Chapter 1
Homework Question #3

3. Which material is NOT a good insulator?
   a. Glass
   b. Plastic
   c. Rubber
   d. Gold

Chapter 1
Homework Question #4

4. In a series circuit:
   a. the same current always flows through each device.
   b. the same voltage is always across each device.
   c. if one light is burned out the other lights remain on.
   d. the electricity flows through multiple paths.

Chapter 1
Homework Question #5

5. In a parallel circuit:
   a. the same current always flows through each device.
   b. the same voltage is always across each device.
   c. if one light fails, the other lights will fail.
   d. the electricity flows through a single path.

Ref. paragraphs 22 and 23. Figure 1-9.

Chapter 1
Homework Question #11

Ref. paragraphs 43 and 47. Figures 1-11 and 1-12.
Chapter 1
Homework Question #12

12. When measuring current, the multimeter is placed:

Chapter 1
Homework Question #18

18. The electrical measurement unit of the rate of doing work is:

Chapter 1
Homework Question #19

19. An electric current flowing through a conductor produces:

Chapter 2
Slide 11, Notes

Note the application of Ohm’s Law. \( P = I \times E = I \times (I \times R) = I^2 \times R \). As resistance drops, the current goes up as the square – \( \frac{1}{2} \) resistance results in 4x current, which leads to heating.

Chapter 2
Homework Question #12

12. Stranded copper conductors provide for:
   a. higher current flow in smaller wires.
   b. better insulation.
   c. resistance to failure due to vibration.
   d. better electrical connection to screws and studs.

Chapter 2
Homework Question #13

13. Crimp-type wire terminal lugs should be:
   a. full circle or captive spade type.
   b. U-shaped (plain spade) for easy removal.
   c. avoided because of cost and high resistance.
   d. crimped firmly with pliers.
Chapter 2
Homework Question #19

19. GFCI outlets trip at:
   a. 5 mA.
   b. 10 mA.
   c. 15 mA.
   d. 20 mA.

Chapter 3
Page 50, Slides 29-33

A. Charging a battery requires more charge (ampere hours) than removed during its use
   a. Flooded cells require 115% to 120%
   b. Gel cells require 105% to 114%

Chapter 3
Homework Question #14

Ref. paragraph 53.

Chapter 3
Homework Question #15

15. Flooded-cell batteries require charging current to:
   a. equal 100% of charge removed from battery.
   b. equal 105 to 115% of charge removed from battery.
   c. equal 115 to 120% of charge removed from battery.
   d. equal 120 to 140% of charge removed from battery.
Ref. paragraph 65.

Chapter 3
Homework Question #21

21. The maximum lead-acid chemistry charge rate in amperes should not exceed ______ percent of the rated ampere-hour capacity.
   a. 10
   b. 20-40
   c. 40-50
   d. 60

Chapter 3
Homework Question #24

Ref. paragraph 4.
Chapter 4
Homework Question #1

1. Nominal voltage for AC in the United States is:
   a. 100 volts
   b. 105 volts
   c. **120 volts**
   d. 130 volts

Chapter 4
Homework Question #4

4. Service cord ratings are based on ____________ feet length of cable.
   a. 25
   b. **50**
   c. 75
   d. 100

Chapter 4
Homework Question #10

10. A high-quality inverter provides 60 Hz ______ AC power.
    a. square wave
    b. modified sine wave
    c. **true sine wave**
    d. discrete cosine transformation

Chapter 4
Homework Question #18

18. The galvanic isolator should be installed in ________________ wire.
    a. **series with the green ground**
    b. parallel with the green ground
    c. series with the white neutral
    d. parallel with the white neutral

Chapter 5
Homework Question #1

1. For **significant** galvanic corrosion to take place the two metal electrodes must:
   a. be identical.
   b. be close together on the galvanic scale.
   c. **be far apart on the galvanic scale.**
   d. be of different polarities on the galvanic scale.
Chapter 5

Homework Question #3

3. The first sign of galvanic corrosion is ______ the waterline.
   a. blistered paint on metal above
   b. **blistered paint on metal below**
   c. a powdery substance on metal above
   d. a powdery substance on metal below

Chapter 5

Homework Question #4

4. Which is a self-destructing metal in sea water?
   a. Bronze
   b. Monel
   c. **Brass**
   d. Iron

Chapter 5

Homework Question #8

8. Stray current corrosion is normally caused by:
   a. stray AC current between black and green wires.
   b. stray DC current from the boat’s bonding system.
   c. stray AC current from a source external to the boat.
   d. **stray current either from the boat’s DC battery or from an external source of DC.**

Chapter 5

Homework Question #9

9. DC stray current corrodes which electrode?
   a. The more passive or noble one.
   b. The more active or less noble one.
   c. **The one that current flows from.**
   d. The one that current flows to.

Chapter 5

Homework Question #12

12. The corrosion of aluminum castings for outboards and outdrives can be prevented by:
   a. **installing sacrificial anodes below the waterline.**
   b. painting the aluminum with copper-based paint.
   c. connecting the shoreside AC green wire to the DC ground.
   d. doing nothing since they will not corrode.
Chapter 5
Homework Question #13

13. Corrosion due to stray current flow in wiring systems can be eliminated or reduced by:

Chapter 5
Homework Question #14

14. With stray current flow of alternating current:
   a. only the base metals will be corroded.
   b. only noble metals will be corroded.
   c. any metal carrying current will be corroded.
   d. no corrosion will take place.

Chapter 6
Homework Question #5

5. Wire size of the discharge conductor should be:
   a. #4 AWG stranded.
   b. #4 AWG solid.
   c. #6 AWG stranded.
   d. #6 AWG solid.

Chapter 6
Homework Question #6

6. The lightning protection system for a power boat normally uses a:
   a. fiberglass antenna grounded to the engine block(s).
   b. fiberglass antenna connected to a water terminal.
   c. metal whip antenna grounded to the engine block(s).
   d. metal whip antenna connected to a water terminal.

Chapter 6
Homework Question #7

7. The lightning protection system for a sailboat normally uses the:
   a. VHF antenna grounded to the engine block.
   b. VHF antenna connected to the keel.
   c. mast grounded to the engine block.
   d. mast connected to the keel.
Chapter 6
Homework Question #8

8. Precautions for personnel during a lightning storm include:
   a. remaining inside the boat and avoiding unnecessary contact with metal surfaces.
   b. getting in the water and holding onto any metal surface.
   c. staying out of the water and holding onto any metal surface.
   d. remaining inside the boat and holding onto any metal surface.

Chapter 7
Homework Question #1

1. The disadvantage of an analog multimeter, compared to a digital multimeter, is:
   a. high cost.
   b. a difficult to read measured value.
   c. larger size and heavier weight.
   d. the requirement that it be plugged into AC power.

Chapter 7
Homework Question #2

2. The advantage of a digital multimeter, compared to an analog multimeter, is:
   a. low cost.
   b. an easy to read measured value.
   c. smaller size and lighter weight.
   d. that it uses internal batteries.

Chapter 7
Homework Question #4

4. A hydrometer test can be conducted on which battery?

Chapter 7
Homework Question #8

8. If a boat light does not come on when its switch is turned on, first expect:
   a. a blown fuse.
   b. corroded contacts between the light bulb and its socket.
   c. a defective circuit breaker or switch.
   d. a burned out light bulb.

Chapter 7
Homework Question #10

10. AC outlets and GFCIs are best tested with:
    a. a voltmeter.
b. a current meter.
c. an outlet tester.
d. a hydrometer.

Chapter 7
Homework Question #17

Ref. paragraph 106.

Chapter 7
Homework Question #18

18. The level of ignition system interference can be reduced by:
   a. installing a coaxial capacitor in each spark plug wire.
   b. using capacitor cable spark plug wires or choke spark plugs.
   c. using choke cable spark plug wires or capacitor spark plugs.
   d. using resistor cable spark plug wires or resistor spark plugs.

Chapter 7
Homework Question #20

20. When equipment is suspected, the first mitigation step is normally to: