NS2-M3C19 - Buoyancy (Exam)

Name:

Date:

1 Who is responsible for describing buoyant force?

- A Archimedes
- B Achilles
- C Pilates
- D Einstein
- What happens to a stone with a true weight of 4900 newtons in air, with a volume of half a 2 cubic meter when it is submerged in water displacing 9800 newtons of water?
 - A it sinks
 - B it drops one meter and remains suspended
 - C it disintegrates
 - D it floats
- 3 What happens to a balloon when it reaches an altitude where the upward buoyant force equals the downward weight?
 - A it falls
 - B it disintegrates
 - C it rises
 - D it remains suspended
- If the upward buoyancy and displacement weight of a submarine typically equalizes with 4 two-thirds of the hull submerged, how does it sink?
 - A Upward buoyancy is increased with weights.
 - B Displacement weight is increased with water.
 - C Displacement weight is decreased with air.
- Match the term "center of gravity" with the description/description below. Input all that 5 apply then press the ENTER button)
 - A Tends to move in an arc as the ship rolls.
 - B Raised if weight is added high in the ship.
 - C The center of mass of the ship, around which the ship seems to move.D Remains constant as the ship moves.

 - E None of the above apply.

- 6 A force that opposes the weight of an object in fluid; this force, along with object shape and density, helps keep the object afloat, regardless of what the object is made of or whether the "fluid" is a liquid or a gas; the principle is described by Archimedes' Law.
 - A Center of gravity
 - B Center of buoyancy
 - C Freeboard
 - D Buoyant force
- 7 The measured weight of an object immersed in a fluid; its true weight minus the weight of the displaced fluid
 - A Stabilized weight
 - B Distressed weight
 - C Transposed weight
 - D Apparent weight
- 8 The quantity per unit volume, unit area, or unit length; the mass of a substance per unit volume
 - A Density
 - B Mass
 - C Apparent Weight
 - D Mass Density
- 9 The geometric center of the portion of the ship's hull that is underwater
 - A Center of mass
 - B Center of force
 - C Center of gravity
 - D Center of buoyancy
- 10 Fillable water tanks used to provide additional weight to vessels. In submarines, a space between the inner and outer hulls filled with water when submerged and with air when surfaced
 - A Air tanks
 - B Water tanks
 - C Service tanks
 - D Ballast tanks

- 11 Archimedes' Law applies to what substances?
 - A Solids and gases
 - B Liquids only
 - C Solids, liquids and gases
 - D Liquids or gases
- 12 In order to surface, a submerged submarine must pump air into its tanks. Since the air is already in the submarine, why isn't the mass of the sub constant and therefore makes it impossible to return to the surface?
 - A The air is stowed below the center of gravity and therefore changes its location with regard to the center of buoyancy.
 - B The air is compressed into holding tanks and doesn't have enough density to alter the weight of the sub.
 - C The weight of the water is not taken into account in the buoyancy of the submarine.
 - D The air is denser than the water it displaces.
- 13 Which of the conditions below would be best for the stability of a ship?
 - A A high center of gravity and a low center of buoyancy.
 - B A low center of gravity and a low center of buoyancy.
 - C The ship's center of gravity and its center of buoyancy do not have an effect on the ship's stability.
 - D A low center of gravity and a high center of buoyancy.
- 14 The weight of an object in the air, minus the buoyant force acting upon it when it is placed in the water, is known as what?
 - A Its apparent weight
 - B Its center of buoyancy
 - C Its density

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- D Its absolute weight
- 15 When a ship rolls, the center of ______ swings in an approximate arc, creating torque known as
 - A gravity; transitional moment
 - B gravity; righting arm
 - C buoyancy; righting arm
 - D buoyancy; transitional moment

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- 16 The scientific term used to describe how much of a material is present per unit of its volume is
 - A Density
 - B Apparent weight
 - C Waterline
- 17 After leaving port, considerable weight is moved to the topside of the ship. The center of gravity has been moved upward and now the ship may be in danger of ______.
 - A Reverse course
 - B Losing its cargoC Capsizing

 - D Deploying
- 18 The captain of USS Shreveport is underway and receives a forecast of increasingly poor weather in his area of operations. What should he do to make his ship more stable?
 - A Add ballast
 - B Increase the number of personnel on watch
 - C Decrease ballast
 - D Add weight topside
- 19 The line around a boat where the surface of the water meets it when it floats is the called
 - A freeboard
 - B ballast
 - C waterline
 - D None of the above
- 20 We are aware of ships and boats made out of wood, metal and fiberglass, why can't a ship or boat be made out of concrete?
 - A Concrete is so porous that the water seeps in and sinks the vessel
 - B Concrete is so dense that it cannot be made light enough to float
 - C Concrete is denser than water and therefore cannot float
 - D It can be, as long as the freeboard is sufficient to prevent swamping

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Answer Key: NS2-M3C19 - Buoyancy (Exam)

Question:	Answer
1	A
2	D
3	D
4	В
5	BCD
6	D
7	D
8	Α
9	D
10	D
11	D
12	Α
13	В
14	Α
15	С
16	В
17	В
18	Α
19	С
20	D