**Ag Mechanics CDE - General Ag 1**

**MULTIPLE CHOICE**

1. The practice of uniting metal parts by heating or compression is called

|  |  |  |  |
| --- | --- | --- | --- |
| a. | plumbing | c. | transforming |
| b. | welding | d. | direct current |

ANS: B PTS: 1

2. The metal to be joined or welded together is classified as the

|  |  |  |  |
| --- | --- | --- | --- |
| a. | standard metal | c. | base metal |
| b. | tack metal | d. | bead |

ANS: C PTS: 1

3. The discharge of electrictiy through an air space is called the

|  |  |  |  |
| --- | --- | --- | --- |
| a. | arc | c. | amperage |
| b. | gap | d. | electrode |

ANS: A PTS: 1

4. Flux coated metal welding rods are referred to as

|  |  |  |  |
| --- | --- | --- | --- |
| a. | flux | c. | electrodes |
| b. | beads | d. | sticks |

ANS: C PTS: 1

5. The external material on electrodes that remove impurities form the base metal is called

|  |  |  |  |
| --- | --- | --- | --- |
| a. | a shield | c. | slag |
| b. | flux | 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 | c. | puddle |
| b. | bead | d. | slag |

ANS: D PTS: 1

7. A small weld to hold base metals together temporarily is called a/an

|  |  |  |  |
| --- | --- | --- | --- |
| a. | tack weld | c. | temporary work load |
| b. | bead | 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 | c. | flame |
| b. | current | 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 | c. | filler metal |
| b. | base 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 | c. | compression strength |
| b. | psi | 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 | c. | American Welding Society |
| b. | Society of Amercian Welders | d. | National Metal Organization |

ANS: C PTS: 1

12. An arc welding process that uses flux coated rods is called

|  |  |  |  |
| --- | --- | --- | --- |
| a. | TIG welding | c. | MIG welding |
| b. | stick welding | d. | wire welding |

ANS: B PTS: 1

13. Another name for stick welding is

|  |  |  |  |
| --- | --- | --- | --- |
| a. | SMAW | c. | TIG |
| b. | MIG | d. | GMAW |

ANS: A PTS: 1

14. SMAW stands for

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Shielded Material Arc Welding | c. | Standard Metal Arc Welding |
| b. | Shielded 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 | c. | wire welding |
| b. | brazing | d. | stick welding |

ANS: C PTS: 1

16. Another name for wire welding is

|  |  |  |  |
| --- | --- | --- | --- |
| a. | MIG welding | c. | brazing |
| b. | TIG welding | d. | SMAW |

ANS: A PTS: 1

17. MIG stands for

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Material Inactive Gas | c. | Material Inverted Gas |
| b. | Metal Inert 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 | c. | SMAW |
| b. | MIG | d. | stick welding |

ANS: A PTS: 1

19. TIG stands for

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Teranium Inert Gas | c. | Teranium Inactive Gas |
| b. | Tungsten Inert Gas | d. | Tungsten Inverted Gas |

ANS: B PTS: 1

20. Both MIG and TIG welding can also be referred to as

|  |  |  |  |
| --- | --- | --- | --- |
| a. | GMAW | c. | WMAW |
| b. | SMAW | d. | CMAW |

ANS: A PTS: 1

21. GMAW stands for

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Gas Material Arc Welding | c. | Gas Material Advanced Welding |
| b. | Gas Metal 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 reffered to as

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Oxyacetylene | c. | Oxylene |
| b. | Acetygen | d. | OA welding |

ANS: A PTS: 1

23. Which of the following gases can serve as an alternative for acetylene?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | diesel fuel | c. | Argon |
| b. | propane | d. | CO2 |

ANS: B PTS: 1

24. Which of the following gases can serve as an alternative for acetylene?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | butane | c. | kerosene |
| b. | gasoline | d. | Argon |

ANS: A PTS: 1

25. Which of the following gases can serve as an alternative for acetylene?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | helium | c. | kerosene |
| b. | oxygen | d. | natural gas |

ANS: D PTS: 1

26. A welding process using the oxyacetylene rig is referred to as

|  |  |  |  |
| --- | --- | --- | --- |
| a. | branding | c. | brazing |
| b. | soldering | d. | TIG |

ANS: C PTS: 1

27. Tips used in oxyacetylene welding have how many holes in the end of them?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | one | c. | four |
| b. | two | 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. | c. | Tip size does not matter when brazing. |
| b. | 000 size tip is smaller than a size 10 tip | 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. | c. | The oxygen hose is green in color. |
| b. | The oxygen hose has fittings that are not notched. | 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. | c. | Acetylene is a fuel. |
| b. | Never operate acetylene pressure at 15 psi or more. | 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. | c. | The acetylene hose has fittings with left-handed threads. |
| b. | Stand in front of the gauges when opening the cylinders so you can see the amount of pressure. | 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 | c. | tinning |
| b. | welding | 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” | c. | “alter the flame” |
| b. | “control the flame” | d. | “play the flame” |

ANS: D PTS: 1

34. Acetylene is dangerous because it is

|  |  |  |  |
| --- | --- | --- | --- |
| a. | compressed | c. | explosive |
| b. | flammable | d. | all of the above |

ANS: D PTS: 1

35. Gas leaks on the oxyacetylene rig are checked with

|  |  |  |  |
| --- | --- | --- | --- |
| a. | compressed air | c. | soapy water |
| b. | a flame | d. | teflon |

ANS: C PTS: 1

36. Removing gas from oxyacetylene equipment is known as

|  |  |  |  |
| --- | --- | --- | --- |
| a. | bleeding the lines | c. | blowing out the lines |
| b. | gas removal | d. | fuel and air removal |

ANS: A PTS: 1

37. The acetylene cylinder valve is never opened more than

|  |  |  |  |
| --- | --- | --- | --- |
| a. | a half turn | c. | two turns |
| b. | one turn | 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 | c. | cylinder |
| b. | regulator | 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 | c. | carbonizing flame |
| b. | oxidizing flame | d. | neutral flame |

ANS: D PTS: 1

40. Welding helments worn for stick welding are required to have what number shaded lens?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | No. 5 | c. | No. 12 |
| b. | No. 10 | 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 | c. | No. 10 |
| b. | No. 8 | 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 | c. | current load |
| b. | life cycle | 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 | c. | 15 minutes |
| b. | 12 minutes | d. | 20 minutes |

ANS: B PTS: 1

44. Current that reserves its direction of flow frequently is referred to as

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Alternating current | c. | Recycled current |
| b. | Direct 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 | c. | Recycled current |
| b. | Direct 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 | c. | inverters |
| b. | recifiers | d. | converters |

ANS: A PTS: 1

47. The “E” in E6013 stands for what according to the Numerical Coding for Electrodes?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Energy | c. | Energizer |
| b. | Electric | 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 | c. | compression strength in hundreds of pounds per square inch |
| b. | tensile strength in thousands 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 | c. | welding current |
| b. | welding size | d. | welding position |

ANS: D PTS: 1

50. The “3” in E6013 represents what according to the Numerical Coding for Electrodes?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | welding material | c. | welding current |
| b. | welding size | d. | welding position |

ANS: C PTS: 1

51. Which of the following would **not** be considered a welding position?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | overhead | c. | horizontal |
| b. | flat | d. | lateral |

ANS: D PTS: 1

52. In the MIG welding process, gas pressure should be set at approximately

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 10-15 psi | c. | 40-50 psi |
| b. | 25-30 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 | c. | CO2 |
| b. | Argon | d. | Argon and CO2 mix |

ANS: A PTS: 1

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

|  |  |  |  |
| --- | --- | --- | --- |
| a. | argon | c. | acetylene |
| b. | CO2 | 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. | c. | A MIG welder is cheaper to purchase than a sticker welder. |
| b. | It does not have slag to be chipped off. | d. | There are no advantages. |

ANS: B PTS: 1

56. Most MIG welding equipment is

|  |  |  |  |
| --- | --- | --- | --- |
| a. | manual | c. | automatic |
| b. | robotic | d. | semiautomatic |

ANS: D PTS: 1

57. Which of the following is not a weld defect?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | undercut | c. | pits |
| b. | insufficient penetration | 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. | c. | A filler rod is normally used when welding especially on thicker metal. |
| b. | Gas pressure should be set at approximately 25-30 psi. | 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 | c. | It is faster than MIG |
| b. | Argon can be used as the shielding gas | 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 | c. | collet |
| b. | collet body | 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 | c. | Class C only |
| b. | Class B 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 | c. | fire blanket |
| b. | welding gas | 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 | c. | down and up method |
| b. | touching 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 | c. | scratch method |
| b. | start up 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 | c. | weave |
| b. | pass | 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 | c. | root pass |
| b. | initial pass | d. | base pass |

ANS: C PTS: 1

67. Another name for a fillet weld is called a/an

|  |  |  |  |
| --- | --- | --- | --- |
| a. | “T” weld | c. | “Lap” weld |
| b. | “Butt” 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 | c. | 30-45 degrees from the vertical position |
| b. | 60 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 | c. | welding experience |
| b. | the appearance of the bead | 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 | c. | eggs boiling |
| b. | bacon frying | 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. | booing | c. | soft |
| b. | scratching | 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. | c. | The electrode sticks to the metal. |
| b. | The welder will shut off. | 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. | c. | It will result in a wide bead. |
| b. | It will be difficult to strike the arc and keep it running. | 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. | c. | It will result in a narrow, stringy bead. |
| b. | The welder will shut off. | 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 | c. | neither a nor b |
| b. | the arc is very noisy | 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. | c. | The bead is wavy. |
| b. | The arc will not strike. | d. | The bead is narrow. |

ANS: A PTS: 1

77. A \_\_\_\_\_\_\_\_ bead is a bead that is made without weaving.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | stringer | c. | line |
| b. | flat | 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 | c. | crater |
| b. | puddle | 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 | c. | voids |
| b. | puddles | 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 | c. | galvanized |
| b. | stainless steel | d. | It doesn’t matter. |

ANS: C PTS: 1

81. The output of a welder is relatively

|  |  |  |  |
| --- | --- | --- | --- |
| a. | low voltage and high amperage | c. | high voltage and high amperage |
| b. | high voltage and low amperage | d. | low voltage and low amperage |

ANS: A PTS: 1

82. A chipping hammer is used to

|  |  |  |  |
| --- | --- | --- | --- |
| a. | prepare edges for welding | c. | temper beads |
| b. | remove scale from steel | d. | remove slag |

ANS: D PTS: 1

83. Which of the following would **not** be considered a safety item when welding.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | welding helmet | c. | welding gloves |
| b. | safety glasses | d. | spare electrodes |

ANS: D PTS: 1

84. The temperature of the electric welding arc is about

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 400 degrees F | c. | 1800 degrees F |
| b. | 840 degrees F | d. | 9000 degrees F |

ANS: D PTS: 1

85. Welding tables should be made of

|  |  |  |  |
| --- | --- | --- | --- |
| a. | concrete | c. | metal |
| b. | masonite | d. | wood |

ANS: C PTS: 1

86. Burning clothes on a human should be extinguished with

|  |  |  |  |
| --- | --- | --- | --- |
| a. | fire blanket | c. | sand |
| b. | fire extinguisher | d. | any of these |

ANS: A PTS: 1

87. Water in a welding area is useful for

|  |  |  |  |
| --- | --- | --- | --- |
| a. | receiving sparks from piercing | c. | cooling metal |
| b. | extinguishing fires | 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 | c. | E6013 |
| b. | E6011 | d. | E7018 |

ANS: B PTS: 1

89. For most welding in agricultural mechanics the best electrode size is

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 1/16 inch | c. | 3/16 inch |
| b. | 1/8 inch | d. | 1/4 inch |

ANS: B PTS: 1

90. The correct arc length when welding is approximately

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 1/8 inch | c. | 3/8 inch |
| b. | 1/4 inch | d. | 1/2 inch |

ANS: A PTS: 1

91. When welding, the operator sees by

|  |  |  |  |
| --- | --- | --- | --- |
| a. | daylight | c. | light from the arc |
| b. | flourescent light | d. | all of the above |

ANS: C PTS: 1

92. The appearance and strength of a bead are influenced by

|  |  |  |  |
| --- | --- | --- | --- |
| a. | amps | c. | speed |
| b. | angle | 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 | c. | J |
| b. | figure eight | d. | T |

ANS: A PTS: 1

94. In metal, the most rapid movement of heat is

|  |  |  |  |
| --- | --- | --- | --- |
| a. | down | c. | horizontal |
| b. | up | d. | equal in all directions |

ANS: B PTS: 1

95. To make a hole with an electrode is called

|  |  |  |  |
| --- | --- | --- | --- |
| a. | cutting | c. | piercing |
| b. | electroding | d. | brazing |

ANS: C PTS: 1

96. The best amperage setting for cutting with a stick welder is \_\_\_\_\_ higher than for welding.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 25 % | c. | 75 % |
| b. | 50 % | d. | 100 % |

ANS: B PTS: 1

97. Which of the following welds is the most difficult to make.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | flat | c. | vertical down |
| b. | horizontal | d. | vertical up |

ANS: D PTS: 1

98. Joining parts by melting them together is known as

|  |  |  |  |
| --- | --- | --- | --- |
| a. | oxidation | c. | fusion welding |
| b. | carbonizing | 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 | c. | welder clamp |
| b. | ground clamp | d. | positive clamp |

ANS: B PTS: 1

100. How many cables does a welder have?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 1 | c. | 3 |
| b. | 2 | d. | 4 |

ANS: B PTS: 1

101. What is the correct order of the strokes in a 4-stroke cycle engine?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | intake, exhaust, compression and power | c. | intake, compression, power and exhaust |
| b. | compression, power, exhaust and intake | d. | intake, power, compression and exhaust |

ANS: C PTS: 1

102. On the \_\_\_\_\_\_\_\_\_\_ stroke of an engine, the piston is going down, one valve is open and the other valve is closed and air and fuel are being drawn into the cylinder.

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

ANS: A PTS: 1

103. On the \_\_\_\_\_\_\_\_\_\_ stroke of an engine, the piston is going up, one valve is open and the other valve is closed and the fumes are leaving the cylinder.

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

ANS: B PTS: 1

104. On which two strokes are both valves closed?

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

ANS: B PTS: 1

105. The intake valve is cooled by:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | incoming air/fuel mixture | c. | radiator |
| b. | air circulation | d. | oil |

ANS: A PTS: 1

106. The exhaust valve is difficult to cool because of:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | the spark plug being placed directly above it | c. | hot water surrounding it |
| b. | incoming fuel mixture | d. | high temperature exhaust gases |

ANS: D PTS: 1

107. The exhaust valve is made of:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | a very special steel | c. | brass |
| b. | copper | d. | carbide |

ANS: A PTS: 1

108. A single cylinder Briggs and Stratton engine has:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 1 valve | c. | 2 valves |
| b. | 4 valves | d. | 3 valves |

ANS: C PTS: 1

109. Valves have a direct effect on:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | compression | c. | compression ratio |
| 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 | c. | idle high |
| b. | stop | d. | back fire |

ANS: B PTS: 1

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

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 30 degrees | c. | 50 degrees |
| b. | 60 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 | c. | 90 degrees |
| b. | 46 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 | c. | 60 degrees |
| b. | 31 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 | c. | 1/2 of a second |
| b. | 1/10 of a second | d. | 1 second |

ANS: A PTS: 1

115. Valve tappet clearance is measured by using a:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | rule | c. | feeler gauge |
| b. | micrometer | 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 | c. | power |
| b. | compression | 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. | c. | grinding on the end of the valve stem. |
| b. | grinding on the valve head. | 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 | c. | lapping the valve |
| b. | recutting the seat | 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 | c. | grinding on the end of the valve stem |
| b. | using a wrench and turning the adjusting nut | 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 | c. | rocker arm |
| b. | lifter | d. | push rod |

ANS: C PTS: 1

121. Too little valve clearance can cause:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | valve burning | c. | a rich fuel mixture |
| b. | a dished valve | d. | a higher compression ratio |

ANS: A PTS: 1

122. Which of the following is **not** a part of a valve:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | head | c. | face |
| b. | margin | d. | tail |

ANS: D PTS: 1

123. Which of the following **is** a part of a valve?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | lobe | c. | leg |
| b. | stem | d. | tail |

ANS: B PTS: 1

124. The valve with the biggest size head is the:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | intake valve | c. | compression valve |
| b. | exhaust valve | d. | they are all the same size |

ANS: A PTS: 1

125. Valve springs must be replaced if they:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | are bent | c. | do not meet tension specifications |
| b. | are not square | d. | all of the above |

ANS: D PTS: 1

126. The camshaft opens and closes the:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | intake valve | c. | intake and exhaust valves |
| b. | exhaust valve | d. | reed valves |

ANS: C PTS: 1

127. The thickness of the margin on a new Briggs & Stratton valve is:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 1/64” | c. | 1/16” |
| b. | 1/32” | d. | 1/8” |

ANS: B PTS: 1

128. Briggs & Stratton recommends that valves be replaced when the margin measures less than \_\_\_\_\_\_\_\_\_\_.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 3/64” | c. | 1/32” |
| b. | 1/16” | d. | 1/64” |

ANS: D PTS: 1

129. What causes valves to stick?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | gum accumulation | c. | wrong viscosity of oil |
| b. | old 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 | c. | seating |
| b. | boring | d. | lapping |

ANS: D PTS: 1

131. Valve overlap is when both valves are:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | closed | c. | both a and b |
| b. | open | 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 | c. | valve guide |
| b. | valve passage | 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 | c. | valve tappet |
| b. | valve spring | d. | valve push rod |

ANS: B PTS: 1

134. Which of the following is **not** a part of the valve system?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | keeper | c. | spring |
| b. | retainer | d. | ring |

ANS: D PTS: 1

135. What is another name for a valve tappet?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | valve lifter | c. | valve shaft |
| b. | valve lobe | d. | valve pin |

ANS: A PTS: 1

136. What pushes against the valve tappets to make them move?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | cam gear | c. | crankshaft |
| b. | cam lobes | 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 | c. | straight valve |
| b. | overhead cam | 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 | c. | straight valve |
| b. | overhead cam | d. | L-head |

ANS: A PTS: 1

139. When referring to a type of engine, OHV stands for:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | overhead vertical | c. | outside horizontal valve |
| b. | overhead 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 | c. | valve stems |
| b. | pushrods | d. | valve levers |

ANS: B PTS: 1

141. In an overhead valve configuration, where are the rocker arms installed?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | in the block | c. | in the cylinder head |
| b. | to the crankshaft | 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 | c. | valve stem |
| b. | crankshaft | d. | valve head |

ANS: C PTS: 1

143. The overhead valve design as comapared to the L-head design can increase fuel efficiency by as much as \_\_\_\_\_\_\_\_.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 5% | c. | 25% |
| b. | 10% | 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 | c. | valve springs |
| b. | valves | 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. | eqaulize atmospheric pressure | c. | regulate the amount of fuel entering the engine |
| b. | clean the air 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 | c. | 20:1 |
| b. | 15:1 | 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 | c. | spring |
| b. | diaphragm | d. | float |

ANS: B PTS: 1

149. Which part of the carburetor controls engine speed?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | throttle | c. | choke |
| b. | venturi | d. | float |

ANS: A PTS: 1

150. Gum deposits which clog the carburetor and other fuel system parts are caused by:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | overheating | c. | inadequate operating speeds |
| b. | stale gasoline | 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 | c. | improper set ignition points |
| b. | an improperly installed breather | 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 | c. | suction feed |
| b. | float 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 | c. | decrease air speed/increase pressure |
| b. | increase 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 | c. | decreases, is reduced |
| b. | increases, increases | d. | decreases, decreases |

ANS: A PTS: 1

155. The air-fuel mixture is forced into the intake manifold by \_\_\_\_\_\_\_\_\_\_\_\_.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | increased pressure | c. | atmospheric pressure |
| b. | throttle acceleration | d. | emulsion tubes |

ANS: C PTS: 1

156. The purpose of the carburetor float is to:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | increase pressure | c. | maintain a constant level of fuel in the float bowl |
| b. | keep a tight seal in the carburetor | d. | decrease pressure in the venturi |

ANS: C PTS: 1

157. The needle valve in the carburetor float bowl has a needle point that can be of which two types?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | neoprene or stainless steel | c. | plastic or brass |
| b. | neoprene or brass | d. | plastic or stainless steel |

ANS: B PTS: 1

158. The carburetor float can be made of which two types?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | neoprene or stainless steel | c. | plastic or brass |
| b. | neoprene or brass | d. | plastic or stainless steel |

ANS: C PTS: 1

159. A round disc mounted on a shaft located at the intake end of the carburetor is called a:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | throttle | c. | choke |
| b. | filter | d. | venturi |

ANS: C PTS: 1

160. A round disc mounted on a shaft in a carburetor that is located beyond the main fuel nozzle is called a/an:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | throttle | c. | choke |
| b. | adjusting needle | d. | venturi |

ANS: A PTS: 1

161. Which part of the carburetor is responsible for regulating the amount of air-fuel mixture entering the combustion chamber?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | float | c. | choke |
| b. | venturi | d. | throttle |

ANS: D PTS: 1

162. When the choke on a carburetor is closed it provides:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | a lean air-fuel mixture | c. | more air flow |
| b. | a rich air-fuel mixture | d. | a smoother running engine |

ANS: B PTS: 1

163. The purpose of a choke on a carburetor is:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | to provide more air for the engine. | c. | to increase the life of the engine. |
| b. | to make it run at higher rpm’s. | d. | to make it easier to crank a cold engine. |

ANS: D PTS: 1

164. Carburetors that are nonadjustable are equipped with a \_\_\_\_\_ jet.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | narrow | c. | wide |
| b. | fixed | d. | closed |

ANS: B PTS: 1

165. On carburetors that have adjustments, the initial carburetor adjustment of the needle valve adjusting screw should be:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | closed and not adjusted again | c. | open 1 1/2 turns |
| b. | open all the way | d. | it doesn’t matter |

ANS: C PTS: 1

166. The \_\_\_\_\_\_\_\_\_\_ is a hand-operated plunger, which, when depressed, forces additional fuel through the main nozzle prior to starting a cold engine.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | diaphragm | c. | breather |
| b. | welch plug | d. | primer |

ANS: D PTS: 1

167. When the load on the engine increases, the \_\_\_\_\_\_\_\_\_\_ automatically opens the throttle valve to allow more air-fuel mixture to enter the engine.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | carburetor | c. | choke |
| b. | breather | d. | governor |

ANS: D PTS: 1

168. The purpose of a small engine’s governor is to prevent:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | variations of low idle speeds | c. | overspeeding and underspeeding |
| b. | increasing power output under load | d. | overloading and flooding |

ANS: C PTS: 1

169. Most governors on Briggs & Stratton engines are of two types:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | mechanical and flyweight type | c. | air vane and pneumatic |
| b. | mechanical and centrifugal type | d. | mechanical and pneumatic |

ANS: D PTS: 1

170. Which type governor works off of centrifugal force?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | mechanical | c. | pneumatic |
| b. | air vaned | d. | diaphragm |

ANS: A PTS: 1

171. Which type governor works off of flyweights?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | mechanical | c. | pneumatic |
| b. | air vaned | d. | diaphragm |

ANS: A PTS: 1

172. Which type governor has a movable air vane that moves based upon the air pressure around the spinning flywheel?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | mechanical | c. | pneumatic |
| b. | flyweight type | 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 | c. | tappet |
| b. | coil | 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 | c. | flyweights |
| b. | spring | 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 | c. | 100 hours of operation |
| b. | 50 hours of operation | d. | week |

ANS: A PTS: 1

176. A foam air cleaner should be cleaned using:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | kerosene | c. | gasoline |
| b. | liquid detergent and water | d. | either a or b |

ANS: D PTS: 1

177. A dual element filter has a \_\_\_\_\_\_\_\_ type filter as the pre-cleaner.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | neoprene | c. | paper |
| b. | foam | d. | cartridge |

ANS: B PTS: 1

178. Single element \_\_\_\_\_\_\_\_ filters should be oiled to help catch dust particles better.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | neoprene | c. | paper |
| b. | foam | d. | cartridge |

ANS: B PTS: 1

179. Paper air filter cartridges should be cleaned by:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | washing in liquid detergent and water | c. | tapping lightly on a hard surface |
| b. | washing in kerosene | 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 | c. | get a better flow of fuel to the cylinder |
| b. | make the flywheel turn faster | 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” | c. | .04” |
| b. | .03” | d. | it doesn’t matter |

ANS: B PTS: 1

182. When measuring the spark plug gap, a \_\_\_\_\_\_\_\_\_\_ should be used.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | flat feeler gauge | c. | vernier caliper |
| b. | wire or round feeler gauge | 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 | c. | 3600 |
| b. | 1800 | d. | 7200 |

ANS: B PTS: 1

184. Oil viscosity is a measure of:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | the ability to flow quickly | c. | the resistance to flow |
| b. | the detergents | d. | the type of service |

ANS: C PTS: 1

185. Which of the following grades of oil is the thickest?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | SAE 5W-20 | c. | SAE 10W-30 |
| b. | SAE 5W-30 | d. | SAE 10W-40 |

ANS: D PTS: 1

186. Most small engine manufacturers recommend \_\_\_\_\_\_\_\_\_\_ for temperatures **above** 40 degrees.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | SAE 20 | c. | SAE 5W-20 |
| b. | SAE 30 | d. | SAE 5W-30 |

ANS: B PTS: 1

187. Most small engine manufacturers recommend \_\_\_\_\_\_\_\_\_\_ for temperatures **below** 40 degrees.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | SAE 0W-40 | c. | SAE 10W-40 |
| b. | SAE 5W-40 | d. | SAE 5W-30 |

ANS: D PTS: 1

188. SAE stands for:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Service Automotive Engines | c. | Society of American Engineers |
| b. | Service American Engines | d. | Society of Automotive Engineers |

ANS: D PTS: 1

189. API stands for:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | American Part Institute | c. | American Petroleum Institute |
| b. | Automotive Part Institute | d. | Automotive Petroleum Institute |

ANS: C PTS: 1

190. The “W” in 10W-30 stands for:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | winter | c. | way |
| b. | weight | d. | weather |

ANS: A PTS: 1

191. Which of the following would **not** be found in the crankcase?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | oil | c. | camshaft |
| b. | breather | d. | connecting rod |

ANS: B PTS: 1

192. The camshaft opens and closes the:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | intake valve | c. | reed valve |
| b. | exhaust 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 | c. | lobes |
| b. | lifters | d. | gears |

ANS: C PTS: 1

194. The camshaft has \_\_\_\_\_ lobes.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 2 | c. | 4 |
| b. | 3 | d. | 5 |

ANS: A PTS: 1

195. The camshaft is driven by a \_\_\_\_\_\_\_\_\_\_ on the crankshaft.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | lobe | c. | spring |
| b. | gear | 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 | c. | teeth |
| b. | a keyway | d. | timing marks |

ANS: D PTS: 1

197. The camshaft gear is \_\_\_\_\_\_\_\_ as large as the crankshaft gear.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 4 times | c. | 2.5 times |
| b. | 3 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 | c. | 1 1/2 |
| b. | 1 | d. | 2 |

ANS: A PTS: 1

199. How many revolutions does a crankshaft make to each power stroke of the engine?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 1 | c. | 3 |
| b. | 2 | d. | 4 |

ANS: B PTS: 1

200. Counterweights are designed into the crankshaft to provide:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | more power | c. | engine balancing |
| b. | increased engine speed | 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 | c. | threshold |
| b. | footing | d. | concrete base |

ANS: B PTS: 1

202. The purpose of screeding concrete is to:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | have a perfectly smooth finish | c. | level the surface by removing excess concrete |
| b. | leave a texture | 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 | c. | mortar |
| b. | cement | d. | grout |

ANS: A PTS: 1

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

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

ANS: C PTS: 1

205. A sack of cement contains:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 1/2 cubic foot | c. | 1 1/2 cubic feet |
| b. | 1 cubic foot | 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 | c. | Limestone cement |
| b. | American cement | d. | Bentonite cement |

ANS: A PTS: 1

207. A sack of cement weighs:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 50 lbs. | c. | 94 lbs. |
| b. | 75 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” | c. | 6” x 6” x 16” |
| b. | 8” x 8” x 12” | d. | 8” x 8” x 16” |

ANS: D PTS: 1

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

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

ANS: A PTS: 1

210. When laying a concrete block wall start at:

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

ANS: C PTS: 1

211. Each row of concrete blocks is called a:

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

ANS: D PTS: 1

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

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

ANS: C PTS: 1

213. The footing should be placed:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | below the frost line | c. | on the frost line |
| b. | above 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 | c. | one part cement, two parts sand and 3 parts gravel |
| b. | one part gravel, two parts sand and 3 parts cement | d. | one part cement, two parts gravel and 3 parts sand |

ANS: C PTS: 1

215. Smoothing or finishing concrete is called:

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

ANS: B PTS: 1

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

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

ANS: A PTS: 1

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

|  |  |  |  |
| --- | --- | --- | --- |
| a. | compression | c. | internal |
| b. | tensile | 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 | c. | expansion joint |
| b. | expansion gap | d. | expansion groove |

ANS: C PTS: 1

219. Which of the following would **not** increase the tensile strength of concrete?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | steel fibers | c. | reinforcement wire |
| b. | reinforcement bars | d. | gravel |

ANS: D PTS: 1

220. Which of the following increases the compression strength of concrete?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | steel fibers | c. | reinforcement wire |
| b. | reinforcement bars | d. | gravel |

ANS: D PTS: 1

221. The process of which concrete hardens by adding water is called:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | hardening | c. | dilution |
| b. | dehydration | d. | hydration |

ANS: D PTS: 1

222. \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_ are used to attach roof plates or sills to masonry work.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | U bolts | c. | Anchor bolts |
| b. | Eye 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 | c. | mortar groove |
| b. | mortar gap | 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 | c. | mortar tray |
| b. | mortarboard | 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 | c. | lift |
| b. | ladder | d. | construction platform |

ANS: A PTS: 1

226. A square of shingles equals:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 3 bundles | c. | 8 bundles |
| b. | 5 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” |
| b. | 12” x 36” | d. | 10” x 36” |

ANS: B PTS: 1

228. How many tabs does a standard asphalt shingle have?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 1 | c. | 3 |
| b. | 2 | d. | 4 |

ANS: C PTS: 1

229. How many nails are recommended to be put in a standard asphalt shingle in low wind areas?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 3 | c. | 6 |
| b. | 4 | d. | 8 |

ANS: B PTS: 1

230. How many nails are recommended to be put in a standard asphalt shingle in high wind areas?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 3 | c. | 6 |
| b. | 4 | d. | 8 |

ANS: C PTS: 1

231. How many inches of shingle should be exposed on the first row of shingles?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 2 | c. | 4 |
| b. | 5 | d. | 3 |

ANS: D PTS: 1

232. How many inches of shingle should be exposed on each row after the first one?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 2 | c. | 4 |
| b. | 5 | d. | 3 |

ANS: B PTS: 1

233. What is the name of the material that is used to back up the first course of shingles and fill in the space between the tabs?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | starter strip | c. | fill-in strip |
| b. | backing strip | d. | weather proof strip |

ANS: A PTS: 1

234. Instead of using the standard material that is made to back up the first course of shingles that fills in the space between the tabs, what else could be used?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | flashing | c. | inverted shingle |
| b. | a shingle turned the normal direction | d. | ridge cap |

ANS: C PTS: 1

235. What must be used under shingles for underlayment?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | felt | c. | roll roofing |
| b. | tar | d. | metal flashing |

ANS: A PTS: 1

236. A section of land contains \_\_\_\_\_ acres.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 40 | c. | 640 |
| b. | 80 | d. | 160 |

ANS: C PTS: 1

237. 1/4 section of land contains \_\_\_\_\_ acres.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 40 | c. | 640 |
| b. | 80 | d. | 160 |

ANS: D PTS: 1

238. A township has \_\_\_\_\_ sections.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 24 | c. | 48 |
| b. | 36 | d. | 64 |

ANS: B PTS: 1

239. A township has \_\_\_\_\_ acres.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 10,000 | c. | 23,040 |
| b. | 15,000 | d. | 43,560 |

ANS: C PTS: 1

240. A township is:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 10 sq. miles | c. | 30 sq. miles |
| b. | 15 sq. miles | d. | 36 sq. miles |

ANS: D PTS: 1

241. A section of land is:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 1 sq. mile | c. | 10 sq. miles |
| b. | 5 sq. miles | d. | 40 sq. miles |

ANS: A PTS: 1

242. 1 mile is \_\_\_\_\_ feet.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 5,000 | c. | 640 |
| b. | 5,280 | d. | 750 |

ANS: B PTS: 1

243. 1 rod is \_\_\_\_\_ feet.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 16.5 | c. | 25 |
| b. | 20 | d. | 50 |

ANS: A PTS: 1

244. 1 chain is \_\_\_\_\_ feet

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 10 | c. | 66 |
| b. | 40 | d. | 70 |

ANS: C PTS: 1

245. 1 chain is \_\_\_\_\_ rods.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 10 | c. | 6 |
| b. | 8 | d. | 4 |

ANS: D PTS: 1

246. 1 chain is \_\_\_\_\_ links.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 25 | c. | 100 |
| b. | 50 | 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 | c. | Township Line |
| b. | Principal Meridian | 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 | c. | Township Line |
| b. | Principal Meridian | 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 | c. | Township Lines |
| b. | Principal Meridians | 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 | c. | Township Lines |
| b. | Principal Meridians | d. | Range Lines |

ANS: D PTS: 1