CHAPTER 1 STUDY QUESTIONS

1. A fiberglass hull is composed of **fiberglass strands and layers** saturated with **resin**.

2. List the four types of fiberglass reinforcing materials:
   1. **Fiberglass Mat** 3. **Woven Roven**
   2. **Fiberglass Cloth** 4. **Chopped Strands**

3. The two types of resins used in fiberglass construction are **polyester** and **epoxy**.

4. There are many substances added to boat building resins. They are used to **harden the resin**, **control curing time** and **make the resin fire retardant**.

5. A male mold is known as a **plug**.

6. A female mold is known as a **cavity mold**.

7. The hand-layup and chopped-strand processes are used in a **cavity mold**.

8. In the hand-layup and chopped-strand processes, the **gel coat** is applied to the inside of the mold first.

9. In the matched-die method, the **male and female molds** are clamped together with **a laminate between**.

10. What core materials are used in sandwich construction?
    Balsa wood, **Foamed Plastic**, **Plywood**

11. List the advantages of fiberglass-built boats.
    Fiberglass is impervious to marine borers. **No seams or joints to leak.**
    The color can be molded into the boat. **Boats can be extremely strong.**
    Fiberglass can be molded into almost any shape.

12. List the disadvantages of fiberglass-built boats.
    Fiberglass is heavier than water **Fiberglass hulls are very heavy**
    Easy to cover shoddy workmanship

13. What are the two general classes of wood? **Hardwood** and **Softwood**.

14. What are the principal considerations in the selection of various types of wood for boat building? **Strength** **Decay resistance** **Availability**

15. List the advantages of steel for boat building. **Its strength-to-weight ratio is higher than fiberglass** **Highest strength-to-weight ration** **High resistance to impact, abrasion and fatigue**. **It is less noisy than all but wood**. **It is resistant to fire**.

16. The disadvantage of steel for boat building is **that it deteriorates easily without proper maintenance**.

17. Why must you put a layer of nonmetallic paint between the hull of an aluminum boat and a layer of copper bottom paint? **Galvanic action will corrode the hull if the aluminum and copper touch**. Note: Copper bottom paint is now illegal and not used.

18. List the advantages of aluminum for boat building.
    It is lightweight. **It is impervious to marine borers**.

19. List the disadvantages of aluminum for boat building. **It is a good heat conductor so aluminum hulls sweat.** **It has a relatively low melting point and melts sooner than steel if there is a fire**. **It is noisy.**

20. The six types of steering systems are:
    1. **Tiller**
    2. **Drum and Cable**
    3. **Sprocket and Chain**
    4. **Rack and Pinion**
    5. **Gear and Shaft**
    6. **Hydraulic**

21. The simplest steering system is the **tiller**.

22. The curve or sweep of the deck of a vessel when viewed from the side is the **sheer**.

23. The outward curvature of the sides of the boat near the bow that is used to keep the deck drier is called the **flare**.

24. What are the three basic shapes of the bottom of a boat? **Flat, Round, Vee**

25. What is the difference between a displacement and planing hull?
    A displacement hull displaces water without riding above its bow wave as it moves while a planing hull allows the hull to ride up on the after part of the hull when it moves fast enough.

26. In wood boat construction, the plank attached starting at the gunwale is the **sheer strake**.
26. (PPT) A timber fastened along the top of the keel is called the **Keelson**

27. What is the difference between a trunk cabin and a raised deck cabin?
    A raised deck cabin extends the full width of the hull while the trunk cabin extends less than the width of the hull so walkways are left on either side.

28. What are limber holes and what purpose do they serve? **Holes cut in the frame near the keel which drain water to the bilge sump area. They allow the bilge to be drained.**

29. The use of two or more materials in the hull of a vessel is known as **composite** construction.

30. The portion of the exterior hull at the waterline is called the **boot** top.

31. The spoke of a steering wheel that is vertical when the rudder is exactly centered is the **king** spoke.

32. The vertical distance between the waterline and gunwale is **freeboard**.
32. (PPT) The transverse seats in rowing craft are called **thwarts** the center of which is supported by the **thwart stanchion**.

33. Describe the characteristics of the following sailboat types:
    Catboat **A small boat with a single mast set far forward and only one sail**.
    Sloop **A boat with a single mast carrying a main sail and one sail forward.**
    Ketch **A vessel with two masts; the smaller mizzen is aft but forward of the rudderpost.**
    Yawl **A vessel with two masts; the small mizzen aft of the rudderpost**
    Schooner **A vessel with two or more fore-and-aft rigged masts with the aft mast larger than the other(s)**.

34. The gross tonnage of a vessel is **A measurement of the entire capacity of a ship expressed as one gross ton for each 100 cubic feet of internal volume.**

CHAPTER 2 STUDY QUESTIONS

1. What is the proper way to block up a hull? **The weight of the boat should rest on the keel. The keel should rest on blocks to allow ventilation. Blocks should be every five feet and high enough to allow working space under the hull.**
2. Why shouldn't you allow the weight of the boat to rest on the shoring? **Excessive strain on the hull can damage the boat.**
3. List the lay-up chores that must be done after the boat is hauled out. **Clean bottom of all marine growth and animal life. Wash the hull with fresh water. Drain the water system and winterize it if necessary. (There is a very long list.)**
4. What is the purpose of allowing the boat to ventilate when it is layed up? **Ventilation prevents condensation which can cause dry rot and mildew.**
5. The two types of marine growth are **vegetable** and **animal.**
6. What are the two things that can happen to a wooden boat that is not protected against marine growths? **Performance can be reduced. The hull can be weakened or destroyed.**
7. How does copper protect a boat's hull? **Copper in salt water gives of poisonous salts which prevent adhesion of plant and animal life.** Note: Copper hull paint is now illegal.
8. What should you consider when selecting a bottom paint for your boat? **What metals in the boat will be influenced by the paint.**
9. What causes dry rot? **A fungus that thrives on fresh water.**
10. A first indication of dry rot is **its smell; a musty, moldy odor.**
11. List some of the places to look for dry rot in a wooden boat **Dark damp places; Areas where fresh water can enter; Bilge, floor, planking around frames or deck, in the transom.**
12. When dry rot is found, it must be **removed.**
13. How can you prevent dry rot? **Keep out fresh water. Keep boat ventilated. Apply preservative to unpainted and unvarnished wood.**
14. What is the difference between galvanic action and electrolytic action? **Electrolytic action requires an external electric current while galvanic action does not.**
15. Current will flow from the **less noble** metal during galvanic action metal to the **more noble** metal..
16. What is the principle of using a sacrificial metal to minimize the effect of galvanic action? **The sacrificial metal is destroyed instead of the more valuable metals.**
17. How can you prevent electrolytic action? **Eliminate stray currents from power sources on your boat and on the dock (if near a dock.)**
18. The shaft train is made up of **shaft log, shaft, strut, strut bearing** and **propeller**.
19. How does the stuffing box work? **It is composed of rings of packing material squeezed tightly around the shaft to prevent water from entering the boat.**

20. The strut bearing relies on **water** for lubrication.

21. What is used to keep the propeller on the shaft? **A locknut backed by a jamb nut and key.**

CHAPTER 3 STUDY QUESTIONS

1. In the spark ignition engine, fuel and air is mixed in the **carburetor *(or injection chamber for fuel injection systems)***.

2. The fuel in a diesel engine is **injected** into the cylinder.

3. What ignites the fuel in a diesel engine? **Heat generated by compression of the air**.

4. List the operations performed by each of the four strokes of a four stroke cycle engine:
   Intake – fuel mixture (or air for diesel or fuel injection) is drawn into cylinder.
   Compression – fuel mixture (or air) is compressed.
   Power – (fuel is injected) fuel mixture is ignited and expansion of burning fuel.
   Exhaust – burned gases are expelled.

5. List the operations performed by each of the two strokes of a two stroke cycle engine:
   Compression – air (or fuel mixture) is compressed. At the top of the stroke, fuel is injected (or already there) and fuel mixture ignites.
   Power – expansion of the burning fuel pushes the piston down. At the bottom of the stroke, burned gases are expelled.

6. The exhaust valve is open at the bottom of the **power** stroke on a 2-stroke engine.

7. List the main working parts of the power system that transmit power from the cylinders to the drive shaft. **pistons, connecting rods, crankshaft**.

8. The valves are opened by **action of the camshaft which is driven off the crankshaft**.

9. The **crankshaft** is designed to change rotary to intermittent reciprocating motion to open the valves.

10. The lubricating system in an internal combustion engine delivers oil to the moving parts to and to **reduce friction and assist in cooling**.

11. Marine engines are cooled by **water**.

12. What are the parts of the induction (fuel) system of a gasoline engine?
    fuel tank, fuel pump, carburetor (*if necessary*), fuel lines and air passages.

13. In the gasoline engine, the ratio of the fuel to air mixture is controlled by the **metering jet in the carburetor**.

14. What is a rich mixture in a gasoline engine? **One for which the ratio of fuel to air is larger than normal**.

15. What is a lean mixture? **One for which the ratio of fuel to air is smaller than normal**.

16. The **idling system** provides a rich mixture for slow engine speeds and for starting.

17. A typical ignition system of a gasoline engine consists of: **induction (*or ignition coil*), mechanical breaker, condenser, distributor, sparkplug for each cylinder and the necessary wiring**. Note: This is outdated. Almost all ignition systems have electronic ignition which replaces everything except the sparkplugs and wiring in the list above.

18. List the components in the primary ignition circuit of a gasoline engine. **induction (*or ignition*) coil, mechanical breaker, condenser, battery, ignition switch, wires**. Note: As mentioned above, this is outdated.

19. List the components in the secondary ignition circuit of a gasoline engine. **induction (*or ignition*) coil, distributor, spark plugs, wires**.

20. The high voltage that produces the spark in the spark plug is produced in the **induction (*or ignition*) coil**.

CHAPTER 4 STUDY QUESTIONS

1. The two types of natural fiber rope generally available in marine supply stores are **manila** and **cotton**.

2. The advantage of manila line are; it is **readily available, relatively inexpensive,** and **very durable**.

3. Manila line will **deteriorate** if stowed wet.

4. Cotton line has **about half** the strength of manila line.

5. The four types of synthetic line in common use today are **nylon, polyester (Dacron), polypropylene and polyethylene**. Note: Kevlar is used in competitive sailing.

6. Because nylon line is so elastic, it is used for **mooring** and **towing** lines.

7. Why is nylon dangerous at times? **If it breaks, it will snap back. This can injure by itself and can injure by bringing heavier items attached to it**.

8. What are the characteristics of Dacron (polyester) line? **It is soft and has greater strength, flexibility and wear resistance than manila. It can be stored wet and is impervous to rot or salt water. It stretches less than nylon**. Note: Most synthetic line has a problem if left to dry with salt water in it. Salt crystals form in the line and will abrade the line when it is bent.

9. Dacron differs from Nylon line in that it is not **as elastic**.

10. What is the difference between polyethylene and polypropylene line? **Polypropylene line is stronger when wet; polyethylene is not. Polyethylene line is more slippery when wet than polypropylene**.

11. Why is fiber used in the core of some wire ropes? **Fiber gives the wire rope flexibility and forms a cushion for the wire strands. That cushion provides a small amount of elasticity**.

12. What are the five grades of wire lines? **improved plow steel, plow steel, mild plow steel, traction steel and iron**.

13. List the ten rules for the proper care of line.
    Do not overload your line.
    Protect your lines against abrasion.
    Avoid sudden strains on your lines.
    Store your lines properly.
    Always keep your lines clean.
    Always match your line to its use.
    Keep chemicals away from your lines.
    Avoid excess wear.
    Avoid kinks in your lines.
    Do not run your lines over sharp angles.

14. A Clove Hitch can be used to make a **temporary** fastening to a piling.

15. To temporarily join two lines of different diameters, you use a **becket bend (aka sheet bend)**.

16. A **splice** is preferred when permanently joining two lines together.

17. A **bowline** is used when a temporary loop is desired.

18. To secure a lone to a log for towing, you would use a **timber hitch**.

19. To secure a line to a piling, on a long term basis, the safest fastening to use would be a **round turn with two half hitches. (FM says: bowline.)**

20. Explain the uses of stopper/rolling hitch. **It can be used to maintain strain on a line when it is desirable to move the knot. It is sometimes used to convert a single towline into a bridle**.

21. When laying a long line down of the deck, where the full length must be run out fairly rapidly, the line should be **faked**.

22. When might it become necessary to dip an eye on a bollard? **When tying up next to a boat already tied to the same bollard and you expect the other boat's line to come off before yours.**

23. A **splice** will cause less reduction in line strength than any **knot**.

24. Tie the following knots: square knot, bowline, round turn and two half hitches, clove hitch, double Becket/sheet bends and timber hitch.

25. Make an eye splice. **(24 and 25 require hands on action with appropriate line.)**

CHAPTER 5 STUDY QUESTIONS

1. The part of the current that flows into the propeller is called **suction screw current**.

2. When a right handed propeller is turning clockwise, the boat will go **forward**.
   Note: 'clockwise' as viewed from aft of the propeller.

3. On a motorboat, turning the steering wheel to starboard gives the boat **right** rudder and throws the stern to **port** and turns the boat to **starboard**.

4. The stern of a single screw boat with a left handed propeller tends to go to the **starboard** when the propeller is reversing.

5. When is boat's rudder is put over, the stern is kicked **in the opposite direction if the boat is moving forward**.

6. When backing an inboard with a single right hand propeller and rudder amidships, the stern will tend to move to **port**.

7. Four mooring lines that may be attached to the bow of a boat for dock mooring are:
   #1 and #2 lines can be attached to the bow although #2 is usually attached to a cleat aft of the bow. #1 is usually called the bow line. #2 is called a spring line but several different adjectives are used, e.g. 'bow spring line' or 'aft running spring line'.
   Note: Presumably, the desired answer is: bow line, forward bow spring, after bow spring, forward bow breast line. This may be OK for a Navy destroyer but not for us.

8. The four lines that may be used as springs are: **#2 and #3 are the most common spring lines. Various names for these exist: #2 can be called a 'bow spring line' or 'aft running spring line'. #3 can be called a 'stern spring line' or 'forward running spring line' or 'forward quarter spring line'.**
   Note: Presumably, the desired answer is: forward bow spring, after bow spring, forward quarter spring, after quarter spring. Again, not for us.

9. The mooring line that keeps the boat from going ahead is the **#2 line or 'bow spring line'**.

10. To spring into a dock, use a **#2 or bow spring line** and go ahead slowly with the rudder turned **away from the dock**.

11. Getting away from a dock, when the boat is being set into it by the wind generally requires using a **#2 after bow spring line.** (** see end)

12. Backing on a forward quarter spring (#3) on the port side, the bow will **swing out, i.e. to starboard**.

13. A forward quarter spring line leads forward from the **stern cleat** to the **dock**.

14. A 4 to 6 foot long plank hung horizontally on the side of the boat and backed with **fenders** is called a **fenderboard**.

15. By going ahead on one engine while the other reverses, a twin screw boat can be **turned or maneuvered in its own length**.

16. A twin-screw boat is stopped by reversing its propellers, but unlike a single-screw vessel, this will usually not **move the stern sideways**.

16. (PPT) A basic principle in maneuvering a twin screw boat, is to use the rudders primarily in relation to the direction of the **vessel's movement** through the water.

**It seems to FM that there are two methods. To push your bow out, use the #3 line (from the stern cleat to the dock) and back with the wheel turned toward the dock. This will push your bow out and let you then go forward. The disadvantage is that this pushes you propeller toward the dock. That could damage your propeller for some docks.

To push your stern out, use the # 2 line (from the forward cleat to the dock) and go forward with your wheel turned toward the dock. This will push your stern out and let you back out. When you go forward, the #2 line will run toward your stern and become what the book calls the 'after bow spring line'.

CHAPTER 6 STUDY QUESTIONS

1. The height of a wave is the distance measured vertically from the **crest** to the **trough**.
2. The length of a wave is the distance between **successive crests**.
3. The time it takes two wave crests to pass the same point is known as the **period**.
4. What is fetch? **The uninterrupted distance over which the wind blows the waves**.
5. The angular measure from the trough to the crest of a wave is the **slope**.
6. Name two types of non-wind waves. **tidal** and **seismic**.
7. What is a swell? **waves which are far from their source** (PPT: waves after wind dies. No)
8. Waves turn into surf as they **near the shore**.
9. The two types of breaking waves and surf are **plunger** and **spiller**. (PPT: spiller→ roller. No)
10. **Bow wave** and **stern wave** are the two types of waves that are caused by the passing of a motorboat. The **stern** wave is the most dangerous.
11. List three ways that a dangerous cross sea can develop.
    Tidal current meeting an opposing wave system
    Two wave systems of different origin meeting at an angle
    Sudden wind shift so the wind blows against oncoming waves
12. A boat with a **high freeboard and super structure** will be greatly affected by strong winds.
13. A boat with a **deep draft** will be greatly affected by a strong current.
14. List some of the elements that the effect of wind and current upon a boat depends.
    Strength of the wind **Strength of the current** **Length of the boat**
    Draft of the boat **Freeboard of the boat** **Superstructure of the boat**
    Direction of the wind relative to the boat's heading
    Direction of the current relative to the boat's heading
    Direction and strength of the current relative to that of the wind
15. When running before the seas, if possible, the boat should be maintained on **'back side'** the of the wave.
16. What is the purpose of a sea anchor? **To slow the boat and control the direction of the boat relative to the wave direction**
17. List the steps to prepare for rough weather.
    Secure all hatches; close all ports and windows **Pump bilges dry**
    Secure loose gear; lash down large items **Have everyone don PFDs**
    Break out emergency gear which may be needed **Check position and update plot**
    Make plans to reach sheltered waters if needed **Instruct and reassure crew**
18. What is the pitfall in using a tripping line with a sea anchor? **The tripping line may become tangled with the towing line. This can cause several problems, one of which is collapsing the sea anchor**. Note: A drogue is almost always better than an anchor.

19. List some items you can use to make an emergency sea anchor in the absence of a ready-made one. **Bucket, large basket, deck chair, ice chest, wooden crate, large board**.

20. What is the purpose of towing a warp? **It acts as a break, keeps the boat running straight and calms the seas astern**.

21. If conditions get really bad, slow down and hold your bow at an angle of about **45** degrees to the seas.

22. In a head sea, a vessel with too much weight forward will **plunge** rather than rise.

23. In a head sea, a vessel with too much weight aft will tend to **fall off**

24. Thrown broadside to the swells, or "in the trough," can cause the vessel to **broach**.

25. When a vessel runs down a steep wave, buries her bow, and the next crest throws her stern over, she has **pitchpoled**.

26. What happens to a vessel that is pooped? **A wave from a following sea breaks into the cockpit**.

27. The primary needs of safety in fog or other conditions of reduced visibility are to see and be seen, and to **hear** and **be heard**.

28. One way to be "seen" in reduced visibility by vessels that have radar sets is to hoist **a radar reflector**

CHAPTER 7 STUDY QUESTIONS

1. To assist in righting a sailboat, the crew should **haul in the sails and stand on the keel, holding on the the gunwale**.
2. In preparing to refloat a stranded vessel, one of the obvious things to consider is the **state of the tide**.
3. What could happen if you throw the engine immediately into reverse upon going aground? **You could wash sand under the keel bedding the boat more firmly. You could suck debris into the engine**.
4. A stranded boat can use an anchor as a **kedge** to help pull the boat free.
5. How you make an approach to a stranded boat depends on the **wind** and **current**.
6. When attempting to tow off a stranded boat, use the **trailering stem eye**.or **ski towing transom** eye or other secure fastening such as **sampson posts**.
7. If a stranded boat is held in place by suction, how can that suction be broken? **Have the crew on the stranded boat move to rock the boat from side to side or bow to stern.**.
8. You should always approach a burning vessel from **upwind**.
9. When assisting a burning vessel, **speed** is essential.
10. The four sides of the fire tetrahedron are **fuel**, **heat**, **oxygen** nd **chemical reaction**.
11. A Class A fire consists of **ordinary combustibles such as wood, paper or cloth**. and **water** should be used to extinguish it.
12. A Class B fire consists of **flamable liquids such as gasoline** and **foam**, **CO_2**, **Halon** or **dry chemicals** should be used to extinguish it.
13. A Class C fire takes place in **electrical equipment** and **CO_2**, **Halon** or **dry chemicals** used to extinguish it.
14. What type of hole can be plugged? **Small holes which have a generally rounded shape**.
15. Plugs and patches are most effective when applied from the **outside** of the hull.
16. List some of the materials that can be used for an emergency patch. **Wood, cloth, rags, clothes, sails, floorboards, pieces of boxes, foul weather gear, mattresses, blankets, PFDs, foul weather gear**.
17. The anchor that is set out immediately on grounding is called a **kedge**; the act of using it to get the boat free is called **kedging**.
18. When using a portable pump, be certain the outlet is **projecting ove the side** and the discharge is facing **downwind**.
19. If a fire that takes place in an relatively confined space, you should **close all openings such as hatches, doors, vents and ports** to keep **oxygen** from feeding the flames.

CHAPTER 8 STUDY QUESTIONS

1. The U.S. Inland Navigation Rules are applicable inside the **demarcation lines** separating the inland and international waters.

2. A Power Driven vessel is **any** vessel propelled by machinery.

3. A sailing vessel using both sail and engine simultaneously is a **power driven** vessel for the purposes of the Navigation Rules.

4. Underway means "A vessel not **anchored**, made fast to the **shore** or **aground**.

5. Side lights show an unbroken arc on the horizon of **112.5** degrees, from dead ahead to **22.5** degrees abaft the beam on each side. (PPT says 225 degrees – wrong)

6. A power driven vessel less than 12 meters in length, when underway at night shall exhibit an all-round light and sidelights. Note: may exhibit a **masthead** light and a **stern** light plus **sidelights** required over 12 meters.

7. Small boats propelled by oars may show the lights of a **sailboat** or have handy an **electric torch** or **lantern** to show to prevent collision. (Note: torch or lantern must show white.)

8. On the Western Rivers and on waters specified by the Coast Guard, **masthead** lights are not required for a vessel pushing ahead or towing alongside. (Note: 'Secretary' specifies.)

9. At night, a vessel "not under command" will show **two all-round red lights** vertically spaced where they can best be seen.

10. Vessels engaged in fishing by day must display a shape consisting of **two cones with apexes together**.

11. A short blast is a blast of about **one second**.

12. A prolonged blast is a blast from **four** to **six** seconds duration.

13. The state of visibility, traffic density, your vessel's maneuverability, and the state of wind, sea and current conditions are factors in determining **safe speed**.

14. Every vessel must use all available means to determine if a risk of **collision** exists.
    (PPT: course – wrong)

15. The Navigation Rules recognize three types of encounters between two approaching vessels – **overtaking**, **head-on**, and **crossing**.
    (PPT: head-on → meeting – wrong. Nav Rule14 title is 'head-on')

16. A vessel in doubt must give the danger signal, **five short & rapid blasts** on her whistle.

17. Under Inland Rules, 2 short blasts mean "I intend to leave you on my **starboard** side."

18. If the bearing of an approaching vessel **does not change** appreciably, a risk of collision exists.

19. Under Inland Rules, in a crossing situation, the vessel which has the other on own **starboard** side is the burdened vessel and must keep out of the way of the other.
    (Note: 'burdened' has been changed to 'give way'.)

20. At night, the overtaking situation exists when the vessel approaching can not see **either of the side lights** of the vessel ahead.

21. When two sailing vessels are approaching one another so as to involve the risk of collision and both have the wind on the same side, the vessel which is to **windward** shall keep out of the way of the vessel which is to **leeward**.

22. When in or near an area of restricted visibility, a power driven vessel making way through the water must sound **one prolonged blast** at intervals of not more than **two** minutes.

23. In an area of restricted visibility, a vessel at anchor must, at intervals of not more than **one minute**, ring the bell rapidly for about **five seconds**.

24. The continuous sounding of a fog-signaling apparatus would indicate a **vessel in distress**.

CHAPTER 9 STUDY QUESTIONS

1. The lightweight type anchor is excellent in **mud** and **sand** bottoms.
2. All gear, taken collectively, that lies between the boat and its anchor is called the **rode**.
3. The most widely used material for the anchor line is **nylon**.
4. The three kinds of chains used as anchor rode are: **BBB, proof coil, high test**. (PPT omits BBB)
5. Chain is designated by the **diameter** of the material in the links.
6. The ideal rode for most average conditions is a combination of **nylon** and a short length **chain**.
7. When anchoring under favorable weather and sea conditions, and using nylon line a scope of **5:1** might be considered a minimum.
8. When anchoring, the anchor **should not** be lowered when the boat has any **headway**.
9. If an anchor drags, the first step in trying to get it to hold is to **increase scope**.
10. When chocks, bitts, cleats, and other fittings are used on deck they must be **through-bolted** and reinforced with a **heavy backing plate**.
11. The type anchor traditionally used for permanent moorings is the **mushroom anchor**.

CHAPTER 10 STUDY QUESTIONS

1. Name two duties of a deck hand. **line handling, fender stowing, tow watch**.
2. The navigator must be able to **determine position** and **maintain a plot of course**.
3. The crewman who takes care of the engines is called the **engineer**.
4. What crew duty is required by law? **Keep a lookout at all times underway**.
5. As a lookout, you are responsible for your **assigned sector**.
6. How many degrees do you move your eyes each second when scanning? **10°**.
7. Do you look directly on the horizon for night scanning? **No, Look 5 to 10° above horizon**.
8. Binoculars are used for **identification of an object** and not **for scanning**.
9. You must remain as lookout until **relived**.
10. Lookouts should remain **alert**. and give **full attention**. to your duties.
11. Lookouts in fog rely to a great extent on **their ears** and not **their eyes**.
12. Steering may be **directed** by **compass** or by reference to **objects**.
13. The helmsman will **repeat** all commands
14. The term "meet her" means **stop the turn of the boat so not to overshoot new course**.
15. Radar is **another form** of lookout.
16. Radar is a great navigational aid in times of **darkness** and **reduced visibility**.
17. The tow watch must not stand in line with the **tow line** in case **it breaks and snaps back**.
18. You are legally responsible for your **wake**.
19. When anchoring near other boats check for **clearance to swing**.
20. It is illegal to discharge **pollutants** into the water.
21. What is a holding tank? **A tank to hold waste from the head**.
22. When boarding a Coast Guard vessel **salute** the National Ensign and **request permission to come aboard** from the Officer Of the Deck.
23. Remove your cap when in the **wardroom** of a commissioned Coast Guard Vessel.