

**014/2024**

Maximum : 100 marks

Time : 1 hour and 30 minutes

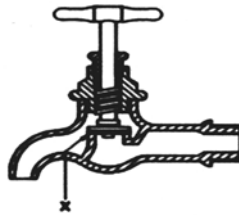
1. Which safety sign is white symbol on blue background?  
(A) Mandatory sign (B) Prohibition sign  
(C) Warning sign (D) Information sign
2. Toxic Hazard is a :  
(A) Physical Hazard (B) Chemical Hazard  
(C) Biological Hazard (D) Ergonomic Hazard
3. PPE stands for :  
(A) Person Place and Environment (B) Person Production and environment  
(C) Personal Protective Equipment (D) Production Planning and Equipment
4. The point angle of center punch is :  
(A) 45 degree (B) 30 degree  
(C) 60 degree (D) 90 degree
5. The middle portion of the hammer head where the weight of the hammer is stamped :  
(A) Eye hole (B) Pein  
(C) Cheek (D) Wedge
6. The accuracy of try square is :  
(A) 0.02 mm per 10 mm length (B) 0.01 mm per 10 mm length  
(C) 0.002 mm per 10 mm length (D) 0.001 mm per 10 mm length
7. The protective metal ring to prevent cracking the, handle of a file :  
(A) Tang (B) Ferrule  
(C) Shoulder (D) Heel
8. Which statement is true in case of safe edge file?  
(A) One third of edge is taper towards the point  
(B) One fourth of edge is taper towards the point  
(C) Two third of edge is taper towards the point  
(D) The edges along the width are parallel throughout the length
9. These are not used for cutting new threads, used for chasing or reconditioning the damaged threads :  
(A) Half die (B) Button Die  
(C) Adjustable screw plate die (D) Die Nut

10. The Chisel used to cut curved grooves (Oil grooves) :
- (A) Half-round nose chisel (B) Diamond point chisel  
(C) Web chisel (D) Cross-cut Chisel
11. The fine adjustment screw of universal surface gauge is fixed on :
- (A) Base Plate (B) Guide Pin  
(C) Rocker Arm (D) Spindle
12. The pitch of threaded spindle of Metric outside micrometer is :
- (A) 0.25 mm (B) 0.5 mm  
(C) 1 mm (D) 1.5 mm
13. The chisel will slip when :
- (A) The clearance angle is too low or zero (B) The clearance angle is 90 degree  
(C) The rake angle is too low or zero (D) The rake angle become 90 degree
14. The drill type used for general purpose drilling work is :
- (A) Type E (B) Type N  
(C) Type H (D) Type S
15. The Accuracy of Vernier Bevel Protractor is :
- (A) 0.01 minute (B) 0.5 minute  
(C) 5 minute (D) 0.1 minute
16. Which instrument you will prefer to measure a dimension of 20.21 mm?
- (A) Vernier Caliper (B) Micrometer  
(C) Dial Caliper (D) Vernier Bevel protractor
17. Fusibility is a :
- (A) Mechanical Property (B) Physical Property  
(C) Chemical Property (D) Magnetic Property
18. The ability of metal to withstand scratching, wear, abrasion and penetration :
- (A) Ductility (B) Toughness  
(C) Hardness (D) Tenacity
19. Pig Iron is produced in :
- (A) Cupola Furnace (B) Puddling Furnace  
(C) Open-hearth Furnace (D) Blast Furnace
20. The percentage of carbon content in Mild steel is :
- (A) Less than 0.1 (B) 0.1 to 0.15  
(C) 0.15 to 0.3 (D) 0.3 to 0.8

21. Sudden quenching for heat treatment, which medium is suitable?  
 (A) Caustic soda in water (B) Oil  
 (C) Blast of Air (D) Sand
22. Which carburizing process is rapid?  
 (A) Pack carburizing (B) Box carburizing  
 (C) Gas carburising (D) Salt bath carburizing
23. The process of raising a strip of metal around the end of a round pipe is known as :  
 (A) Crimping (B) Forming  
 (C) Embossing (D) Beading
24. Which among the following statement is/are correct about a conical rivet?  
 (i) Generally used in light assembly  
 (ii) It is a solid rivet  
 (iii) Generally used in heavy structural work  
 (iv) Rivet gun is necessary for rivetting  
 (A) Only (i) and (iv) (B) Only (i) and (ii)  
 (C) Only (iii) and (iv) (D) Only (iv)
25. Which among the following statement is/are not correct about polarity in arc welding?  
 (i) When the electrode cable is connected to the negative terminal it is called reverse polarity  
 (ii) When the electrode cable is connected to the positive terminal it is called reverse polarity  
 (iii) When the electrode cable is connected to the negative terminal it is called straight polarity  
 (iv) The polarity of a machine refers to the direction of current flow  
 (A) only (i) (B) only (iii)  
 (C) only(ii) and (iii) (D) only (ii) and (iv)
26. Which Grade slip gauge is used for inspection purpose?  
 (A) Grade '00' accuracy (B) Grade 'I' accuracy  
 (C) Grade '0' accuracy (D) Grade 'II' accuracy
27. Which among the following statement is/are correct about woodruff key?  
 (i) This is a parallel key with rounded ends  
 (ii) For fitting this key in the assembly a flat surface is machined on the shaft  
 (iii) The top portion of the key projects out and fits in the key way cut on the hub  
 (iv) This key is particularly usefull on tapered fittings on the shafts  
 (A) Only (iii) and (iv) (B) Only (i) and (ii)  
 (C) Only (i) (D) Only (ii)

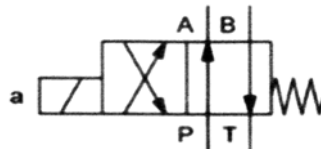
28. A knurling tool having two rollers, one having straight teeth and the other having teeth at right angles to the axis of knurl. By using this tool we can make \_\_\_\_\_ on external cylindrical surface of a job :
- (A) Straight knurling (B) Diamond knurling  
(C) Convex knurling (D) Cross knurling
29. How to avoid the defect 'concave face' while facing of a work?
- (A) Lock the carriage to the bed of the lathe  
(B) By clamping the tool rigidly with minimum over hang  
(C) By placing the tool to the centre height  
(D) By using sharpened tool
30. Which among the following statement is/are correct about a hand chaser?
- (i) It is a single point thread cutting tool  
(ii) It is a multi point thread cutting tool  
(iii) They are made up of rectangular cross section of tool steel, hardened and tempered  
(iv) Hand chaser removes Larger amount of material at the time of thread cutting
- (A) Only (ii) and (iii) (B) Only (i) and (iv)  
(C) Only (i) (D) Only (iv)
31. Name the part of a lathe which provides the following all functions :
- (i) To ensure arrangements for lubricating the gear, shafts and bearing  
(ii) To accommodate shafts, gears, and levers for a wide range of varying work speed  
(iii) To provide a means to assemble the work holding devices  
(iv) To transmit drive from the main motor to the work
- (A) Three jaw chuck (B) Head stock  
(C) Main spindle gear (D) Lathe spindle
32. Cross slide, compound rest and Top slide are the parts of a :
- (A) Apron (B) Head stock  
(C) Saddle (D) Traversing hand wheel
33. The surface joining the crest and root of a screw thread is known as :
- (A) Depth (B) Lead  
(C) Flank (D) Pitch
34. The diameter of the thread at which the thread thickness is equal to one half of the pitch is known as :
- (A) Pitch diameter (B) Major diameter  
(C) Minor diameter (D) Crest diameter

35. Name the washer, which can be used for locking the nuts located near an edge or corner :
- (A) Spring washer (B) Locking plate  
(C) Taper washer (D) Tab washer
36. Which among the following bearing materials have self lubricating property?
- (i) Sintered alloys  
(ii) Nylon  
(iii) Teflon
- (A) Only (i) and (ii) (B) Only (ii) and (iii)  
(C) All of the above (i) (ii) and (iii) (D) Only (i) and (iii)
37. Write the name of ball-bearing part, which serves to position the rolling elements :
- (A) Rollers (B) Retainer  
(C) Inner race (D) Outer race
38. Which of the following statement is/are correct about Fixture?
- (i) Fixture is used to hold and position the work piece  
(ii) Fixture guides the cutting tool  
(iii) Fixtures are used in drilling machine for drilling, tapping and counter boring etc.  
(iv) Fixture is usually fixed to the machine table
- (A) only (i) and (iv) (B) only (ii) and (iii)  
(C) only (ii), (iii) and (iv) (D) All of the above (i), (ii), (iii), (iv)
39. What is the name of jig which is used for drilling at angles other than 90°?
- (A) Channel jig (B) Modified angle plate jig  
(C) Angle plate jig (D) Plate jig
40. What is the name of part marked as 'X'?



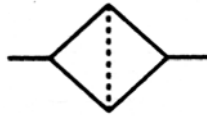
- (A) Gland nut (B) Stump  
(C) Valve seat (D) Hemp
41. Name the pipe fitting which is used to close the end of an external threaded pipe :
- (A) Union (B) Plug  
(C) Coupling (D) Cap
42. Which metal is always state first, in the composition of soft solder?
- (A) Tin (B) Lead  
(C) Copper (D) Zinc

43. Write the Name of operation from the following statements :
- The tool with abrasives mounted on it is held on a spindle
  - As the spindle rotates, a reciprocating motion is also given to the tool
  - Carried out for stock removal from metallic and non-metallic work pieces for achieving super finish
- (A) Scraping (B) Honing  
(C) Frosting (D) Flaking
44. Write the name of lapping material which is used for Lapping tungsten carbide :
- (A) Boron carbide (B) Silicon carbide  
(C) Aluminium oxide (D) Diamond
45. Constructional features and use of a particular coupling is given below, what is the name of this coupling :
- (i) Both half of the couplings have three jaw hubs
  - (ii) A rubber spacer inset with six legs fits between the two hubs
  - (iii) Used for low power transmission
- (A) Grid coupling (B) Tyre coupling  
(C) Gear coupling (D) Spider coupling
46. An imaginary circle on which two mating gears seems to be rolling is known as :
- (A) Addendum circle (B) Dedendum circle  
(C) Pitch circle (D) Circular pitch
47. The temperature at which the vapour is given off from the oil is known as \_\_\_\_\_ of a lubricant :
- (A) Pour point (B) Fire point  
(C) Flash point (D) Oiliness
48. Name the hydraulic valve shown in figure :



- (A) 4/3 way direction control valve (B) 4/2 way direction control valve  
(C) 2/2 way direction control valve (D) Non return valve

49. Name the pneumatic component shown in figure :



- (A) Filter (B) Regulator  
(C) Heater (D) Lubricator

50. An assembly of pulley blocks with rope threaded through the pulley is called :

- (A) Frame (B) Sheaves  
(C) Crown (D) Tackle

51. Calculate the RPM, for a high speed drill of diameter 20.5 mm to cut a mild steel block, if the Cutting speed is 30 m/min :

- (A) 498 rpm (B) 478 rpm  
(C) 466 rpm (D) 368 rpm

52. Calculate the drilling time to drill 12 mm diameter hole in a plate of thickness 62 mm, if the Cutting speed is 30 m/min and feed rate 0.05 mm/rev.

- (A) 1 minute 50 sec. (B) 1 minute 31 sec.  
(C) 1 minute 13 sec. (D) 1 minute 30 sec.

53. In a radial drilling machine, the cutting speed in counter sinking is \_\_\_\_\_ than that of drilling.

- (A) 15% less (B) 25% less  
(C) 15% more (D) 18% more

54. In a grinding machine the work speed formula is :

- (A)  $(\pi d_w n_w / 1000)$  m/minute (B)  $(Cd^z p / T_m t^x s^y)$  m/minute  
(C)  $Vd_w / d_p C^2$  m/minute (D)  $Vd_w / d_p n$  m/minute

55. In silicon carbide abrasive, black grit and green grit contains how much percentages of Silicon carbide :

- (A) 97, 93 (B) 97, 95  
(C) 93, 97 (D) 95, 97

56. Indian standard marking system of grinding wheel is denoted by :
- (A) IS1248:1953 (B) IS1249:1985  
(C) IS1249:1958 (D) IS1248:1976
57. In plunge grinding the thread grinding work requires :
- (A) 20 smpm (B) 14 smpm  
(C) 4 smpm (D) 3 smpm
58. Which one of the following cutter is not to ground on the lands of the cutter?
- (A) Reamer flute cutter (B) Side and face cutter  
(C) Slotting cutter (D) Equal angle cutter
59. Which one of the following concentration wheel is recommended for both vitrified and metal bonded cup wheels used for off hand grinding?
- (A) 125 concentration (B) 100 concentration  
(C) 75 concentration (D) 50 concentration
60. When using diamond dresser 1 carat diamond is used for dressing upto \_\_\_\_\_ diameter wheels?
- (A) 150 mm (B) 200 mm  
(C) 250 mm (D) 300 mm
61. In special case the glazed grinding wheel can only be used for :
- (A) Rough grinding (B) Off hand grinding  
(C) Cut off grinding (D) None of the above
62. In internal grinding using cylindrical grinder which of the following statements are true :
- (A) The wheel rotates in a fixed position; the works is rotating and reciprocating  
(B) The work rotates in a fixed position; the wheel is rotating and reciprocating  
(C) The work and wheel rotates in a fixed position; at the same time the work and the wheel rotating and reciprocating  
(D) None of the above
63. Which one is not a machine safety precaution in surface grinding?
- (A) Keep your fingers away from the moving parts of the machine  
(B) Check the centralised lubricant system by pressing app switches  
(C) Do not handle the surface of the work piece while the machine is operating  
(D) Do not use your hand to stop movement of any part of the machine



64. Which of the following is the advantage of conventional lathe over CNC turning centre?
- (A) Less machining time and less production rate
  - (B) Less production cost and less rejection rate
  - (C) Less maintenance and less investment cost
  - (D) All of these
65. In case of CNC turning centre, which statement is false to achieve higher metal removal rate:
- (A) Using proper cutting tools
  - (B) Using higher spindle power
  - (C) Using higher feed power
  - (D) Using higher spindle speed
66. Which one of the following is not an advantage of ball screw in CNC machines?
- (A) Ball screws have no longer life
  - (B) Higher accuracy can be maintained
  - (C) Has more frictional resistance, hence used for carrying heavier loads at faster rate
  - (D) Low power requirement for driving
67. The condition for deciding zero offset is :
- (A) The cutter must be fixed into the machine spindle
  - (B) Work must be clamped on the machine table
  - (C) Date must be entered into the machine
  - (D) Feed, Speed etc. must be decided
68. Name the point with in the work piece chosen for the purpose of defining the position to be reached by the tool :
- (A) Program Zero
  - (B) Work offset
  - (C) Machine Zero
  - (D) Tool offset
69. Where the tool reference point lies in CNC machine?
- (A) At the end of the tool
  - (B) At the cutting edge of the tool
  - (C) Spindle nose
  - (D) Centre point of the tool turret
70. Electrical contacts, one each are fixed on the CNC machine frame for each one of the slides. State the name given to these contacts :
- (A) Home position
  - (B) Work offset
  - (C) Zero offset
  - (D) Reference point
71. What is the purpose of edge finder during setting of the job?
- (A) Measure Zero offset
  - (B) Work Zero offset
  - (C) Tool Zero offset
  - (D) None of the above

72. Which preparatory code is used to identify the work zero point in a CNC Machine?  
 (A) G92 (B) G54  
 (C) G50 (D) G27
73. State the name given to the following program simplification method One block program for drilling / Boring, number of holes equally spaced in a pitch circle :  
 (A) Sub program (B) Programmed path  
 (C) Canned cycle (D) Drilling/ Boring cycles
74. The last drive shaft in the headstock assembly of a lathe is :  
 (A) Feed rod (B) Lead screw  
 (C) Main spindle (D) Tail stock spindle
75. The back gear unit of a cone pulley lathe is used for :  
 (A) Reduce the spindle speed  
 (B) Increase the spindle speed  
 (C) Change the direction of rotation of lead screw  
 (D) Change the direction of rotation of spindle
76. In orthogonal cutting, the cutting edge inclination is :  
 (A)  $0^\circ$  (B)  $4^\circ$   
 (C)  $12^\circ$  (D)  $30^\circ$
77. An oblique cutting tool angle ranges from :  
 (A)  $12^\circ$  to  $15^\circ$  (B)  $15^\circ$  to  $25^\circ$   
 (C)  $20^\circ$  to  $30^\circ$  (D)  $25^\circ$  to  $40^\circ$
78. The size of a slotting machine is specified by :  
 (A) Maximum stroke length of the ram  
 (B) Maximum table size of slotting machine  
 (C) Total weight of slotting machine  
 (D) Maximum height of slotting machine
79. The stroke length of slotting machine is adjusted by change :  
 (A) The diameter of bull gear  
 (B) The length of ram  
 (C) The counter weight  
 (D) The radius of sliding block on bull gear
80. A slotting machine removes metal during :  
 (A) Movement of ram is stopped (B) Upward stroke only  
 (C) Downward stroke only (D) Both upward and downward stroke

81. How can we ensure that the ram or tool holder of a slotter does not strike the work piece or table?  
 (A) Move the work crosswise by hand (B) Move the ram by hand  
 (C) Switch on the machine (D) Rotate the circular table by hand
82. The part of slotting machine used for produce circular surfaces:  
 (A) Rotary table (B) Boring bar  
 (C) Tool head (D) Universal machine vice
83. A slot is cut on the body of the ram :  
 (A) For changing the position of the stroke  
 (B) For adjust the length stroke  
 (C) For reduce the weight of ram  
 (D) For hold the counter weight
84. Clean the machine only when it is:  
 (A) In motion (B) Not in motion  
 (C) Load the job (D) Feed the tool
85. A slotting tool do not have any  
 (A) Top rake angle (B) Front clearance angle  
 (C) Side rake angle (D) Side clearance angle
86. The milling machine most commonly used in general workshop is :  
 (A) Fixed bed type (B) Special type  
 (C) Column and knee type (D) VMC type
87. Vertical head of a vertical milling machine can be swiveled up to an angle of \_\_\_\_\_ degree on either side :  
 (A) 5° (B) 15°  
 (C) 45° (D) 55°
88. The tapered end of an arbor is held securely with the milling machine spindle by  
 (A) Arbor support (B) Draw in bar and lock-nut  
 (C) Mandrel and lock-nut (D) Drive plate and carrier
89. According to B.I.S. specifications stub arbors with Morse taper shank are available from the diameters :  
 (A) 37 mm to 51 mm (B) 31 mm to 37 mm  
 (C) 20 mm to 32 mm (D) 13 mm to 27 mm
90. The cutter used for milling semi-cylindrical keyways in a shaft is :  
 (A) Metal slitting saw cutter (B) End mill cutter  
 (C) Side and face milling cutter (D) Woodruff key cutter

91. If the clearance angle of a milling cutter is not provide :
- (A) Smooth cutting on the job
  - (B) Fine finish and low heat
  - (C) Fast chip flow rate and high heat
  - (D) The tool will rub against the work surface
92. The negative rake angle of a milling cutter at low cutting speed produce :
- (A) Poor surface finish
  - (B) Good surface finish
  - (C) No heat is produced
  - (D) Damaged cutter teeth
93. The cutter used to mill undercuts in wider milled channels :
- (A) Side and face milling cutter
  - (B) T - slot cutter
  - (C) End mill cutter
  - (D) Fly cutter
94. The cutter used to mill flat surfaces which are truly flat to a very high standard of accuracy :
- (A) Reamer
  - (B) Side and face milling cutter
  - (C) End mill cutter
  - (D) Fly cutter
95. The cutter used for milling dovetail guide ways is :
- (A) Fly cutter
  - (B) Double angle cutter
  - (C) Single angle cutter
  - (D) Single point HSS tool
96. The method of feeding the work against the direction of rotation of the cutter :
- (A) Conventional milling
  - (B) Climb milling
  - (C) Profile milling
  - (D) Straddle milling
97. The mechanism involves in a circular table attachment is :
- (A) Rack and pinion
  - (B) Worm and worm gear
  - (C) Spring and bolt
  - (D) Chain and sprocket
98. Find the suitable index plate for index at an angle of  $34^{\circ}40'$  :
- (A) 23
  - (B) 27
  - (C) 34
  - (D) 47
99. Find the number of turns of the index crank for indexing 41 teeth :
- (A) 40 holes in 41 hole circle
  - (B) 1 rotation and 1 hole in 41 hole circle
  - (C) 1 rotation and 1 hole in 40 hole circle
  - (D) 40 holes in 40 hole circle
100. The milling cutter mainly used for step milling, slot milling and straddle milling is :
- (A) Metal slitting saw cutter
  - (B) End mill cutter
  - (C) side and face milling cutter
  - (D) Slot drill

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