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FFA Chapter\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**2018 Agricultural Technology & Mechanical Systems Questions**

Mark all answers on the sheet using a pencil. Read each question carefully and identify the correct single answer. Use the blank sheet of paper to do all of the scratch work.

1. It is very important to wear face protection when using a chisel because

a. a chip of metal may hit you

b. the hammer head is likely to come off

c. chisels frequently break in half

d. sight is improved by good face shields

1. After installing a drill bit into a gear chuck, the next important thing is to

a. start the motor

b. remove the chuck wrench

c. place the table off center

d. check the belt for tightness

3. A grinding wheel may fly apart when running if the wheel does not have

a. a course texture

b. a coolant device

c. a clean surface

d. an adequate speed rating for the motor

4. Which gas is not a fuel used for torches?

a. acetylene

b. oxygen

c. propane

d. none of these

5. Oxygen hoses and related equipment are color coded

a. green

b. ivory

c. orange

d. red

6. When “stick” welding the protective cloud that surrounds the weld zone is produced by \_\_\_\_\_\_.

a. argon that is added from a hi pressure tank

b. the flux on the outside of the consumable rod

c. oxygen and acetylene supplied by the welding torch

d. the flux located on the inside of the consumable wire

7. The temperatures from gas flames using oxy-fuels are

a. 150 to 200º F

b. 400 to 500º F

c. 1,000 to 2,000º F

d. 5,000 to 6,000ºF

8. When welding, the flux on an electrode

a. forms a gas

b. creates slag

c. shields the weld

d. all of these

9. Shielded metal arc welding is also called

a. brazing

b. electrode welding

c. oxyacetylene welding

d. stick welding

10. The temperature of an electric welding arc is

a. 400ºF

b. 840ºF

c. 1,800ºF

d. 9,000ºF

11. What is the recommended eye protection shade number for a welding helmet lens used when arc welding with 1/8-inch electrodes?

a. No. 4 lens shade

b. No. 6 lens shade

c. No. 8 lens shade

d. No. 10 lens shade

12. The recommended position of the welder for horizontal and vertical welding is

a. standing

b. sitting

c. the most comfortable one

d. lying flat

13. The welding process that uses an automatic wire feed is

a. GMAW

b. oxyacetylene

c. stick

d. GTAW

14. The four-stroke cycle begins with the piston moving

a. right

b. left

c. up

d. down

15. Piston rings are needed to

a. keep oil from getting into the combustion chamber

b. provide better compression

c. provide more power on the power stroke

d. all of these

16. The valves are opened and closed by the action of

a. the throttle

b. the wrist pin

c. the camshaft

d. the bearings

17. The purpose of oil in an engine is to

a. lubricate

b. cool

c. clean

d. all of these

18. If a flywheel key is partially sheared, the engine will not run because it is

a. too hot

b. out of time

c. broken

d. without fuel

19. An oil rated 10W-30 will have the viscosity of

a. a 10-weight oil when the weather is cold and the viscosity of a 30-weight oil when the weather is hot

b. a 30-weight oil when the weather is cold and the viscosity of a 10-weight oil when the weather is hot

c. a 40-weight oil

d. 10W-30 does not have viscosity

20. A tractor fueled by No. 2 diesel burns 7.75 gallons per hour. When the same tractor is fueled with B20 biodiesel it burns 8.25 gallons per hour. Approximately how many more gallons of fuel will the tractor use during eight hours of operation if it is fueled by B20 biodiesel rather than No. 2 diesel?

a. 2.5 gallons

b. 3.0 gallons

c. 3.5 gallons

d. 4.0 gallons

21. Loss of compression can be caused by

a. worn piston rings

b. stuck piston rings

c. worn valves

d. all of the above

22. If a diesel engine produces blue smoke it indicates that

a. the injectors need service

b. the piston rings are worn

c. the filter needs replacement

d. the injector pump is corroded

23. The lubrication of front-wheel bearings on a two-wheel-drive tractor is done

a. through the drive train

b. from the fluid in the transmission case

c. by packing with axle grease

d. with a solution of water and calcium chloride

24. When a hydraulic leak is suspected to originate from an implement hose, which of the following is the correct procedure to locate the leak?

a. use a piece of cardboard to locate the leak

b. wrap duct-tape around the hose to locate the leak

c. use the back of your hand to locate the leak

d. use your finger to find the leak

25. The major power source for stationary equipment in houses, farm buildings, and agribusinesses is

a. diesel fuel

b. electricity

c. gasoline

d. steam

26. A devise used to protect circuits that can be reset is a

a. three-way switch

b. ground-fault interrupter

c. fuse

d. circuit breaker

27. A devise in circuits to protect against human shock is a

a. three-way switch

b. ground-fault interrupter

c. fuse

d. circuit breaker

28. A cable consisting of No. 12 wire, one black, one red, one white, and one ground wire will be stamped

a. 12-2

b. 12-3

c. 12-3 w/g

d. 12-3 BRW

29. Neutral wires are attached to screws colored

a. white

b. green

c. silver

d. gold

30. White wires used as positive wires must be

a. connected to black wires

b. connected to fixtures

c. stripped of all insulation

d. taped or painted black