


Name: key


Score: 0 / 12 points (0%) [6 open-ended questions not graded]

Chapter 4 Self-Quiz**Part A Modified True/False**

Indicate whether the sentence or statement is true or false. If false, change the identified word or phrase to make the sentence or statement true.

-  1. Buoyant force acts on objects immersed in air the same way it acts on objects immersed in a fluid. _____

RESPONSE:**ANSWER:** T**POINTS:** 0 / 1

-  2. Aerodynamics refers to the motion of liquids. _____

RESPONSE:**ANSWER:** F, Hydrodynamics**POINTS:** 0 / 1**Part B Matching**


Match each of these words to their correct description.

a. turbulent flow


c. viscosity

b. drag


d. viscometer

-  ____ 3. a broken or choppy movement of water usually caused by rapids, eddies, or whirlpools


ANSWER: A**POINTS:** 0 / 1

-  ____ 4. the resistance of a fluid to flowing and movement

ANSWER: C**POINTS:** 0 / 1


-  ____ 5. an instrument that measures viscosity

ANSWER: D**POINTS:** 0 / 1

-  ____ 6. a force that acts to slow a body moving through a liquid


ANSWER: B**POINTS:** 0 / 1**Part C Multiple Choice**

Identify the letter of the choice that best completes the statement or answers the question.

-  ____ 7. Water moving slowly down a river with smooth, clay banks is an example of which kind of flow?
- a. drag
 - b. erosional
 - c. turbulent
 - d. laminar


ANSWER: D

POINTS: 0 / 1

-  ____ 8. Fluids can be described using which of the following properties?
- a. viscosity
 - b. buoyancy
 - c. density
 - d. all of the above


ANSWER: D

POINTS: 0 / 1

-  ____ 9. Objects sometimes rise when placed in a fluid because they weigh less than the fluid. This is called
- a. negative buoyancy
 - b. neutral buoyancy
 - c. positive buoyancy
 - d. pneumatic flow


ANSWER: C

POINTS: 0 / 1

-  ____ 10. When density is held constant, what type of a relationship exists between temperature and pressure?
- a. direct
 - b. indirect
 - c. exponential
 - d. no relationship


ANSWER: A

POINTS: 0 / 1

-  ____ 11. A can of pop is taken from the fridge and left on the kitchen counter. Beads of water form on the outside of the can. This is an example of
- a. sublimation
 - b. condensation
 - c. convection
 - d. solidification

ANSWER: B

POINTS: 0 / 1


-  ____ 12. A fluid with high viscosity also has
- a. low cohesion between particles
 - b. no cohesion between particles
 - c. high cohesion between particles
 - d. no resistance to flow

ANSWER: C

POINTS: 0 / 1

Part D Short Answer

Use sentences to answer the following questions.

-  ____ 13. Explain how an airplane wing allows an airplane to fly.

RESPONSE:

ANSWER: Air travels over and under the wing of the plane. Since, due to the design of

the wing, the air must travel farther when it goes over the wing than when it passes under it, there is more pressure under the wing than above the wing. This increase in pressure under the wing results in an upward force, causing the wing to lift.

POINTS: -- / 1



14. Explain how the resistance to flow of a fluid is related to the attraction among particles of the fluid.

RESPONSE:

ANSWER: If the force of attraction between the particles is strong, the fluid will flow more slowly. If the attraction between the particles is weak, the fluid will flow more rapidly.

POINTS: -- / 1



15. Explain why fire alarms are installed in the ceiling of rooms.

RESPONSE:

ANSWER: Since hot air rises because it is less dense, the first place to detect the presence of a fire would be in the hot air near the ceiling.

POINTS: -- / 1



16. Explaining what is meant by mass-to-volume ratio.

RESPONSE:

ANSWER: The mass-to-volume ratio describes the relationship between the weight of the substance and the measure of the volume of the substance. It is used to determine the density of the substance. It is a characteristic physical property of a substance.

POINTS: -- / 1



17. An unknown solid has a volume of 1425 cm^3 . Its density is known to be 1.25 g/cm^3 . Calculate the mass of the liquid.

RESPONSE:

ANSWER: The formula for calculating density is $d = m/V$. However, we have to change its form so we can determine the mass $m = DV$.

$$m = DV$$

$$m = 1.25 \text{ g/cm}^3 \times 1425 \text{ cm}^3$$

$$m = 1781.25 \text{ g}$$

The mass of the solid is 1781.25 grams.

POINTS: -- / 1



18. Define the term *flow rate*.

RESPONSE:

ANSWER: Flow rate is determined by how quickly a volume of fluid flows in a given amount of time, e.g., litres per second.

POINTS: -- / 1

Name: KEY

Score: 0 / 10 points (0%) [3 open-ended questions not graded]

Chapter 5 Self Quiz**Part A Modified True/False**

Indicate whether the sentence or statement is true or false. If false, change the identified word or phrase to make the sentence or statement true.



1. Water and wind are factors that affect the construction of bridges.

RESPONSE:**ANSWER:** T**POINTS:** 0 / 1

2. The unit of pressure is the pascal.

RESPONSE:**ANSWER:** T**POINTS:** 0 / 1

3. Two identical forces are exerted on two separate surfaces. The surface with the larger area experiences a larger pressure.

RESPONSE:**ANSWER:** F, smaller**POINTS:** 0 / 1**Part B Completion**

Complete each sentence or statement.



4. Force is measured in _____.

RESPONSE:**ANSWER:** newtons (N) or
newtons**POINTS:** 0 / 1

5. _____ systems use a liquid to transfer forces. _____
systems use a gas to transfer forces.


RESPONSE:**ANSWER:** Hydraulic, Pneumatic**POINTS:** 0 / 1

6. The pressure in a fluid _____ with depth.

RESPONSE:**ANSWER:** increases**POINTS:** 0 / 1


Part C Multiple Choice

Identify the letter of the choice that best completes the statement or answers the question.

-  — 7. Why do your ears sometimes pop when you fly in an airplane?
- a. Your body is compensating for the increased air pressure.
 - b. Your body is compensating for the decreased air pressure.
 - c. Cheap headsets cause them to pop.
 - d. Increased air pressure at high altitudes cause the popping.


ANSWER: D

POINTS: 0 / 1

-  — 8. What usually causes the pressure in an explosion?
- a. a chemical reaction heats and expands a gas
 - b. gunpowder or dynamite expands
 - c. gravity
 - d. pressure


ANSWER: A

POINTS: 0 / 1

-  — 9. A brick has a base of 10 cm × 25 cm and weighs 30 N. What pressure does a stack of 10 bricks create simulating the pressure created by a low wall.
- a. 1.2 N/cm²
 - b. 3 N/cm²
 - c. 2.5 N/cm²
 - d. 3 N/m²

ANSWER: A

POINTS: 0 / 1


-  — 10. During the production of chocolate bars, what would happen if the chocolate that surrounds the other ingredients was too runny?
- a. the centre would not be properly coated
 - b. the chocolate would solidify too quickly
 - c. the mould might not fill completely
 - d. there would be air bubbles or gaps

ANSWER: A

POINTS: 0 / 1

Part D Short Answer


Use sentences to answer the following questions.

-  11. Describe briefly what would happen if the viscosity of ketchup is made too high.

RESPONSE:

ANSWER: Ketchup would be too thick and would not be poured out easily.

POINTS: -- / 1

-  12. A glass jar is sealed with 50 000 Pa of oxygen gas inside it. What is the force exerted by the gas on the inside walls and the lid if the total inside surface area is 0.05 m²?

RESPONSE:

$$P = F/A$$

$$F = P \times A$$

$$F = (50\,000\text{ Pa}) \times (0.05\text{ m}^2)$$

ANSWER: $F = 2500\text{ N}$

POINTS: -- / 1



13. A gas, when compressed, reduces in volume. Explain using kinetic molecular theory why a solid is not compressible.

RESPONSE:

ANSWER: In a solid, the particles are already in contact with one another. Any additional force applied to it might damage its structure, but would not cause any reduction in volume.

POINTS: -- / 1

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Score: 0 / 12 points (0%) [3 open-ended questions not graded]

Chapter 6 Self Quiz**Part A Modified True/False**

Indicate whether the sentence or statement is true or false. If false, change the identified word or phrase to make the sentence or statement true.



1. The heart is a hydraulic system because it pumps blood through the arteries and veins.

RESPONSE:**ANSWER:** T**POINTS:** 0 / 1

2. Pneumatic systems are used in machinery such as air conditioning systems in aircraft and ejection seats in fighter planes.

RESPONSE:**ANSWER:** T**POINTS:** 0 / 1

3. When the air outside your body is at a higher pressure than the air in your lungs, the air rushes in.

RESPONSE:**ANSWER:** T**POINTS:** 0 / 1**Part B Completion**

Complete each sentence or statement.



4. _____ systems use liquids under pressure to move many things.

RESPONSE:**ANSWER:** Hydraulic**POINTS:** 0 / 1

5. During scuba diving, a person uses the buoyancy compensator vest to decrease his/her density and _____ his/her buoyancy.

RESPONSE:**ANSWER:** increase**POINTS:** 0 / 1

6. A sphygmomanometer measures _____.

RESPONSE:**ANSWER:** blood pressure**POINTS:** 0 / 1



7. A jackhammer is a _____ drill.

RESPONSE:

ANSWER: pneumatic

POINTS: 0 / 1

Part C Multiple Choice

Identify the letter of the choice that best completes the statement or answers the question.



8. If the force of gravity on a diver is 700 N, what should the buoyant force be if the diver wants to rise to the surface of the sea?

- a. 0 N
- b. less than 700 N
- c. equal to 700 N
- d. greater than 700 N

ANSWER: D

POINTS: 0 / 1



9. Any material carried on ships, submarines, hot-air balloons, or blimps that acts as weight and alters buoyancy is called a

- a. ballad
- b. ballast
- c. ballot
- d. blast

ANSWER: B

POINTS: 0 / 1



10. _____ are organisms that have been introduced, intentionally or unintentionally, to an area where they are not normally found.

- a. Abnormal species
- b. Exotic species
- c. Native species
- d. Unnatural species

ANSWER: B

POINTS: 0 / 1



11. Which of the following is **not** a hydraulic system?

- a. car braking system
- b. human heart
- c. hypodermic syringe
- d. lungs

ANSWER: D

POINTS: 0 / 1



12. Which part of the human respiratory system acts like a compressor in a pneumatic system?

- a. valve
- b. diaphragm
- c. lungs
- d. oxygen

ANSWER: B

POINTS: 0 / 1

Part D Short Answer

Use sentences to answer the following questions.



13. How do you make air lighter (less dense) so that it will cause a balloon to rise?

RESPONSE:

ANSWER: heat it

POINTS: -- / 1



14. Why is it important to develop a control for an exotic species that was introduced through dumped ballast water?

RESPONSE:

ANSWER: If the exotic species is left unchecked, it can multiply rapidly in the absence of a predator. It may then compete with or prey on other native species.

POINTS: -- / 1



15. How is a pump different from a valve?

RESPONSE:

ANSWER: A pump makes the hydraulic fluid flow, whereas a valve directs the flow of the fluid.

POINTS: -- / 1