Machine Trades Final Exam

DO NOT WRITE ON THIS TEST -- USE THE SCANTRON SHEETS

1. A drill press removes metal through the use of _____.
   spiral flutes pulling the tool into the work

2. Henry Maudslay designed and constructed _____.
   the first lathe capable of cutting accurate screw threads
   the granddaddy of all modern chip-making machine tools
   a slide rest that allowed the cutting tool to be accurately repositioned

3. Jobs such as tool and die makers and precision machining require aptitudes comparable to those of _____.
   college graduates

4. Eli Whitney's system of mass-producing muskets had a major problem because there _____.
   was no standard of measurement

5. Band machining makes use of a _____.
   continuous saw blade

6. Safety glasses should be worn _____.
   the entire time you are in the shop

7. Approved eye protection should be worn _____.
   at all times when in the shop

8. Why should oily rags be placed in an approved safety container?
   It will prevent rags with metal slivers embedded in them from being used again.

9. Avoid using compressed air to clean chips from machine tools because _____.
   it can create a dangerous environmental situation
   flying chips may cause eye injuries
   it could create a dangerous mist that might be injurious to your health

10. Before attempting to operate a machine tool, you should _____.
    be sure all guards are in place
    have received instructions in its safe operation
    determine that the machine is in safe operating condition

11. Fire extinguishers identified by a blue circle are for extinguishing _____.
    Class C fires
12. Fire extinguishers identified by a red square are for extinguishing _____.
   Class B fires

13. Fire extinguishers identified with a yellow star are for extinguishing _____.
   Class D fires

14. Fire extinguishers identified by a green triangle are for extinguishing _____.
   Class A fires

15. When machining magnesium, it is important to remember that _____.
    applying water will intensify burning magnesium chips
    magnesium chips will burn with great intensity
    the material should be handled with care

16. Drawings are used to _____.
    show what to make and the sizes to make it

17. The symbols, lines, and figures that make up a drawing are frequently called the _____.
    the language of industry

18. Tolerances are _____.
    allowances in either oversize or undersize that a part can be made and still be acceptable

19. A subassembly drawing differs from an assembly drawing by _____.
    showing only a small portion of the complete object

20. When a tolerance is plus and minus it is called a _____ tolerance.
    bilateral

21. When a tolerance is plus or minus it is called a _____ tolerance.
    unilateral
22. The machinist is given all of the information needed to make a part on a _____.
   scale drawing
detail drawing
geometric dimensioning and tolerancing drawing

23. A basic dimension is _____.
a numerical value denoting the exact size, profile, orientation, or location of a feature or datum

24. Actual size is a _____.
dimension used for information only
general term applied to the physical portion of a part
numerical value denoting exact size, profile, orientation, or location of a feature or datum

25. A datum is _____.
an exact point, axis, or plane

26. Micrometer depth gage graduations _____.
must be read under the thimble
indicate the measurement of depths of holes, slots, and projections
are in reverse order of the graduations on an outside micrometer

27. A Vernier caliper has the following advantage(s) over a micrometer. It _____.
is easier to use
can make both internal and external measurements
is capable of making a range of measurements that would require several sizes of micrometers

28. The dial caliper is a _____.
direct reading measuring tool

29. The universal bevel protractor can measure angles accurately to _____.
1/12 or 5 minutes of a degree

30. Plug gages are used to check whether _____.
hole diameters are within specified tolerances

31. Gage or Jo blocks are used widely _____.
to check and verify the accuracy of master gages
as working gages for toolroom work
to set up work for machining where extreme accuracy is required

32. Dial indicators can be used for _____.
centering and aligning work on machine tools
checking for eccentricity
visual inspection
33. Layout lines are employed to _____.
   provide the machinist with guide lines
   show the machinist where to machine
   eliminate or reduce the possibility of machining incorrectly

34. Circles and arcs are drawn on a layout with a _____.
   divider

35. Large circles and arcs are drawn on a layout with a _____.
   trammel

36. Angular lines that must be very accurate can be made with a _____.
   universal bevel protractor

37. A combination set can be used to _____.
   check or layout angular surfaces
   locate the center of round stock
   check the squareness of work surfaces

38. A good layout is determined by its _____.
   neatness
   accuracy
   legibility

39. A surface gage can be used to _____.
   check whether a part's surface is parallel with given surface

40. The center of round stock can be found using a combination set _____.
   centering device and rule

41. A _____ is practical for many jobs because the sliding blade is adjustable and
   interchangeable with other blades.
   double square
42. A vise should be mounted far enough out on the bench edge to _____.
   permit clamping long work in a vertical position

43. A toolmaker's vise can _____.
   be rotated to any desired position
   be tilted to any desired position
   hold small precision parts

44. When using an adjustable wrench, _____.
   adjust the jaws to fit snugly on the fastener
   the movable jaw should face the direction the fastener is rotated
   use the smallest wrench that will fit the fastener

45. A pipe wrench will grip round work, however, _____.
   the jaws will mar the work

46. When sawing, three or more teeth should be cutting at all times; otherwise, _____.
   the teeth will straddle the section being cut and snap off

47. Reaming is an operation that will produce a hole that is _____.
   smooth and accurate

48. Metric and Unified National thread series are _____.
   not interchangeable

49. The hole to be tapped must be _____.
   Remember: Diameter – Pitch = 75% thread depth… None of the above.

50. When cutting threads with a die, stock diameter should be _____ the desired thread size.
   the same size as

51. _____ is a natural abrasive.

Emery
52. Of the manufactured abrasives, aluminum oxide has replaced emery as an abrasive.

53. A twist drill works by rotating against the material with sufficient pressure to cause penetration.

54. The spiral grooves in a drill body are used to help form the cutting edge of the drill point, curl chips for easier removal, form channels through which the chips can escape from the hole.

55. Cutting fluids are used to cool the drill, improve the finish of the drilled hole, aid in the removal of chips.

56. When the cutting lips of a drill are uneven in length, the drill will drill a hole larger than the drill.

57. The depth of a drilled hole is measured from the work surface to the depth of the full diameter of the hole.

58. Large drills require considerable power and pressure for cutting to start. This problem can be minimized by first drilling a pilot hole.

59. Serious injury can result when work spins on a drill (merry-go-round). It can be prevented by bolting the metal to the worktable, mounting the metal in a vise bolted to the worktable, clamping the metal to the worktable.

60. Countersinking is a machining operation that prepares the hole to receive a flat head screw.

61. Counterboring is a machining operation that prepares a hole to receive a socket or fillister head screw.

62. Spotfacing is a machining operation that machines a circular spot on a rough surface for a bolt head or nut.

63. Portable magnetic drills can be positioned in a(n) position when drilling. vertical horizontal upright

64. _____ are designed to handle very large drilling work.

Radial drill presses
65. Cutting compounds _____.
   improve hole finish
   cool the cutting tool
   aid in the rapid removal of chips from the hole

66. The lathe operates on the principle _____.
    of the work revolving against the controllable cutting tool

67. Lathe size is determined by the _____.
    swing and length of the bed

68. The swing of a lathe indicates the largest _____.
    diameter work that can be turned over the ways

69. A _____ chuck can hold irregular shape work as each jaw has individual movement.
    4-jaw independent

70. Round and hexagonal stock will center automatically in a 3-jaw universal chuck because _____.
    the jaws move simultaneously

71. The jaws on a 3-jaw universal chuck _____.
    cannot be reversed to hold larger diameter work

72. The jaws on a 4-jaw independent chuck _____ to hold larger diameter work.
    can be reversed

73. Collets can _____.
    center work automatically
    maintain accuracy over long periods of hard usage
    be expensive because a different size collet is needed for each different size or stock shape

74. Parting is the operation of _____.
    cutting off material after it has been machined

75. Never attempt to part stock that is held _____.
    mounted between centers
76. A milling machine _____.
is capable of machining flat and contoured surfaces
rotates a multitoothed cutter into the workpiece to remove material
is capable of machining threads, gears, and spirals

77. Treat all small cuts and skin punctures as potential sources of infection and _____.
have such injuries treated promptly
clean them thoroughly
report such injuries to your instructor

78. Rapid traverse feed on a milling machine provides _____.
fast power table movement in any direction of feed engagement

79. The term HAND is used with end mills to describe _____.
cutter rotation and helix of the flutes

80. The Woodruff key seat cutter is used to mill _____.
A. the bottom of T-slots  B. semicircular keyseats
C. dovetail-type ways  D. All of the above.

81. With conventional or up-milling, the work _____.
is fed into the rotating cutter

82. With climb or down-milling, the work _____.
moves in the same direction as cutter rotation

83. Climb milling should not be performed on machines _____.
without play in the table
that are not in top condition
not fitted with an antibacklash device

84. Milling cutting speed refers to the _____.
distance a tooth on the cutter circumference moves in one minute

85. Milling feed is the _____.
rate at which work moves into the cutter

86. In general, cutting speed is reduced for _____.
hard or abrasive materials

87. Cutting speed is increased for _____.
soft materials  better finishes
light cuts
88. The swivel vise _____.
can be locked at any angle to the spindle

89. The ideal grinding wheel will wear away _____.
as the abrasive particles become dull

90. A grinding wheel will not cut efficiently if it is _____.
    loaded
    glazed
    out-of-round

91. A magnetic chuck should be "ground-in" _____.
each time the chuck is remounted on the machine
to assure its surface is true and parallel to table travel
to true up the chuck after extensive use

92. Burning or surface checks may be the result of _____.
too little coolant reaching the area being ground
a grinding wheel that is too hard
a grinding wheel grain that is too fine

93. On a manually-operated surface grinder, the _____ handwheel controls up-and-down
    adjustment of the grinding wheel.

downfeed

94. On a manually-operated surface grinder, the _____ handwheel controls the left-and-right
    movement of the table.

traverse

95. On a manually-operated surface grinder, the _____ handwheel controls the in-and-out
    motion of the table.

    cross-feed
96. Metals are annealed to _____.
    reduce their hardness

97. Tempering hardened steel _____.
    reduces its brittleness

98. Case hardening low carbon steel produces _____.
    a hard shell on the outer surface

99. With incremental tool positioning _____.
    each tool movement is made with reference to the last tool position

100. When absolute tool positioning is used _____.
    a mistake in dimensioning an individual point does not affect remaining dimensions
    all tool movement is measured from a fixed point or origin
    it is easier to check for errors