

## Ag Mechanics CDE - General Ag 1

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### MULTIPLE CHOICE

1. The practice of uniting metal parts by heating or compression is called
- a. plumbing
  - b. welding
  - c. transforming
  - d. direct current

ANS: B                      PTS: 1

2. The metal to be joined or welded together is classified as the
- a. standard metal
  - b. tack metal
  - c. base metal
  - d. bead

ANS: C                      PTS: 1

3. The discharge of electricity through an air space is called the
- a. arc
  - b. gap
  - c. amperage
  - d. electrode

ANS: A                      PTS: 1

4. Flux coated metal welding rods are referred to as
- a. flux
  - b. beads
  - c. electrodes
  - d. sticks

ANS: C                      PTS: 1

5. The external material on electrodes that remove impurities from the base metal is called
- a. a shield
  - b. flux
  - c. slag
  - d. paste

ANS: B                      PTS: 1

6. The layer formed on top of the weld caused by the flux and impurities of the base metal floating to the top is called
- a. flux
  - b. bead
  - c. puddle
  - d. slag

ANS: D                      PTS: 1

7. A small weld to hold base metals together temporarily is called a/an
- a. tack weld
  - b. bead
  - c. temporary work load
  - d. negative weld

ANS: A                      PTS: 1

8. The molten part of the weld where the heat is being applied is called the
- a. bead
  - b. current
  - c. flame
  - d. puddle

ANS: D                      PTS: 1

9. The metal that is deposited by the electrode, welding wire or filler rod during the welding process is called the

- a. bead
- b. base metal
- c. filler metal
- d. hot metal

ANS: A                      PTS: 1

10. The maximum pull in pounds per square inch that a weld can withstand is referred to as
- a. auxillary strength
  - b. psi
  - c. compression strength
  - d. tensile strength

ANS: D                      PTS: 1

11. An association or society that establishes codes and standards for the welding industry is known as the
- a. American Wedling Group
  - b. Society of Amercian Welders
  - c. American Welding Society
  - d. National Metal Organization

ANS: C                      PTS: 1

12. An arc welding process that uses flux coated rods is called
- a. TIG welding
  - b. stick welding
  - c. MIG welding
  - d. wire welding

ANS: B                      PTS: 1

13. Another name for stick welding is
- a. SMAW
  - b. MIG
  - c. TIG
  - d. GMAW

ANS: A                      PTS: 1

14. SMAW stands for
- a. Shielded Material Arc Welding
  - b. Shielded Metal Arc Welding
  - c. Standard Metal Arc Welding
  - d. Standard Material Arc Welding

ANS: B                      PTS: 1

15. An arc welding process that uses a wire that is fed automatically at a constant speed as an electrode is called
- a. TIG welding
  - b. brazing
  - c. wire welding
  - d. stick welding

ANS: C                      PTS: 1

16. Another name for wire welding is
- a. MIG welding
  - b. TIG welding
  - c. brazing
  - d. SMAW

ANS: A                      PTS: 1

17. MIG stands for
- a. Material Inactive Gas
  - b. Metal Inert Gas
  - c. Material Inverted Gas
  - d. Metal Inverted Gas

ANS: B                      PTS: 1

18. An arc welding process that uses a tungsten tip and filler rod to create a bead shielded by gas is called
- a. TIG
  - b. MIG
  - c. SMAW
  - d. stick welding

ANS: A                    PTS: 1

19. TIG stands for
- a. Teranium Inert Gas
  - b. Tungsten Inert Gas
  - c. Teranium Inactive Gas
  - d. Tungsten Inverted Gas

ANS: B                    PTS: 1

20. Both MIG and TIG welding can also be referred to as
- a. GMAW
  - b. SMAW
  - c. WMAW
  - d. CMAW

ANS: A                    PTS: 1

21. GMAW stands for
- a. Gas Material Arc Welding
  - b. Gas Metal Advanced Welding
  - c. Gas Material Advanced Welding
  - d. Gas Metal Arc Welding

ANS: D                    PTS: 1

22. A process that uses both oxygen and acetylene for cutting or welding is referred to as
- a. Oxyacetylene
  - b. Acetygen
  - c. Oxylyene
  - d. OA welding

ANS: A                    PTS: 1

23. Which of the following gases can serve as an alternative for acetylene?
- a. diesel fuel
  - b. propane
  - c. Argon
  - d. CO2

ANS: B                    PTS: 1

24. Which of the following gases can serve as an alternative for acetylene?
- a. butane
  - b. gasoline
  - c. kerosene
  - d. Argon

ANS: A                    PTS: 1

25. Which of the following gases can serve as an alternative for acetylene?
- a. helium
  - b. oxygen
  - c. kerosene
  - d. natural gas

ANS: D                    PTS: 1

26. A welding process using the oxyacetylene rig is referred to as
- a. branding
  - b. soldering
  - c. brazing
  - d. TIG

ANS: C                    PTS: 1

27. Tips used in oxyacetylene welding have how many holes in the end of them?
- a. one
  - b. two
  - c. four
  - d. six

ANS: A                    PTS: 1

28. Which of the following statements is true concerning torch tips for the oxyacetylene rig?
- a. A small tip is used for thick metal.
  - b. 000 size tip is smaller than a size 10 tip
  - c. Tip size does not matter when brazing.
  - d. Tip numbers range up to 100.

ANS: B                      PTS: 1

29. Which of the following statements is **not** true concerning the oxyacetylene rig?
- a. The acetylene hose has notched fittings.
  - b. The oxygen hose has fittings that are not notched.
  - c. The oxygen hose is green in color.
  - d. The acetylene hose is orange in color.

ANS: D                      PTS: 1

30. Which of the following statements is **not** true concerning the oxyacetylene rig?
- a. The oxygen operating pressure must be set at 80 psi.
  - b. Never operate acetylene pressure at 15 psi or more.
  - c. Acetylene is a fuel.
  - d. The work area must be properly ventilated.

ANS: A                      PTS: 1

31. Which of the following statements is **not** true concerning the oxyacetylene rig?
- a. Wear protective clothing.
  - b. Stand in front of the gauges when opening the cylinders so you can see the amount of pressure.
  - c. The acetylene hose has fittings with left-handed threads.
  - d. The oxygen hose has fittings with right-handed threads.

ANS: B                      PTS: 1

32. What is the term that means to bond filler material to a base metal? It is the key to success in brazing.
- a. fusion
  - b. welding
  - c. tinning
  - d. bonding

ANS: C                      PTS: 1

33. When brazing, what is the phrase that means to alternately move a flame into and out of an area to achieve temperature control?
- a. "work the flame"
  - b. "control the flame"
  - c. "alter the flame"
  - d. "play the flame"

ANS: D                      PTS: 1

34. Acetylene is dangerous because it is
- a. compressed
  - b. flammable
  - c. explosive
  - d. all of the above

ANS: D                      PTS: 1

35. Gas leaks on the oxyacetylene rig are checked with
- a. compressed air
  - b. a flame
  - c. soapy water
  - d. teflon

ANS: C                      PTS: 1

36. Removing gas from oxyacetylene equipment is known as
- a. bleeding the lines
  - b. gas removal
  - c. blowing out the lines
  - d. fuel and air removal

ANS: A                      PTS: 1

37. The acetylene cylinder valve is never opened more than
- a. a half turn
  - b. one turn
  - c. two turns
  - d. it doesn't matter

ANS: A                      PTS: 1

38. A device on an oxyacetylene rig that controls the flow of gas is called a
- a. gauge
  - b. regulator
  - c. cylinder
  - d. torch

ANS: B                      PTS: 1

39. Which of the following types of flames is the correct one for heating and cutting with the oxyacetylene rig?
- a. brazing flame
  - b. oxidizing flame
  - c. carbonizing flame
  - d. neutral flame

ANS: D                      PTS: 1

40. Welding helmets worn for stick welding are required to have what number shaded lens?
- a. No. 5
  - b. No. 10
  - c. No. 12
  - d. No. 15

ANS: B                      PTS: 1

41. Safety glasses or goggles worn when using the oxyacetylene torch should be what number shaded lens?
- a. No. 5
  - b. No. 8
  - c. No. 10
  - d. No. 12

ANS: A                      PTS: 1

42. The percentage of time that a welder can operate without overheating is referred to as the
- a. work load
  - b. life cycle
  - c. current load
  - d. duty cycle

ANS: D                      PTS: 1

43. A 20% duty cycle welder should weld only how many minutes out of every hour at full capacity?
- a. 10 minutes
  - b. 12 minutes
  - c. 15 minutes
  - d. 20 minutes

ANS: B                      PTS: 1

44. Current that reserves its direction of flow frequently is referred to as
- a. Alternating current
  - b. Direct current
  - c. Recycled current
  - d. Replaced current

ANS: A                      PTS: 1

45. Current that flows in one direction according to how the welder is set is referred to as

- a. Alternating current
- b. Direct current
- c. Recycled current
- d. Replaced current

ANS: B                    PTS: 1

46. A device on AC welders that convert high voltage and low amperage from utility power lines to low voltage and high amperage is referred to as
- a. transformers
  - b. recifiers
  - c. inverters
  - d. converters

ANS: A                    PTS: 1

47. The “E” in E6013 stands for what according to the Numerical Coding for Electrodes?
- a. Energy
  - b. Electric
  - c. Energizer
  - d. Electrode

ANS: D                    PTS: 1

48. The “60” in E6013 represents what according to the Numerical Coding for Electrodes?
- a. tensile strength in hundreds of pounds per square inch
  - b. tensile strength in thousands of pounds per square inch
  - c. compression strength in hundreds of pounds per square inch
  - d. compression strength in thousands of pounds per square inch

ANS: B                    PTS: 1

49. The “1” in E6013 represents what according to the Numerical Coding for Electrodes?
- a. welding material
  - b. welding size
  - c. welding current
  - d. welding position

ANS: D                    PTS: 1

50. The “3” in E6013 represents what according to the Numerical Coding for Electrodes?
- a. welding material
  - b. welding size
  - c. welding current
  - d. welding position

ANS: C                    PTS: 1

51. Which of the following would **not** be considered a welding position?
- a. overhead
  - b. flat
  - c. horizontal
  - d. lateral

ANS: D                    PTS: 1

52. In the MIG welding process, gas pressure should be set at approximately
- a. 10-15 psi
  - b. 25-30 psi
  - c. 40-50 psi
  - d. It doesn't matter

ANS: B                    PTS: 1

53. The types of gas used in the MIG welding process would **not** include which of the following:
- a. Acetylene
  - b. Argon
  - c. CO<sub>2</sub>
  - d. Argon and CO<sub>2</sub> mix

ANS: A                    PTS: 1

54. Which of the following gases is considered to be flammable:

- a. argon
- b. CO<sub>2</sub>
- c. acetylene
- d. They are all flammable

ANS: C                      PTS: 1

55. What is one advantage of MIG welding over stick welding?
- a. It can be used to weld thicker gauge metal.
  - b. It does not have slag to be chipped off.
  - c. A MIG welder is cheaper to purchase than a stick welder.
  - d. There are no advantages.

ANS: B                      PTS: 1

56. Most MIG welding equipment is
- a. manual
  - b. robotic
  - c. automatic
  - d. semiautomatic

ANS: D                      PTS: 1

57. Which of the following is not a weld defect?
- a. undercut
  - b. insufficient penetration
  - c. pits
  - d. behind cut

ANS: D                      PTS: 1

58. In the TIG welding process, which of the following is **not** true?
- a. Tungsten electrodes are not consumed during the welding process.
  - b. Gas pressure should be set at approximately 25-30 psi.
  - c. A filler rod is normally used when welding especially on thicker metal.
  - d. Tungsten electrodes have a very low melting point.

ANS: D                      PTS: 1

59. In the TIG welding process, which of the following is **not** true?
- a. It produces a cleaner bead than MIG
  - b. Argon can be used as the shielding gas
  - c. It is faster than MIG
  - d. It is easier to weld thinner gauge metal than with stick welding.

ANS: C                      PTS: 1

60. Which of the following is not a part of the TIG welding torch?
- a. gauge
  - b. collet body
  - c. collet
  - d. Tungsten electrode

ANS: A                      PTS: 1

61. Which of the following types of fire extinguishers should be available for use in the welding area?
- a. Class A only
  - b. Class B only
  - c. Class C only
  - d. Class A, B and C

ANS: D                      PTS: 1

62. Which of the following is needed in the welding area in case of emergency?
- a. ladder
  - b. welding gas
  - c. fire blanket
  - d. spare electrodes

ANS: C                      PTS: 1

63. To start an arc by touching the metal with the electrode and then raising it is known as the
- a. tapping method
  - b. touching method
  - c. down and up method
  - d. arcing method

ANS: A                      PTS: 1

64. To start an arc by dragging the electrode across the metal about an inch is known as the
- a. arcing method
  - b. start up method
  - c. scratch method
  - d. dragging method

ANS: C                      PTS: 1

65. When welding, one bead or layer of filler metal is known as a/an
- a. path
  - b. pass
  - c. weave
  - d. foundation bead

ANS: B                      PTS: 1

66. When making several passes during the welding process, the first pass made in a joint is called the
- a. foundation pass
  - b. initial pass
  - c. root pass
  - d. base pass

ANS: C                      PTS: 1

67. Another name for a fillet weld is called a/an
- a. "T" weld
  - b. "Butt" weld
  - c. "Lap" weld
  - d. "Overhang" weld

ANS: A                      PTS: 1

68. The angle of the electrode when stick welding should be
- a. 90 degrees from the vertical position
  - b. 60 degrees from the vertical position
  - c. 30-45 degrees from the vertical position
  - d. 10-15 degrees from the vertical position

ANS: D                      PTS: 1

69. Which of the following can help you determine the correct arc length for stick welding?
- a. the sound of the arc
  - b. the appearance of the bead
  - c. welding experience
  - d. all of the above

ANS: D                      PTS: 1

70. An arc that is the correct length when stick welding should sound like
- a. water boiling
  - b. bacon frying
  - c. eggs boiling
  - d. the sound doesn't matter

ANS: B                      PTS: 1

71. If the arc length is too long when stick welding, a \_\_\_\_\_ sound is heard.
- a. boeing
  - b. scratching
  - c. soft
  - d. squealing

ANS: A                      PTS: 1

72. What happens if the arc length is too short when stick welding?
- a. The metal gets too hot.
  - b. The welder will shut off.
  - c. The electrode sticks to the metal.
  - d. Nothing. It needs to be short.

ANS: C                    PTS: 1

73. What will be the result if the amperage is set too low when stick welding?
- a. The molten puddle will burn a hole in the base metal.
  - b. It will be difficult to strike the arc and keep it running.
  - c. It will result in a wide bead.
  - d. It will cause a lot of splatter.

ANS: B                    PTS: 1

74. What will be the result if the amperage is set too low when stick welding?
- a. Nothing will happen.
  - b. The welder will shut off.
  - c. It will result in a narrow, stringy bead.
  - d. It will result in a wide bead.

ANS: C                    PTS: 1

75. Indicators of excessive heat when welding would include:
- a. the puddle burns through the metal
  - b. the arc is very noisy
  - c. neither a nor b
  - d. both a and b

ANS: D                    PTS: 1

76. Indicators of excessive heat when welding would include:
- a. It is difficult to manage the puddle.
  - b. The arc will not strike.
  - c. The bead is wavy.
  - d. The bead is narrow.

ANS: A                    PTS: 1

77. A \_\_\_\_\_ bead is a bead that is made without weaving.
- a. stringer
  - b. flat
  - c. line
  - d. restricted

ANS: A                    PTS: 1

78. The \_\_\_\_\_ is a low spot in metal where the force of a flame has pushed out molten metal.
- a. hole
  - b. puddle
  - c. crater
  - d. convex

ANS: C                    PTS: 1

79. When stick welding several beads on top of each other, slag must be removed after each bead is welded or there will be \_\_\_\_\_ inside the weld.
- a. hot pockets
  - b. puddles
  - c. voids
  - d. You don't have to remove the slag.

ANS: C                    PTS: 1

80. Which of the following types of pipe should have the most ventilation to the work area when welding?
- a. mild steel
  - b. stainless steel
  - c. galvanized
  - d. It doesn't matter.

ANS: C                    PTS: 1

81. The output of a welder is relatively
- a. low voltage and high amperage
  - b. high voltage and low amperage
  - c. high voltage and high amperage
  - d. low voltage and low amperage

ANS: A                    PTS: 1

82. A chipping hammer is used to
- a. prepare edges for welding
  - b. remove scale from steel
  - c. temper beads
  - d. remove slag

ANS: D                    PTS: 1

83. Which of the following would **not** be considered a safety item when welding.
- a. welding helmet
  - b. safety glasses
  - c. welding gloves
  - d. spare electrodes

ANS: D                    PTS: 1

84. The temperature of the electric welding arc is about
- a. 400 degrees F
  - b. 840 degrees F
  - c. 1800 degrees F
  - d. 9000 degrees F

ANS: D                    PTS: 1

85. Welding tables should be made of
- a. concrete
  - b. masonite
  - c. metal
  - d. wood

ANS: C                    PTS: 1

86. Burning clothes on a human should be extinguished with
- a. fire blanket
  - b. fire extinguisher
  - c. sand
  - d. any of these

ANS: A                    PTS: 1

87. Water in a welding area is useful for
- a. receiving sparks from piercing
  - b. extinguishing fires
  - c. cooling metal
  - d. all of the above

ANS: D                    PTS: 1

88. If only one kind of electrode for all stick welding is to be purchased, the best choice is an
- a. E6010
  - b. E6011
  - c. E6013
  - d. E7018

ANS: B                    PTS: 1

89. For most welding in agricultural mechanics the best electrode size is
- a. 1/16 inch
  - b. 1/8 inch
  - c. 3/16 inch
  - d. 1/4 inch

ANS: B                    PTS: 1

90. The correct arc length when welding is approximately
- a. 1/8 inch
  - b. 1/4 inch
  - c. 3/8 inch
  - d. 1/2 inch

ANS: A                    PTS: 1

91. When welding, the operator sees by
- a. daylight
  - b. fluorescent light
  - c. light from the arc
  - d. all of the above

ANS: C                      PTS: 1

92. The appearance and strength of a bead are influenced by
- a. amps
  - b. angle
  - c. speed
  - d. all of the above

ANS: D                      PTS: 1

93. The recommended weave pattern for the beginning weldor doing down hand welding is
- a. circular
  - b. figure eight
  - c. J
  - d. T

ANS: A                      PTS: 1

94. In metal, the most rapid movement of heat is
- a. down
  - b. up
  - c. horizontal
  - d. equal in all directions

ANS: B                      PTS: 1

95. To make a hole with an electrode is called
- a. cutting
  - b. electroding
  - c. piercing
  - d. brazing

ANS: C                      PTS: 1

96. The best amperage setting for cutting with a stick welder is \_\_\_\_\_ higher than for welding.
- a. 25 %
  - b. 50 %
  - c. 75 %
  - d. 100 %

ANS: B                      PTS: 1

97. Which of the following welds is the most difficult to make.
- a. flat
  - b. horizontal
  - c. vertical down
  - d. vertical up

ANS: D                      PTS: 1

98. Joining parts by melting them together is known as
- a. oxidation
  - b. carbonizing
  - c. fusion welding
  - d. heat welding

ANS: C                      PTS: 1

99. A spring loaded clamp attached to an electrical cable and is not insulated and carries current between the welding table and to the welder is called a
- a. electrode clamp
  - b. ground clamp
  - c. welder clamp
  - d. positive clamp

ANS: B                      PTS: 1

100. How many cables does a welder have?
- a. 1
  - c. 3



b. displacement d. horsepower

ANS: A PTS: 1

110. If the intake valve fails in a one-cylinder engine, the engine will:

- a. run poorly
- b. stop
- c. idle high
- d. back fire

ANS: B PTS: 1

111. What is the most common angle on a valve face?

- a. 30 degrees
- b. 60 degrees
- c. 50 degrees
- d. 45 degrees

ANS: D PTS: 1

112. If a valve has a 45 degree face, then the seat would be:

- a. 45 degrees
- b. 46 degrees
- c. 90 degrees
- d. it doesn't matter

ANS: B PTS: 1

113. If a valve has a 30 degree face, then the seat would be:

- a. 30 degrees
- b. 31 degrees
- c. 60 degrees
- d. it doesn't matter

ANS: B PTS: 1

114. The valves open and close in a one-cylinder engine in as little as:

- a. 1/50 of a second
- b. 1/10 of a second
- c. 1/2 of a second
- d. 1 second

ANS: A PTS: 1

115. Valve tappet clearance is measured by using a:

- a. rule
- b. micrometer
- c. feeler gauge
- d. caliper

ANS: C PTS: 1

116. When checking the valve tappet clearance, the piston should be at the top of the \_\_\_\_\_ stroke and then a 1/4" down from there.

- a. intake
- b. compression
- c. power
- d. exhaust

ANS: B PTS: 1

117. On L-head engines if the valve tappet clearance is too small, the proper clearance is obtained by:

- a. grinding on the valve face.
- b. grinding on the valve head.
- c. grinding on the end of the valve stem.
- d. grinding on the end of the tappet.

ANS: C PTS: 1

118. On L-head engines if the valve tappet clearance is too big, the proper clearance can be obtained by:

- a. refacing the valve
- b. recutting the seat
- c. lapping the valve
- d. any of the above

ANS: D                    PTS: 1

119. On overhead valve engines the valve clearance is corrected by:
- a. clearance does not have to be checked
  - b. using a wrench and turning the adjusting nut
  - c. grinding on the end of the valve stem
  - d. grinding on the end of the tappet

ANS: B                    PTS: 1

120. When checking the valve clearance on OHV engines, the clearance is checked between the valve stem and the \_\_\_\_\_.
- a. tappet
  - b. lifter
  - c. rocker arm
  - d. push rod

ANS: C                    PTS: 1

121. Too little valve clearance can cause:
- a. valve burning
  - b. a dished valve
  - c. a rich fuel mixture
  - d. a higher compression ratio

ANS: A                    PTS: 1

122. Which of the following is **not** a part of a valve:
- a. head
  - b. margin
  - c. face
  - d. tail

ANS: D                    PTS: 1

123. Which of the following **is** a part of a valve?
- a. lobe
  - b. stem
  - c. leg
  - d. tail

ANS: B                    PTS: 1

124. The valve with the biggest size head is the:
- a. intake valve
  - b. exhaust valve
  - c. compression valve
  - d. they are all the same size

ANS: A                    PTS: 1

125. Valve springs must be replaced if they:
- a. are bent
  - b. are not square
  - c. do not meet tension specifications
  - d. all of the above

ANS: D                    PTS: 1

126. The camshaft opens and closes the:
- a. intake valve
  - b. exhaust valve
  - c. intake and exhaust valves
  - d. reed valves

ANS: C                    PTS: 1

127. The thickness of the margin on a new Briggs & Stratton valve is:
- a. 1/64"
  - b. 1/32"
  - c. 1/16"
  - d. 1/8"

ANS: B                    PTS: 1

128. Briggs & Stratton recommends that valves be replaced when the margin measures less than \_\_\_\_\_.
- a. 3/64"
  - b. 1/16"
  - c. 1/32"
  - d. 1/64"

ANS: D                      PTS: 1

129. What causes valves to stick?
- a. gum accumulation
  - b. old oil
  - c. wrong viscosity of oil
  - d. air filter clogged

ANS: A                      PTS: 1

130. \_\_\_\_\_ is a process where the valve face is rubbed against the valve seat using an abrasive compound in order to produce a particular type surface.
- a. honing
  - b. boring
  - c. seating
  - d. lapping

ANS: D                      PTS: 1

131. Valve overlap is when both valves are:
- a. closed
  - b. open
  - c. both a and b
  - d. neither a nor b

ANS: B                      PTS: 1

132. A machined hole in the block through which the valve stem passes in order to align the valve and assure accurate raising and lowering in relation to the seat is called the
- a. valve tunnel
  - b. valve passage
  - c. valve guide
  - d. valve insert

ANS: C                      PTS: 1

133. A \_\_\_\_\_ must be used on each valve to hold it firmly against the seat.
- a. grinding compound
  - b. valve spring
  - c. valve tappet
  - d. valve push rod

ANS: B                      PTS: 1

134. Which of the following is **not** a part of the valve system?
- a. keeper
  - b. retainer
  - c. spring
  - d. ring

ANS: D                      PTS: 1

135. What is another name for a valve tappet?
- a. valve lifter
  - b. valve lobe
  - c. valve shaft
  - d. valve pin

ANS: A                      PTS: 1

136. What pushes against the valve tappets to make them move?
- a. cam gear
  - b. cam lobes
  - c. crankshaft
  - d. connecting rod

ANS: B                      PTS: 1

137. In the \_\_\_\_\_ arrangement, the camshaft is located in the crankcase and the valves are located in the cylinder block, directly above the camshaft lobes.
- a. overhead valve
  - b. overhead cam
  - c. straight valve
  - d. L-head

ANS: D                      PTS: 1

138. In the \_\_\_\_\_ arrangement, the camshaft is installed in the crankcase and the valves are installed in the cylinder head.
- a. overhead valve
  - b. overhead cam
  - c. straight valve
  - d. L-head

ANS: A                      PTS: 1

139. When referring to a type of engine, OHV stands for:
- a. overhead vertical
  - b. overhead valve
  - c. outside horizontal valve
  - d. overhead voltage

ANS: B                      PTS: 1

140. In an overhead valve configuration, \_\_\_\_\_ transfer motion from the valve lifters to one end of the rocker arms.
- a. tappets
  - b. pushrods
  - c. valve stems
  - d. valve levers

ANS: B                      PTS: 1

141. In an overhead valve configuration, where are the rocker arms installed?
- a. in the block
  - b. to the crankshaft
  - c. in the cylinder head
  - d. in the crankcase

ANS: C                      PTS: 1

142. When one end of the rocker arm is pushed up, the other end pushes down on the \_\_\_\_\_.
- a. camshaft
  - b. crankshaft
  - c. valve stem
  - d. valve head

ANS: C                      PTS: 1

143. The overhead valve design as compared to the L-head design can increase fuel efficiency by as much as \_\_\_\_\_.
- a. 5%
  - b. 10%
  - c. 25%
  - d. 50%

ANS: C                      PTS: 1

144. Which part of the engine must be removed before the push rods can be removed?
- a. rocker arms
  - b. valves
  - c. valve springs
  - d. piston

ANS: A                      PTS: 1

145. Which of the following types of engines have valves and springs that are capable of being removed with your hands without the use of tools?
- a. straight valve engines
  - c. L-head engines

- b. 2-cycle engines  
d. OHV engines

ANS: D PTS: 1

146. The basic purpose of a carburetor is to:
- a. equalize atmospheric pressure
  - b. clean the air entering the engine
  - c. regulate the amount of fuel entering the engine
  - d. regulate the mixture of air and fuel

ANS: D PTS: 1

147. The ideal air to fuel ratio by weight for a small engine is:
- a. 10:1
  - b. 15:1
  - c. 20:1
  - d. 25:1

ANS: B PTS: 1

148. A flexible piece in the carburetor that pulsates when a vacuum is created in the engine and draws fuel into a chamber of the carburetor is called a:
- a. venturi
  - b. diaphragm
  - c. spring
  - d. float

ANS: B PTS: 1

149. Which part of the carburetor controls engine speed?
- a. throttle
  - b. venturi
  - c. choke
  - d. float

ANS: A PTS: 1

150. Gum deposits which clog the carburetor and other fuel system parts are caused by:
- a. overheating
  - b. stale gasoline
  - c. inadequate operating speeds
  - d. stalling

ANS: B PTS: 1

151. If black smoke is coming from the exhaust when the engine is operating at 3000 rpm's, the most probable cause is:
- a. a lean air-fuel mixture
  - b. an improperly installed breather
  - c. improper set ignition points
  - d. a rich high speed air-fuel mixture

ANS: D PTS: 1

152. The term which does **not** represent a type of carburetor found on small gasoline engines is the:
- a. nozzle feed
  - b. float feed
  - c. suction feed
  - d. diaphragm

ANS: A PTS: 1

153. The purpose of the venturi on a carburetor is to:
- a. mix the correct amount of fuel and air
  - b. increase air speed/increase pressure
  - c. decrease air speed/increase pressure
  - d. increase air speed/decrease pressure

ANS: D PTS: 1

154. According to Bernoulli's scientific principle, as air speed \_\_\_\_\_, it's pressure \_\_\_\_\_.
- a. increases, decreases
  - b. decreases, increases
  - c. decreases, is reduced
  - d. increases, is reduced





- a. mechanical
- b. flyweight type
- c. pneumatic
- d. diaphragm

ANS: C                    PTS: 1

173. The part of the engine that connects the air vane governor to the throttle shaft lever is called the:
- a. linkage
  - b. coil
  - c. tappet
  - d. throttle body

ANS: A                    PTS: 1

174. The \_\_\_\_\_ in a governor system on an engine is designed to pull the throttle valve to wide open position.
- a. shaft
  - b. spring
  - c. flyweights
  - d. gears

ANS: B                    PTS: 1

175. The recommended cleaning interval for a single element air cleaner for small engines is every:
- a. 25 hours of operation
  - b. 50 hours of operation
  - c. 100 hours of operation
  - d. week

ANS: A                    PTS: 1

176. A foam air cleaner should be cleaned using:
- a. kerosene
  - b. liquid detergent and water
  - c. gasoline
  - d. either a or b

ANS: D                    PTS: 1

177. A dual element filter has a \_\_\_\_\_ type filter as the pre-cleaner.
- a. neoprene
  - b. foam
  - c. paper
  - d. cartridge

ANS: B                    PTS: 1

178. Single element \_\_\_\_\_ filters should be oiled to help catch dust particles better.
- a. neoprene
  - b. foam
  - c. paper
  - d. cartridge

ANS: B                    PTS: 1

179. Paper air filter cartridges should be cleaned by:
- a. washing in liquid detergent and water
  - b. washing in kerosene
  - c. tapping lightly on a hard surface
  - d. using compressed air

ANS: C                    PTS: 1

180. The primary purpose of the ignition system is to:
- a. provide a spark at the spark plug
  - b. make the flywheel turn faster
  - c. get a better flow of fuel to the cylinder
  - d. make it easier to crank in cold weather

ANS: A                    PTS: 1

181. The proper spark plug gap for most small engines is:
- a. .02"
  - b. .03"
  - c. .04"
  - d. it doesn't matter

ANS: B                    PTS: 1

182. When measuring the spark plug gap, a \_\_\_\_\_ should be used.
- a. flat feeler gauge
  - b. wire or round feeler gauge
  - c. vernier caliper
  - d. micrometer

ANS: B                    PTS: 1

183. A four-cycle engine runs at 3600 rpm's. The number of sparks per minute required at the spark plug would be:
- a. 900
  - b. 1800
  - c. 3600
  - d. 7200

ANS: B                    PTS: 1

184. Oil viscosity is a measure of:
- a. the ability to flow quickly
  - b. the detergents
  - c. the resistance to flow
  - d. the type of service

ANS: C                    PTS: 1

185. Which of the following grades of oil is the thickest?
- a. SAE 5W-20
  - b. SAE 5W-30
  - c. SAE 10W-30
  - d. SAE 10W-40

ANS: D                    PTS: 1

186. Most small engine manufacturers recommend \_\_\_\_\_ for temperatures **above** 40 degrees.
- a. SAE 20
  - b. SAE 30
  - c. SAE 5W-20
  - d. SAE 5W-30

ANS: B                    PTS: 1

187. Most small engine manufacturers recommend \_\_\_\_\_ for temperatures **below** 40 degrees.
- a. SAE 0W-40
  - b. SAE 5W-40
  - c. SAE 10W-40
  - d. SAE 5W-30

ANS: D                    PTS: 1

188. SAE stands for:
- a. Service Automotive Engines
  - b. Service American Engines
  - c. Society of American Engineers
  - d. Society of Automotive Engineers

ANS: D                    PTS: 1

189. API stands for:
- a. American Part Institute
  - b. Automotive Part Institute
  - c. American Petroleum Institute
  - d. Automotive Petroleum Institute

ANS: C                    PTS: 1

190. The "W" in 10W-30 stands for:
- a. winter
  - b. weight
  - c. way
  - d. weather

ANS: A                    PTS: 1

191. Which of the following would **not** be found in the crankcase?
- a. oil
  - b. breather
  - c. camshaft
  - d. connecting rod

ANS: B                      PTS: 1

192. The camshaft opens and closes the:
- a. intake valve
  - b. exhaust valve
  - c. reed valve
  - d. both a and b

ANS: D                      PTS: 1

193. \_\_\_\_\_ are off-center enlargements on the camshaft that converts rotary motion to reciprocating motion.
- a. flyweights
  - b. lifters
  - c. lobes
  - d. gears

ANS: C                      PTS: 1

194. The camshaft has \_\_\_\_\_ lobes.
- a. 2
  - b. 3
  - c. 4
  - d. 5

ANS: A                      PTS: 1

195. The camshaft is driven by a \_\_\_\_\_ on the crankshaft.
- a. lobe
  - b. gear
  - c. spring
  - d. flywheel

ANS: B                      PTS: 1

196. The camshaft gear and crankshaft gear has \_\_\_\_\_ that must be aligned in order for the valves to open and close at the right time.
- a. lobes
  - b. a keyway
  - c. teeth
  - d. timing marks

ANS: D                      PTS: 1

197. The camshaft gear is \_\_\_\_\_ as large as the crankshaft gear.
- a. 4 times
  - b. 3 times
  - c. 2.5 times
  - d. 2 times

ANS: D                      PTS: 1

198. How many revolutions does a camshaft make to one revolution of the crankshaft?
- a. 1/2
  - b. 1
  - c. 1 1/2
  - d. 2

ANS: A                      PTS: 1

199. How many revolutions does a crankshaft make to each power stroke of the engine?
- a. 1
  - b. 2
  - c. 3
  - d. 4

ANS: B                      PTS: 1

200. Counterweights are designed into the crankshaft to provide:
- a. more power
  - b. increased engine speed
  - c. engine balancing
  - d. better ignition

ANS: C                      PTS: 1

201. A \_\_\_\_\_ is a support base made of concrete that is poured directly into a trench on top of undisturbed soil to support the weight of a building.

- a. foundation
- b. footing
- c. threshold
- d. concrete base

ANS: B                      PTS: 1

202. The purpose of screeding concrete is to:

- a. have a perfectly smooth finish
- b. leave a texture
- c. level the surface by removing excess concrete
- d. remove all the trash

ANS: C                      PTS: 1

203. When cement, sand and gravel are mixed with water it is known as:

- a. concrete
- b. cement
- c. mortar
- d. grout

ANS: A                      PTS: 1

204. When cement and sand are mixed with water it is known as:

- a. concrete
- b. cement
- c. mortar
- d. grout

ANS: C                      PTS: 1

205. A sack of cement contains:

- a. 1/2 cubic foot
- b. 1 cubic foot
- c. 1 1/2 cubic feet
- d. 2 cubic feet

ANS: B                      PTS: 1

206. The most common type of cement used around the world that is manufactured from limestone and clay is:

- a. Portland cement
- b. American cement
- c. Limestone cement
- d. Bentonite cement

ANS: A                      PTS: 1

207. A sack of cement weighs:

- a. 50 lbs.
- b. 75 lbs.
- c. 94 lbs.
- d. 100 lbs.

ANS: C                      PTS: 1

208. The common size of a cement block used in agricultural construction is:

- a. 4" x 4" x 12"
- b. 8" x 8" x 12"
- c. 6" x 6" x 16"
- d. 8" x 8" x 16"

ANS: D                      PTS: 1

209. The most common size of a mortar joint is:

- a. 3/8"
- b. 1/2"
- c. 3/4"
- d. 7/8"

ANS: A                      PTS: 1

210. When laying a concrete block wall start at:

- a. the corner and work toward the center
- b. any point you desire
- c. the corners and work toward the center
- d. the corner and work toward the other corner

ANS: C                      PTS: 1

211. Each row of concrete blocks is called a:

- a. layer
- b. line
- c. row
- d. course

ANS: D                      PTS: 1

212. One cubic yard of concrete contains \_\_\_\_\_ cubic feet.

- a. 9
- b. 36
- c. 27
- d. 54

ANS: C                      PTS: 1

213. The footing should be placed:

- a. below the frost line
- b. above the frost line
- c. on the frost line
- d. it doesn't matter

ANS: A                      PTS: 1

214. A 1-2-3 mixture of concrete means:

- a. one part sand, two parts gravel and 3 parts cement
- b. one part gravel, two parts sand and 3 parts cement
- c. one part cement, two parts sand and 3 parts gravel
- d. one part cement, two parts gravel and 3 parts sand

ANS: C                      PTS: 1

215. Smoothing or finishing concrete is called:

- a. screeding
- b. troweling
- c. planing
- d. edging

ANS: B                      PTS: 1

216. Concrete has high \_\_\_\_\_ strength.

- a. compression
- b. tensile
- c. internal
- d. external

ANS: A                      PTS: 1

217. Concrete has low \_\_\_\_\_ strength.

- a. compression
- b. tensile
- c. internal
- d. external

ANS: B                      PTS: 1

218. A groove cut into concrete to allow for expansion due to temperature changes is called a/an:
- a. temperature groove
  - b. expansion gap
  - c. expansion joint
  - d. expansion groove

ANS: C                      PTS: 1

219. Which of the following would **not** increase the tensile strength of concrete?
- a. steel fibers
  - b. reinforcement bars
  - c. reinforcement wire
  - d. gravel

ANS: D                      PTS: 1

220. Which of the following increases the compression strength of concrete?
- a. steel fibers
  - b. reinforcement bars
  - c. reinforcement wire
  - d. gravel

ANS: D                      PTS: 1

221. The process of which concrete hardens by adding water is called:
- a. hardening
  - b. dehydration
  - c. dilution
  - d. hydration

ANS: D                      PTS: 1

222. \_\_\_\_\_ are used to attach roof plates or sills to masonry work.
- a. U bolts
  - b. Eye bolts
  - c. Anchor bolts
  - d. Long bolts

ANS: C                      PTS: 1

223. The narrow space between adjacent stones, bricks or blocks that is filled with mortar is called a:
- a. cement joint
  - b. mortar gap
  - c. mortar groove
  - d. mortar joint

ANS: D                      PTS: 1

224. A board about 3' square where mortar is placed and ready for the use of the bricklayer is called a:
- a. brickboard
  - b. mortarboard
  - c. mortar tray
  - d. squareboard

ANS: B                      PTS: 1

225. A temporary structure made of metal pipes or tubes that allows brick layers or construction workers to perform their jobs at certain heights is called a:
- a. scaffold
  - b. ladder
  - c. lift
  - d. construction platform

ANS: A                      PTS: 1

226. A square of shingles equals:
- a. 3 bundles
  - b. 5 bundles
  - c. 8 bundles
  - d. 10 bundles

ANS: A                      PTS: 1

227. The size of a standard asphalt shingle is:
- a. 12" x 24"
  - c. 10" x 24"



ANS: C                    PTS: 1

237. 1/4 section of land contains \_\_\_\_\_ acres.
- a. 40
  - b. 80
  - c. 640
  - d. 160

ANS: D                    PTS: 1

238. A township has \_\_\_\_\_ sections.
- a. 24
  - b. 36
  - c. 48
  - d. 64

ANS: B                    PTS: 1

239. A township has \_\_\_\_\_ acres.
- a. 10,000
  - b. 15,000
  - c. 23,040
  - d. 43,560

ANS: C                    PTS: 1

240. A township is:
- a. 10 sq. miles
  - b. 15 sq. miles
  - c. 30 sq. miles
  - d. 36 sq. miles

ANS: D                    PTS: 1

241. A section of land is:
- a. 1 sq. mile
  - b. 5 sq. miles
  - c. 10 sq. miles
  - d. 40 sq. miles

ANS: A                    PTS: 1

242. 1 mile is \_\_\_\_\_ feet.
- a. 5,000
  - b. 5,280
  - c. 640
  - d. 750

ANS: B                    PTS: 1

243. 1 rod is \_\_\_\_\_ feet.
- a. 16.5
  - b. 20
  - c. 25
  - d. 50

ANS: A                    PTS: 1

244. 1 chain is \_\_\_\_\_ feet
- a. 10
  - b. 40
  - c. 66
  - d. 70

ANS: C                    PTS: 1

245. 1 chain is \_\_\_\_\_ rods.
- a. 10
  - b. 8
  - c. 6
  - d. 4

ANS: D                    PTS: 1

246. 1 chain is \_\_\_\_\_ links.
- a. 25
  - b. 50
  - c. 100
  - d. 120

ANS: C                      PTS: 1

247. The main line in the rectangular survey system that runs east and west is called the:
- a. Base Line
  - b. Principal Meridian
  - c. Township Line
  - d. Range Line

ANS: A                      PTS: 1

248. The main line in the rectangular survey system that runs north and south is called the:
- a. Base Line
  - b. Principal Meridian
  - c. Township Line
  - d. Range Line

ANS: B                      PTS: 1

249. Lines in the rectangular survey system that run east and west every 6 miles is called:
- a. Base Lines
  - b. Principal Meridians
  - c. Township Lines
  - d. Range Lines

ANS: C                      PTS: 1

250. Lines in the rectangular survey system that run north and south every 6 miles is called:
- a. Base Lines
  - b. Principal Meridians
  - c. Township Lines
  - d. Range Lines

ANS: D                      PTS: 1