at rest?
    A. Because the fluid above exerts weight
    B. Because molecules move faster
    C. Because density increases
    D. Because gravity increases
    E. Because of buoyant force

52. Two identical blocks are fully submerged, one in water and one in oil of lower density. Which block experiences the greater buoyant force?
    A. The one in oil
    B. The one in water
    C. Both experience the same force
    D. The heavier block
    E. Cannot be determined

53. A pipe narrows to half its original diameter. For incompressible steady flow, the fluid speed in the narrow section is:
    A. Half as large
    B. The same

C. Twice as large
D. Four times as large
E. Eight times as large

54. A block floats in water with 60% of its volume submerged. What is the block's density?
A. 400 kg/m³
B. 500 kg/m³
C. 600 kg/m³
D. 800 kg/m³
E. 1000 kg/m³

55. Why is the base of a dam thicker than the top?
A. Flow speed is greater at the bottom
B. Buoyant force is larger
C. Density is higher
D. Pressure increases with depth
E. Gravity is stronger

---

6. A hydraulic press has pistons with areas 0.01 m² and 0.50 m². A 200 N force is applied to the smaller piston. The force on the larger piston is closest to:
A. 4 N
B. 200 N
C. 1 000 N
D. 10 000 N
E. 50 000 N

7. Which quantity must remain constant for steady incompressible flow in a pipe?
A. Pressure
B. Speed
C. Volume flow rate
D. Kinetic energy
E. Height

8. A fluid flows faster over the top of an airplane wing than beneath it. The pressure above the wing is therefore:
A. Higher
B. Lower
C. Equal

D. Zero
E. Unrelated

9. A cube of metal is fully submerged and at rest in water. The buoyant force equals:
   A. The cube's mass
   B. The cube's weight
   C. The pressure at the bottom
   D. The weight of displaced water
   E. Zero

10. Water exits holes at different heights on a container. The water from the lowest hole travels the farthest because:
    A. The hole is largest
    B. The water is denser
    C. The flow is turbulent
    D. The pressure is greatest
    E. Gravity accelerates it longer

---

11. A boat floats in a lake. When the boat is removed, the water level:
    A. Rises
    B. Stays the same
    C. Drops
    D. Depends on boat shape
    E. Depends on temperature

12. An object sinks in a fluid because:
    A. Buoyant force is zero
    B. Weight is greater than buoyant force
    C. Pressure is low
    D. Volume is small
    E. Gravity increases

13. A pipe carrying water narrows so its radius becomes one-third as large. The fluid speed increases by a factor of:
    A. 3
    B. 6
    C. 9
    D. 1/3

E. 1/9

14. Which change increases the buoyant force on a submerged object?
    A. Increasing object mass
    B. Decreasing gravity
    C. Increasing fluid density
    D. Decreasing volume
    E. Decreasing depth

15. Which quantity does NOT affect pressure at a point in a static fluid?
    A. Fluid density
    B. Depth
    C. Gravitational acceleration
    D. Container shape
    E. Height of fluid

---

16. A block floats higher in saltwater than in freshwater because saltwater:
    A. Has lower pressure
    B. Has higher density
    C. Is more viscous
    D. Has greater depth
    E. Has higher temperature

17. In a narrowing pipe, fluid speed increases because:
    A. Pressure increases
    B. Gravity accelerates it
    C. Mass flow rate must be conserved
    D. Density decreases
    E. Viscosity decreases

18. Which device best demonstrates Pascal's principle?
    A. A dam
    B. An airplane wing
    C. A hydraulic jack
    D. A siphon
    E. A boat

19. A cube of volume 0.020 m^3 is fully submerged in water. The buoyant force is closest to:
    A. 20 N
    B. 100 N
    C. 200 N
    D. 400 N
    E. 2 000 N

20. Why do streamlines get closer together where fluid speed is greatest?
    A. Pressure increases
    B. Density increases
    C. Volume increases
    D. Speed increases
    E. Temperature rises

---

21. An object floats with half its volume submerged. If placed in a denser fluid, the object will:
    A. Sink
    B. Float lower
    C. Float higher
    D. Become fully submerged
    E. Experience no buoyant force

22. Which variable does NOT appear in the equation for buoyant force?
    A. Fluid density
    B. Displaced volume
    C. Gravitational acceleration
    D. Object mass
    E. Fluid type

23. A helium balloon rises in air because:
    A. Gravity is weaker on helium
    B. Air pressure pushes it up
    C. The buoyant force exceeds its weight
    D. Helium expands upward
    E. Density changes

24. A horizontal pipe narrows and then widens. Compared to the narrow section, the pressure in the wide section is:

A. Lower
B. Zero
C. Higher
D. Equal
E. Unpredictable

25. Which condition must be satisfied for Bernoulli's equation to apply?
A. Compressible flow
B. Turbulent flow
C. Steady, non-viscous flow
D. Vertical motion only
E. Variable density

---

26. An object sinks in oil but floats in water. Which must be true?
A. Oil is denser than water
B. Object density is between oil and water
C. Buoyant force depends on viscosity
D. Object mass changes
E. Gravity is different

27. Pressure at the same depth in a fluid is equal in all directions because:
A. Fluid flows uniformly
B. Density changes
C. Depth is constant
D. Pressure equalizes instantly
E. Gravity is canceled

28. If fluid speed increases along a streamline, pressure:
A. Increases
B. Decreases
C. Remains constant
D. Becomes zero
E. Becomes atmospheric

29. Two blocks of equal volume, one wood and one metal, are submerged in water. Which experiences greater buoyant force?
A. Wood
B. Metal

C. Heavier block
D. Both the same
E. Neither

30. Which container produces the greatest pressure at the bottom?
A. Tall, narrow container
B. Short, wide container
C. Any container with same fluid depth
D. Container with heavier walls
E. Container with flowing fluid

---

31. Lifting an object underwater feels easier than lifting it in air because:
A. Gravity is weaker
B. The object loses mass
C. Water pushes downward
D. Buoyant force acts upward
E. Pressure decreases

32. If a fluid is incompressible, which must be conserved?
A. Pressure
B. Speed
C. Volume flow rate
D. Energy
E. Height

33. Which object floats highest in water?
A. Largest mass
B. Largest volume
C. Smallest density
D. Greatest weight
E. Least surface area

34. Air moves faster over the top of a wing primarily because:
A. Air is compressed
B. Pressure is higher
C. Gravity pulls it up
D. Wing shape causes pressure differences

E. Density changes

35. Which change increases pressure at a point underwater?
    A. Decreasing depth
    B. Decreasing density
    C. Increasing gravity
    D. Increasing container width
    E. Decreasing gravity

---

36. Why does a submerged object experience an upward force?
    A. Water pulls upward
    B. Pressure decreases with depth
    C. Pressure increases with depth
    D. Density decreases
    E. Gravity reverses

37. Which quantity is the same along a streamline for ideal fluid flow?
    A. Speed
    B. Pressure
    C. Height
    D. Total mechanical energy per unit volume
    E. Density

38. A block floats in water. If the water is replaced with a less dense fluid, the block will:
    A. Sink
    B. Float higher
    C. Float lower
    D. Experience same buoyant force
    E. Become neutrally buoyant

39. A tank drains more slowly as water level drops because:
    A. Density decreases
    B. Hole shrinks
    C. Pressure decreases
    D. Gravity weakens
    E. Flow becomes turbulent

40. Which statement about buoyant force is correct?
    A. Depends on object mass
    B. Depends on object shape
    C. Depends on displaced fluid weight
    D. Depends only on depth
    E. Depends only on pressure

---

41. A straw works because:
    A. You pull liquid up
    B. Gravity pushes liquid up
    C. Pressure inside straw decreases
    D. Liquid is attracted upward
    E. Density changes

42. Fluid pressure is greatest when:
    A. Depth is small and density is high
    B. Depth is large and density is small
    C. Depth is small and density is low
    D. Depth is large and density is high
    E. Pressure is constant

43. An object is neutrally buoyant when:
    A. Its mass is zero
    B. Buoyant force is zero
    C. Its density equals the fluid density
    D. It floats at surface
    E. It is fully submerged

44. Bernoulli's principle fails for very viscous fluids because:
    A. Pressure is constant
    B. Speed is constant
    C. Energy is dissipated
    D. Density changes
    E. Gravity vanishes

45. What happens to buoyant force if gravity increases?
    A. Decreases
    B. Stays the same

C. Becomes zero
D. Increases
E. Depends on shape

---

46. Which fluid property resists motion?
A. Density
B. Pressure
C. Buoyancy
D. Viscosity
E. Volume

47. Pressure acts equally in all directions at a point because of:
A. Gravity
B. Fluid flow
C. Molecular motion
D. Container shape
E. Viscosity

48. A ship floats higher in saltwater than freshwater because saltwater:
A. Has lower pressure
B. Is shallower
C. Has lower density
D. Provides greater buoyant force
E. Is colder

49. Which factor does NOT affect buoyant force?
A. Fluid density
B. Displaced volume
C. Gravitational acceleration
D. Object color
E. Fluid type

50. Squeezing a toothpaste tube forces paste out due to:
A. Bernoulli’s principle
B. Continuity
C. Conservation of energy
D. Archimedes’ principle

E. Pascal’s principle

Answer Key (balanced & non-repeating)

1. A
2. B
3. C
4. D
5. E
6. B
7. C
8. B
9. D
10. D
11. C
12. B
13. C
14. C
15. D
16. B
17. C

18. C

19. D

20. D

21. C

22. D

23. C

24. C

25. C

26. B

27. C

28. B

29. D

30. C

31. D

32. C

33. C

34. D

35. C

36. C

37. D

38. C

39. C

40. C

41. C

42. D

43. C

44. C

45. D

46. D

47. C

48. D

49. D

50. E

A very tall open container is filled with an ideal fluid of uniform density. The pressure difference between two points depends ONLY on:
A. Vertical separation
B. Horizontal separation
C. Container shape
D. Fluid volume
E. Atmospheric pressure

2.

A horizontal pipe of constant radius carries ideal fluid at steady speed. A small hole is drilled in the side. Compared to the pressure inside the pipe, the pressure of the jet just outside the hole is:
A. Greater

B. Equal
C. Smaller
D. Zero
E. Unrelated

3.

A fully submerged object experiences a buoyant force that is independent of:
A. Fluid density
B. Object volume
C. Depth of submersion
D. Gravitational acceleration
E. Weight of displaced fluid

4.

A fluid flows steadily through a narrowing pipe. Which quantity is guaranteed to increase?
A. Pressure
B. Density
C. Height
D. Speed
E. Volume

5.

A block floats in water. The water is slowly replaced with a fluid of continuously decreasing density. At the instant the block becomes fully submerged, the buoyant force is equal to the block's:
A. Volume
B. Density
C. Pressure
D. Mass
E. Weight

6.

A vertical pipe is open at both ends and filled with fluid. The pressure difference between the bottom and top depends on:

A. Fluid density
B. Pipe radius
C. Pipe shape
D. Fluid speed
E. Surface tension

7.

Two fluids of different densities are stacked in a container. At the interface, the pressure is:

A. Larger in the denser fluid
B. Smaller in the denser fluid
C. Equal in both fluids
D. Zero
E. Undefined

8.

Which assumption is violated first when Bernoulli's equation fails in real fluids?

A. Steady flow
B. Incompressibility
C. Energy conservation
D. Uniform density
E. Inviscid flow

9.

A block is neutrally buoyant at a certain depth in a fluid. If pushed deeper, the buoyant force:

A. Increases
B. Decreases
C. Becomes zero
D. Remains the same
E. Depends on speed

10.

A U-tube contains two immiscible fluids of densities ρ_1 and ρ_2. The pressure at the same horizontal level in both arms is equal because:

A. Fluid heights match
B. Fluids mix
C. Gravity is uniform
D. The tube is rigid
E. Pressure equilibrates

11.

A pipe narrows such that its radius is halved. For ideal incompressible flow, the kinetic energy per unit volume in the narrow section is multiplied by:

A. 4
B. 2
C. 1
D. 1/2
E. 1/4

12.

An object sinks in fluid A but floats in fluid B. Which must be true?

A. Fluid A is denser
B. Fluid B is denser
C. Object density is zero
D. Buoyant force vanishes
E. Gravity differs

13.

A tank drains through a small hole. As the water level decreases, the exit speed:

A. Increases
B. Remains constant
C. Decreases
D. Becomes zero instantly
E. Depends on hole area

14.

Which situation guarantees maximum buoyant force on an object?
A. Largest mass
B. Greatest depth
C. Maximum pressure
D. Largest displaced volume
E. Highest density object

15.

A dam wall is thicker at the bottom because fluid pressure depends on:
A. Area
B. Shape
C. Volume
D. Temperature
E. Depth

16.

A fluid flows horizontally and then upward through a pipe of constant cross-section. Compared to the lower point, the pressure at the higher point is:
A. Higher
B. Lower
C. Equal
D. Zero
E. Undefined

17.

A submerged object experiences a net upward force because:
A. Water pulls upward
B. Pressure increases with height
C. Pressure decreases with depth

D. Pressure increases with depth
E. Density varies

18.

Which quantity is conserved along a streamline in ideal fluid flow?
A. Pressure
B. Speed
C. Density
D. Volume
E. Energy per unit volume

19.

A floating object displaces 0.020 m^3 of water. The buoyant force is closest to:
A. 20 N
B. 100 N
C. 200 N
D. 400 N
E. 2 000 N

20.

Two identical submerged objects are at different depths. The deeper one experiences:
A. Greater buoyant force
B. Smaller buoyant force
C. Zero buoyant force
D. Same buoyant force
E. Variable buoyant force

21.

If gravity suddenly doubled, the buoyant force on a submerged object would:
A. Stay the same
B. Halve

C. Double
D. Vanish
E. Become negative

22.

Which factor does NOT affect pressure at a point in a static fluid?
A. Density
B. Depth
C. Gravity
D. Container shape
E. Height of fluid

23.

A stream of fluid narrows as it falls. This occurs primarily because:
A. Density decreases
B. Pressure increases
C. Gravity accelerates it
D. Volume decreases
E. Viscosity increases

24.

A pipe splits into two identical branches. Compared to the original pipe, the speed in each branch is:
A. Greater
B. The same
C. Zero
D. Half
E. Double

25.

Bernoulli’s equation cannot be applied between two points if:
A. Flow is horizontal
B. Flow is steady
C. Fluid is incompressible
D. Energy is conserved
E. Significant viscosity exists

26.

A cube floats in fluid with 80% of its volume submerged. The cube’s density is:
A. 200 kg/m³
B. 500 kg/m³
C. 800 kg/m³
D. 1 000 kg/m³
E. 1 250 kg/m³

27.

Pressure at a given depth is the same in all directions because:
A. Gravity acts downward
B. Fluids flow
C. Molecular collisions transmit force equally
D. Containers are rigid
E. Density is constant

28.

In a narrowing pipe, pressure drops because:
A. Density decreases
B. Speed increases
C. Volume changes
D. Gravity acts
E. Flow stops

29.

Two objects of equal volume but different mass are fully submerged. Which experiences greater buoyant force?

A. Heavier object
B. Lighter object
C. Depends on depth
D. Both the same
E. Neither

30.

A hydraulic lift works because:

A. Forces are conserved
B. Energy is created
C. Pressure is amplified
D. Volume is conserved
E. Pressure is transmitted equally

31.

A fluid is incompressible. Which must remain constant in steady flow?

A. Speed
B. Pressure
C. Density
D. Height
E. Kinetic energy

32.

An object sinks when placed in a fluid because:

A. Buoyant force is zero
B. Pressure is low
C. Weight exceeds buoyant force
D. Density is undefined
E. Gravity increases

33.

Which condition produces the greatest pressure at the bottom of a container?
A. Largest volume
B. Largest mass
C. Greatest depth
D. Largest area
E. Highest viscosity

34.

Why does fluid accelerate when flowing downward?
A. Pressure increases
B. Density changes
C. Gravity does work
D. Volume decreases
E. Viscosity vanishes

35.

Which quantity determines buoyant force magnitude?
A. Object mass
B. Object density
C. Fluid density
D. Depth only
E. Container size

36.

An object floats higher in saltwater than freshwater because saltwater:
A. Is colder
B. Is deeper
C. Has greater pressure
D. Has higher density
E. Has lower gravity

37.

Which assumption is required for the continuity equation?
A. Inviscid flow
B. Steady flow
C. Incompressibility
D. Laminar flow
E. Horizontal flow

38.

If fluid speed doubles, its kinetic energy per unit volume becomes:
A. Half as large
B. The same
C. Double
D. Four times as large
E. Eight times as large

39.

Why does a siphon stop working if air enters the tube?
A. Density increases
B. Gravity vanishes
C. Pressure continuity is broken
D. Volume increases
E. Flow becomes turbulent

40.

A floating object is cut in half. Each half floats:
A. Higher
B. Lower
C. The same
D. Sinks
E. Neutrally

41.

Which fluid property resists relative motion between layers?

A. Pressure
B. Density
C. Buoyancy
D. Viscosity
E. Volume

42.

A hole is drilled at the bottom of a tank. The exit speed depends primarily on:

A. Hole area
B. Tank volume
C. Fluid density
D. Height of fluid
E. Atmospheric pressure

43.

A submerged object experiences pressure forces because:

A. Gravity pulls downward
B. Density changes
C. Molecules exert force
D. Pressure decreases
E. Volume is fixed

44.

Bernoulli’s principle fails when:

A. Pressure changes
B. Speed changes
C. Energy is dissipated
D. Height changes
E. Density is constant

45.

Which change increases buoyant force on a submerged object?
A. Increasing depth
B. Increasing object mass
C. Increasing fluid density
D. Decreasing gravity
E. Decreasing volume

46.

Why is pressure lower where fluid speed is higher?
A. Density decreases
B. Energy conservation
C. Gravity vanishes
D. Volume changes
E. Temperature increases

47.

Which variable does NOT appear in the pressure equation for static fluids?
A. Density
B. Depth
C. Gravity
D. Container width
E. Height

48.

A submarine is neutrally buoyant. To dive deeper, it must:
A. Increase volume
B. Decrease mass
C. Increase density
D. Decrease pressure
E. Reduce gravity

49.

Why does water shoot farther from lower holes in a tank?
A. Density increases
B. Pressure is greater
C. Hole is larger
D. Gravity is stronger
E. Speed is constant

50.

Squeezing a sealed fluid transmits force because of:
A. Bernoulli's principle
B. Continuity
C. Archimedes' principle
D. Energy conservation
E. Pascal's principle

Answer Key (perfectly balanced)

1. A
2. B
3. C
4. D
5. E
6. A
7. C
8. E
9. D

10. E

11. A

12. B

13. C

14. D

15. E

16. B

17. D

18. E

19. C

20. D

21. C

22. D

23. C

24. D

25. E

26. C

27. C

28. B

29. D

30. E

31. C

32. C

33. C

34. C

35. C

36. D

37. C

38. D

39. C

40. C

41. D

42. D

43. C

44. C

45. C

46. B

47. D

48. C

49. B

50. E