Chapter 11
Safety, Ground Ops, Servicing

Chapter 11 - Section A
Study Aid Questions

1. Keeping hangars, shop, and the flight-line _____and _____is essential to safety and efficient maintenance.

2. _____and _____ should watch for their own safety and for the safety of others working around them.

3. The _____who does not respect electricity's capabilities will, sooner or later, become a victim of electricity's awesome power.

4. Anytime current flows, a byproduct of that flow is_____.

5. Ensure that all power cords, wires, and lines are free of _____and_____ which can damage the wire.

6. When inflating tires on any type of aircraft wheels, _____should always be used.

7. Material _____ are very important to shop safety making shop personell aware of safety risks and the degree of risk.

8. The _____are a more detailed version of the chemical safety issues.

9. The National Fire Protection Association (NFPA), for commercial purposes, has classified fires into three basic types: _____, _____, and _____.

10. When using _____ make sure you have the correct type for the fire.

11. _____ is any damage caused by any loose object to aircraft, personnel, or equipment.

12. When approaching a helicopter while the blades are turning, observe the rotor-head and blades to see if they are_____.

13. Before starting an aircraft engine make sure that no property damage or personal injury will occur from the

_____or _____.

14. While touching a _____, always assume that the ignition is on.

15. Unlike _____ engine aircraft, the turbojet-powered aircraft does not require a preflight run-up unless it is necessary to investigate a suspected malfunction.

True and False

_____ 1. Human factors should be introduced to aircraft maintenance personnel to make them aware of how it affects the maintenance performed.

_____ 2. Maintenance technicians need not be aware of how human factors can affect their performance and safety while performing maintenance practices.

_____ 3. Keeping hangars, shop, & flight-lines orderly and clean is essential to safety & efficient maintenance.

_____ 4. Safety lanes, walkways, or fire lanes should not be painted around the perimeter inside hangars.

_____ 5. To safely deal with electricity, the technician must have a working knowledge of the principles of electricity, and a healthy respect for its capability to do both work and damage.

_____ 6. Two factors that affect safety with electricity are, dampness and how much electricity you can stand.

_____ 7. Anytime current flows, whether during generation or transmission, a byproduct of that flow is heat.

_____ 8. Compressed air, like electricity, is an excellent tool as long as it is under control.

_____ 9. Using compressed air to clean hands or clothing can force debris into the flesh leading to infection.

_____ 10. The most observable portion of the MSDS Label is the risk diamond; a 4 color segmented diamond that represents Flammability (Red), Reactivity (yellow), Health (Blue) and special Hazard (White).

_____ 11. In the Flammability, Reactivity, and Health blocks there should be a number from 0 to 2.

_____ 12. Hazards in a shop's operation increase when the operation of lathes, drill presses, grinders, and other types of machines are used.

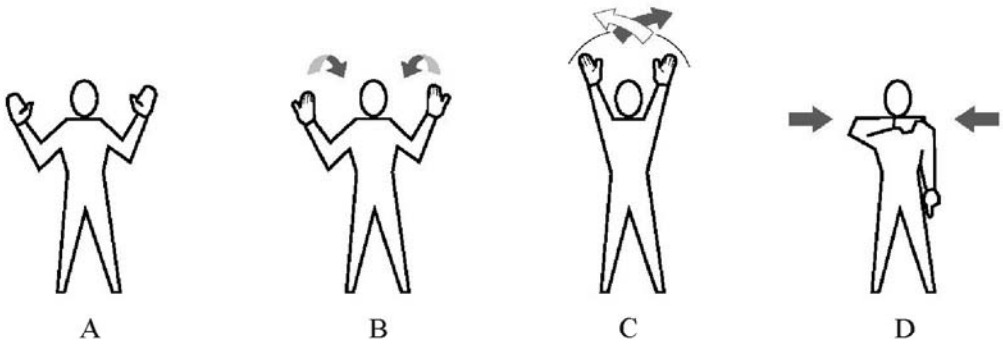
_____ 13. Since most petroleum products float on water, water-type fire extinguishers are very much recommended for Class B fires.

_____ 14. Never use water-type fire extinguishers on Class D fires. Because metals burn at extremely high temperatures, the cooling effect of water causes an explosive expansion of the metal.

_____ 15. When perform maintenance on the flight-line you must always be aware of what is going on around them.

Chapter 11 - Section B
Knowledge Application Questions

Matching:
Identify these standard FAA hand taxi signals below.


A

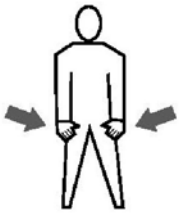
B

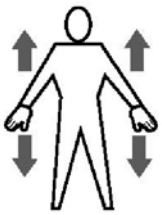
C

D

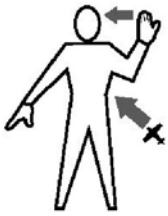

E

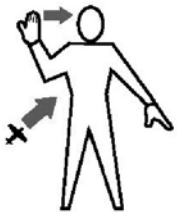

F


G


H


I


J


K


L

A. _____ B. _____ C. _____

D. _____ E. _____ F. _____

G. _____ H. _____ I. _____

J. _____ K. _____ L. _____

Short answers

1. Why should human factors be introduced to aircraft maintenance personnel?

2. What should be done if a co-worker is working unsafely?

3. What should the technician have to deal safely with electricity?

4. What is the main purpose of grinders?

5. What is the key to fire safety?

6. What three things are needed to create fire?

7. Why are water extinguishers the best type to use on Class A fires?

8. Carbon dioxide (CO_2) extinguishers are used for Class A, B, and C fires. How do they put out the fire?

9. What should a ramp technician keep in mind as aircraft taxi in his area of work?

10. Why should an aircraft be tied down after each flight?

Exercises

1. You are approaching a helicopter while the blades are turning, you should observe which precautions?

2. An aircraft comes in and parks, you need to secure it, explain how to do this task.

3. You have been asked to serve as a fire guard during the starting of a reciprocating engine, what will be your duties?

4. You are getting ready to tow an aircraft. Before you start the towing operation you should get help with what?

5. An aircraft has just been parked and the tow bar removed, what other action should take place next?

name: _____ date:_____

Chapter 11 - Section C
Final Chapter Exam

1. The color of 100LL fuel is
- A. blue
- B. colorless or straw
- C. red

2. What must accompany fuel vaporization?
- A. absorption of heat
- B. decrease in vapor pressure
- C. reduction in volume

3. A fuel that vaporizes too readily may cause
- A. hard starting
- B. detonation
- C. vapor lock

4. The main differences between grades 100 and 100LL fuel are
- A. volatility and lead content
- B. volatility, lead content, and color.
- C. lead content and color.

5. Tetraethyl lead is added to aviation gasoline to
- A. retard the formation of corrosives.
- B. improve the gasoline's performance in the engine.
- C. dissolve the moisture in the gasoline.

6. How are aviation fuels, which possess greater antiknock qualities than 100 octane, classified?
- A. according to the milliliters of lead
- B. by reference to normal heptane
- C. by performance numbers

7. What effect, if any, will aviation gasoline mixed with jet fuel have on a turbine engine?
- A. no appreciable effect
- B. the tetraethyl lead in the gasoline forms deposits on the turbine blades
- C. the tetraethyl lead in the gasoline forms deposits on the compressor blades

8. When towing a large aircraft
- A. a person should be in the cockpit to watch for obstructions
- B. persons should be stationed at the nose, each wingtip, and the empennage at all times
- C. a person should be in the cockpit to operate the brakes

9. When first starting to move an aircraft while taxiing, it is important to
- A. test the brakes
- B. closely monitor the instruments
- C. notify the control tower

10. When taxiing an airplane with a quartering tailwind, the elevators and
- A. upwind aileron should be held in the up position
- B. upwind aileron should be held in the down position
- C. both ailerons should be kept in the neutral position

11. A person should approach or leave a helicopter in the pilot's field of vision whenever the engine is running in order to avoid

- A. the tail rotor
- B. the main rotor
- C. blowing dust or debris caused by rotor downwash

12. Which statement(s) is/are true regarding tiedown of small aircraft?

1. Manila (hemp) rope has a tendency to stretch when it gets wet.
2. Nylon or dacron rope is preferred to manila rope.
3. Aircaft should be headed downwind in order to eliminate or minimize wing lift.
4. Leave the nosewheel or tailwheel unlocked.

- A. 1, 2, 3, and 4
- B. 1 and 2
- C. 2

13. Which of the following is the most satisfactory extinguishing agent for use on a carburetor or intake fire?

- A. dry chemical
- B. a fine, water mist
- C. carbon dioxide

14. If a radial engine has been shut down for more than 30 minutes, the propeller should be rotated through at least two revolutions to

- A. check for hydraulic lock
- B. check for leaks
- C. prime the engine

15. The priming of a fuel injected horizontally opposed engine is accomplished by placing the fuel control lever in the

- A. IDLE CUTOFF position
- B. AUTO RICH position
- C. FULL RICH position

16. How is a flooded engine, equipped with a float type carburetor, cleared of excessive fuel?

- A. Crank the engine with the starter or by hand, with the mixture control in cutoff, ignition switch off, and the throttle fully open, until the fuel charge has been cleared
- B. Turn off the fuel and the ignition. Discontinue the starting attempt until the excess fuel has cleared
- C. Crank the engine with the starter or by hand, with the mixture control in cutoff, ignition switch on, and the throttle fully open, until the excess fuel has cleared or until the engine starts

17. Generally, when an induction fire occurs during starting of a reciprocating engine, the first course of action should be to

- A. discharge carbon dioxide from a fire extinguisher into the air intake of the engine
- B. continue cranking and start the engine if possible
- C. close the throttle

18. Which of the following conditions has the most potential for causing engine damage when starting or attempting to start a turbine engine?

- A. hung start
- B. cold start
- C. hot start