

TRADE FITTER

Multiple Choice Questions

Exercise - 01

ABOUT THE INSTITUTE & SAFETY

1. Berhampur I.T.I. was established in
a. 1947 b. 1957 c. 1967 d. 1977
2. Which one of the following is not prohibited inside the I.T.I. campus
a. Using mobile b. Wearing plastic or rubber sandals c. Wearing loose cloth, ring, ties
d. Wearing steel toe steel cap safety shoes.
3. Which one of the following is dangerous while crossing the road
a. Crossing the road while red signal is on b. Crossing on zebra line
c. crossing when green signal is on d. crossing when traffic police allows to cross
4. An accident is
(a) unplanned event (b) non-controlled event
(c) undesirable event (d) all of the above
5. Which one of the following is not the cost due to an accident?
(a) Cost due to damage to machine, tools, material and property
(b) Cost of lost time of the injured person
(c) Cost of compensation and medical aid
(d) Cost due to increase in production
6. The safe way of working is
(a) an effective and right way of working
(b) an ancient way of working
(c) a way of handling the work in a hurry
(d) a way of normal working
7. The best way of avoiding accident is by
(a) doing work in ancient way
(b) doing work in one's own way
(c) observing safety rules related to job, machine and workplace
(d) using safety equipment
8. In case of an accident, the victim should immediately be
(a) asked to take rest
(b) enquired about the accident
(c) attended to immediately
(d) left to himself without treatment
9. An oily floor should be cleaned by
(a) cotton waste (b) putting water
(c) putting saw dust (d) spraying carbon dioxide or sand
10. Fire is a combination of
(a) fuel, light and oxygen
(b) fuel, heat and oxygen
(c) fuel, heat and carbon dioxide
(d) fuel, light and nitrogen
11. In case of arc welding, one should protect his eyes by using

- (a) dark glass screen (b) sun goggles (c) mask d) clear glasses
12. While grinding one must use
 (a) dark glass screen (b) mask
 (c) safety goggles (d) sun goggles
13. A hammer with loosely fitted handle will
 (a) fly away and cause accident (b) absorb shock
 (c) have easy swing (d) convey more leverage
14. Accidents are caused , do not happen.Which one of the following is not due to human failure
 a. Train accidents due to signal failure
 b.Driving the vehicle in drunked state
 c. Accidents during due to earth quake
 d. Crossing the unmanned rail crossing without looking both sides
15. If there is LPG leakage at home or workshop, what should u do
 a. Don't switch on lights & fans b. Don't switch off lights & fans
 c. Open the doors d. All the above
16. In case of electric fire, which one of the following should not use
 a. put water on it b. Use sand or clay c. Use C.T.C. extinguisher
 d. Use dry chemical powder
17. Which is the cause of electric fire
 a. Loose connection b. over loading the wires c. Electric short circuit d. All the above
18. Oil fir extinguished by
 a. putting water on it b. foam extinguisher c. Soda acid extinguisher d. none of the above
19. Carbon atious fire is caused due to burning of wood or coal, to put off this fire use
 a. Soda acid extinguisher b. Sand or clay c. Water d. All the Above

Key to Exercise - 01

- | | |
|-------|-------|
| 1. b | 11. a |
| 2. d | 12. c |
| 3. a | 13. a |
| 4. d | 14.c |
| 5. d | 15.d |
| 6. a | 16.a |
| 7. c | 17. d |
| 8. c | 18.b |
| 9. c | 19.d |
| 10. b | |

Exercise 02. UNITS AND MEASUREMENTS

- Which one of the following is not a fundamental units
 - Pressure
 - Length
 - mass
 - Time
- Which one of the following is derived units
 - Area
 - Force
 - Volume
 - All the above
- Systems of units are
 - F.P.S
 - C.G.S
 - M.K.S
 - All the above
- Which one of the following is correct answer. One decimeter =
 - 100mm
 - 10mm
 - 1000mm
 - None of the above
- Convert one kilometer to centimeter
 - 100 cm
 - 1000cm
 - 10000cm
 - 100000cm
- 1 quintal is equal to
 - 10kg
 - 100 kg
 - 1000kg
 - none of the above
- 1 cubic meter is equal to
 - 1000 cubic decimeter
 - 100 cubic decimeter
 - 10 cubic decimeter
 - none of the above
- 1 mm is equal to
 - 1000microns
 - 100 microns
 - 10 microns
 - 10000microns
- 1 Tonne is equal to
 - 10 quintals
 - 1000 kgs
 - 1000000gms
 - all the above
- Convert the following . 1 inch is equal to
 - 25.4 mm
 - 2.54mm
 - 0.254mm
 - none of the above
- 1 meter is equal to
 - 40 inches
 - 39.37 inches
 - 36.00 inches
 - 36.37 inches
- 1 km is equal to
 - 8 furlongs
 - 1760 yards
 - 0.6214mile
 - 5280 feet
- 1 kg is equal to
 - 2.5lbs
 - 2.0lbs
 - 2.205lbs
 - none of the above
- 98.4⁰F to centigrade is equal to
 - 37.00⁰c
 - 36.89⁰c
 - 38.0⁰c
 - 37.89⁰c
- 1 Gallon is equal to
 - 4.544 ltrs
 - 4.00ltrs
 - 5.0ltrs
 - 5.544 ltrs
- 5 liters is equal to
 - 1.2 gallon
 - 1.1 gallon
 - 2.1 gallons
 - none of the above
- 1000 liters is equals to
 - 1 cubic meter
 - 1 cubic deci meter
 - 1 cubic decameter
 - none of the above
- 1 square meter is equal to
 - 10.00 sq. feet
 - 10.50sq. feet
 - 10.764 sq.feet
 - 11.000sq. feet
- 1 micron is equal to
 - 0.1mm
 - 0.01mm
 - 0.001mm
 - 0.0001mm
- 1 British ton is equal to
 - 0.9077 metric ton
 - 1.000 metric ton
 - 1.016 metric ton
 - none of the above

21. Find the correct answer
 - a. 1 meter = 3.2809 feet
 - b. 1 foot = 0.3048 meter
 - c. 1 mm = 0.03937 inches
 - d. all the above
22. 1 mile is equal to
 - a. 1.609 km
 - b. 1.5 km
 - c. 2 km
 - d. 2.609 km
23. 1 Acre is equal to
 - a. 5000 sq. yards
 - b. 4840 sq. yards
 - c. 4500 sq. yards
 - d. 5840 sq. yards
24. 1 cubic inch is equal to
 - a. 16.00 cubic cm
 - b. 17.00 cubic cm
 - c. 25.4 cubic cm
 - d. 16.387 cubic cm
25. Find the correct answer
 - a. 1 right angle = 100 grades
 - b. 1 grade = 100 minutes
 - c. 1 minute = 100 seconds
 - d. All the above

Key to Exercise - 02

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|-------|-------|-------|-------|-------|
| 1. a | 2. d | 3. d | 4. a | 5. d |
| 6. b | 7. a | 8. a | 9. d | 10. a |
| 11. b | 12. c | 13. c | 14. b | 15. a |
| 16. b | 17. a | 18. c | 19. c | 20. c |
| 21. d | 22. a | 23. b | 24. d | 25. d |

Exercise- 03 Marking and Marking Tools

1. The tool, Which is used for laying out large circle is
 - (a) Trammel
 - (b) Divider
 - (c) Jenny caliper
 - (d) Scriber
2. Which type of rule is used for marking and measuring patterns and hot jobs handled by blacksmith?
 - (a) Narrow rule
 - (b) Shrink rule
 - (c) Hook rule
 - (d) short rule
3. 'V' block is used to hold round bars. It has a Vee groove which is usually
 - (a) 30°
 - (b) 60°
 - (c) 90°
 - (d) 120°
4. The point angle of scriber is
 - (a) 30°
 - (b) 60°
 - (c) 5° to 10°
 - (d) 12° to 15°
5. The point angle of center punch is
 - (a) 30°
 - (b) 60°
 - (c) 90°
 - (d) 120°
6. During marking. The reference surface is provided by
 - (a) Sketch of the job
 - (b) Workpiece
 - (c) Marking off table surface
 - (d) Surface gauge

7. The slots are provided on angle plate for
(a) accommodating bolts (b) hanging with hooks
(c) reducing weight (d) aligning the work
8. 'V' blocks are available in grades of
(a) 0 & 1 (b) 1 & 2
(c) A1 & A2 (d) A & B
9. A divider is used for
(a) scribing circles (b) scribing arcs
(c) transferring and stepping of distance
(d) all of the above
10. Which of the following is not the part of a combination set?
(a) stock (b) Protractor head
(c) Square head (d) Centre head
11. Scriber is made of
(a) copper (b) High carbon steel
(c) Mild Steel (d) Cast Iron
12. Which one of the following parts of a universal surface gauge helps to draw parallel lines along a datum edge?
(a) Fine adjusting screw (b) Guide pins
(c) Base (d) Rocker arm

Key to Exercise - 03

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|------|------|------|------|
| 1.a | 2. b | 3. c | 4.d |
| 5. c | 6. c | 7.a | 8.d |
| 9.d | 10.a | 11.b | 12.b |

Exercise-4. Hand Tools

1. The jaws in this type of wrench open parallel with the help of a screw thus providing suitable for all sizes of nuts. These are
 - (a) Pipe wrenches
 - (b) Monkey wrenches
 - (c) Socket wrenches
 - (d) Allen wrenches
2. Which one of the following types of hammers is used for forming a rivet head by spreading the shank of the rivet?
 - (a) Ball peen hammer
 - (b) Cross peen hammer
 - (c) Straight peen hammer
 - (d) Soft hammer
3. The length of the hammer handle for a 500 g hammer should be about
 - (a) 275 mm
 - (b) 300 mm
 - (c) 325 mm
 - (d) 350 mm
4. Generally the length of the handle of a vice is
 - (a) 1.5 times the nominal size of the vice
 - (b) 2.5 times the nominal size of the vice
 - (c) 3.5 times the nominal size of the vice
 - (d) 4.5 times the nominal size of the vice
5. For general purpose, a bench vice is fixed at a height of
 - (a) 80 cm
 - (b) 90 cm
 - (c) 106 cm
 - (d) 125 cm
6. Vice clamps are used to
 - (a) protect the finished surfaces of the job
 - (b) hold the job firmly
 - (c) protect the serrated jaws of the vice
 - (d) protect the file
7. The movable jaw of a bench vice is not moving even though the spindle is turned. It is due to the reason that
 - (a) fixed and movable jaws are overtight
 - (b) spindle pin is broken
 - (c) spring is not functioning
 - (d) threads on spindle are slightly worn out
8. The peen of a cross-peen hammer is
 - (a) angular to the handle
 - (b) straight to the handle
 - (c) cross to the handle
 - (d) bent towards the handle
9. The peen of a straight peen-hammer is
 - (a) angular to the handle
 - (b) straight to the handle
 - (c) cross to the handle
 - (d) bent towards the handle
10. The bench vice is called as parallel jaw vice because
 - (a) it can hold the jobs having parallel sides
 - (b) it is fixed parallel to the shop floor
 - (c) its width of jaws are parallel
 - (d) its movable jaw moves parallel to the fixed jaw
11. The box nut of a bench vice is made of
 - (a) mild steel
 - (b) phosphorous bronze
 - (c) white metal
 - (d) alloy steel
12. The jaw plates of a bench vice are made of
 - (a) tool steel
 - (b) mild steel

- (c) cast iron (d) bronze
13. The pin vice is used for
 (a) holding odd-shaped small workpieces (b) fixing the pins
 (c) holding the pins (d) holding the studs
14. The hand vice is used for
 (a) fixing heavy jobs (b) tightening nuts and bolts
 (c) holding round jobs (d) doing minute work
15. The bench vice spindle is made of
 (a) Mild steel (b) Cast iron
 (c) Tool steel (d) Bronze
16. Eye hole of hammer is
 a. Straight b. Tapered at handle end c. Tapered from both ends
 d. Tapered from front end
17. Handle of hammer is made of
 a. Hard wood b. Soft wood c. Elastic wood or bamboo d. Plastic
18. The height of the vice top should be
 a. 5 cm to 8 cm below the elbow height of the operator
 b. 5 cm to 8 cm above the elbow height of the operator
 c. Just at elbow level
 d. None of the above
19. Which is the function of a pipe vice
 a. grips the work at four points b. The screw is vertical
 c. The movable jaw moves vertically d. All the above
20. Usually the width of hand vice jaw is
 a. 95 to 180mm b. 40 to 45 mm c. 80 to 140 mm d. 125 to 150 mm

Key to Exercise - 04

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|------|------|------|------|------|
| 1.b | 2.a | 3.b | 4.b | 5.c |
| 6.a | 7. b | 8.c | 9.b | 10.d |
| 11.b | 12.a | 13.c | 14.d | 15.a |
| 16.c | 17.c | 18.a | 19.d | 20.b |

Exercise-05. Measurement and Measuring Tools

1. Steel rule is a
 - (a) marking instrument
 - (b) precision instrument
 - (c) checking instrument
 - (d) direct reading measuring instrument
2. What is determined while measuring a component?
 - (a) Nominal size
 - (b) Actual size
 - (c) Specified size
 - (d) Scale size
3. Steel rule is made of
 - (a) Brass
 - (b) Zinc
 - (c) Stainless steel
 - (d) Cast iron
4. Which of the following instruments is used for checking flatness and squareness of a surface?
 - (a) Try square
 - (b) Vernier height gauge
 - (c) Slip gauge
 - (d) Bevel gauge
5. Which of the following is an indirect measuring tool?
 - (a) Inside caliper
 - (b) Vernier caliper
 - (c) Universal bevel protractor
 - (d) Inside micrometer
6. The base unit of length as per S. I. units is
 - (a) inch
 - (b) foot
 - (c) centimeter
 - (d) metre
7. Which is NOT the use of a try square?
 - (a) Measuring right angle
 - (b) Checking squareness
 - (c) Marking straight lines at 90° against an edge
 - (d) Setting workpiece at 90°
8. Which of the following is a direct measuring tool?
 - (a) Try square
 - (b) Steel rule
 - (c) Straight edge
 - (d) Ring gauge
9. The minimum measurement that can be read with the help of a steel rule is
 - (a) 0.01 mm
 - (b) 0.02 mm
 - (c) 0.05 mm
 - (d) 0.50 mm
10. Try square is used to check up an angle of
 - (a) 30°
 - (b) 45°
 - (c) 60°
 - (d) 90°
11. In a metric micrometer, a complete revolution of thimble advances
 - (a) 0.01 mm
 - (b) 0.25 mm
 - (c) 0.50 mm
 - (d) 1.00 mm
12. The least count of vernier bevel protractor is
 - (a) 1'
 - (b) 5'
 - (c) 10'
 - (d) 25'
13. The least count of metric micrometer is
 - (a) 0.01 mm
 - (b) 0.05 mm
 - (c) 0.10 mm
 - (d) 0.50 mm
14. An outside micrometer has a negative error. The correct reading can be taken by
 - (a) adding the negative error in the actual reading
 - (b) deducting the negative error from the actual reading

- (c) adding twice the negative error in the actual reading
 (d) deducting twice the negative error from the actual reading
15. What is the zero reading of a 50 - 75 mm outside micrometer?
 (a) 0.00 mm (b) 0.01 mm
 (c) 25.00 mm (d) 50.00 mm
 16. Which one of the following instruments is used to check the concentricity of the outside diameter?
 (a) Vernier caliper (b) Outside micrometer
 (c) Dial test indicator (d) Dial caliper
 17. The minimum measurement that can be correctly read with a vernier caliper is called
 (a) zero reading (b) least count
 (c) main scale reading (d) actual reading minus zero error
 18. Metric outside micrometer has a threaded spindle with a pitch of
 (a) 0.5 mm (b) 0.25 mm
 (c) 1.00 mm (d) 1.50 mm
 19. Zero error in micrometer means
 (a) there is negligible gap between the spindle and the anvil
 (b) micrometer is true
 (c) zero mark on the thimble is not visible
 (d) zero on thimble and datum line on sleeve do not coincide when measuring faces are in contact
 20. Lock nut in the micrometer is provided to
 (a) control the movement of the spindle
 (b) lock the reading after setting it over the workpiece
 (c) measure the workpiece accurately
 (d) lock the micrometer when it is not in use
 21. Micrometer works on the principle of
 (a) screw (b) bolt
 (c) stud (d) nut & bolt
 22. Which one of the following instruments is used to measure accurately the angle of taper?
 (a) Bevel gauge (b) Bevel protractor
 (c) Vernier bevel protractor (d) Taper gauge
 23. The least count of a vernier caliper is
 (a) 0.10 mm (b) 0.01 mm
 (c) 0.05 mm (d) 0.02 mm
 24. To convert the linear motion of the plunger of a dial test indicator to the rotary motion of the pointer, which one of the following mechanisms is used?
 (a) Quick return mechanism (b) Rack and pinion mechanism
 (c) Screw thread mechanism (d) Hydraulic mechanism
 25. Ratchet stop in the micrometer helps to
 (a) control the pressure (b) lock the spindle
 (c) adjust zero error (d) hold the workpiece
 26. The least count of the vernier caliper is equal to
 (a) value of 1 M.S.D. - value of 1 V.S.D. (b) value of 1 V.S.D. - value of 1 M.S.D.
 (c) value of 2 M.S.D. - value of 1 V.S.D. (d) value of 1 M.S.D. + value of 1 V.S.D.
 27. A micrometer has a Positive error of 0.02 mm. What is the correct reading when the micrometer measures 25.41 mm ?

- (a) 22.39 mm (b) 25.37 mm
(c) 25.43 mm (d) 25.45 mm
28. A micrometer has a negative error of 0.03 mm. What is the correct reading when the micrometer measures 40.53 mm ?
(a) 40.50 mm (b) 40.56 mm
(c) 40.46 mm (d) 40.59 mm
29. Zero error of a 50 - 75 mm outside micrometer can be checked with
(a) Dial test indicator (b) Vernier height gauge
(c) Test piece (d) Feeler gauge
30. The value of the smallest division on sleeve of a metric outside micrometer is
(a) 0.50 mm (b) 1.00 mm
(c) 1.50 mm (d) 2.00 mm
31. The value of one division on bevel edge of the thimble of a metric outside micrometer is
(a) 0.10 mm (b) 0.05 mm
(c) 0.02 mm (d) 0.01 mm
32. If the zero graduation of the thimble division of an outside micrometer is below the datum line, when the measuring faces of the micrometer are in contact, the error is
(a) negative (b) positive
(c) zero (d) none
33. A depth micrometer can be used to measure wide range of sizes because
(a) it is equipped with a number of extension rods (b) it has a lengthy spindle
(c) it has a lengthy sleeve (d) it has an adjustable base
34. In which one of the following micrometers, the graduations on thimble and sleeve are in reversedirection to that of outside micrometer?
(a) Inside micrometer (b) Depth micrometer
(c) Tube micrometer (d) Flange micrometer
35. The least count of a vernier outside micrometer is
(a) 0.10 mm (b) 0.01 mm
(c) 0.001 mm (d) 0.0001 mm
36. On which part of the vernier height gauge, are the main scale divisions graduated ?
(a) Vernier plate (b) Beam
(c) Fine adjusting unit (d) Base
37. While measuring with vernier bevel protractor, which part is used normally as reference surface?
(a) Stock (b) Blade
(c) Dial (d) Disc
38. On which part of the vernier bevel protractor, are the main scale divisions graduated ?
(a) Blade (b) Disc
(c) Dial (d) Stock
39. The value of each vernier scale division of vernier bevel protractor is
(a) 1° (b) 5'
(c) 1° - 55' (d) 2°
40. The value of each main scale division of vernier bevel protractor is
(a) 1° (b) 5'
(c) 1° - 55' (d) 1/2°
41. The least count of a universal bevel protractor is
(a) 0.5' (b) 5'

- (c) 5" (d) 5°
42. The least count of a vernier depth gauge is
 (a) 0.10 mm (b) 0.01 mm
 (c) 0.20 mm (d) 0.02 mm
43. Vernier depth gauge is used for measuring
 (a) external dimensions (b) internal dimensions
 (c) step, depth of blind hole (d) pitch diameter
44. The least count of vernier height gauge is
 (a) 0.01 mm (b) 0.02 mm
 (c) 0.05 mm (d) 0.10 mm
45. While laying out, the vernier height gauge must be used on the
 (a) Surface plate (b) Vee block
 (c) Machine bed (d) Any flat surface
46. The size of a vernier height gauge is specified by
 (a) width of the beam (b) height of the beam
 (c) weight of the height gauge (d) size of the scriber
47. While marking with a vernier height gauge, the workplace is generally
 (a) supported by an angle plate (b) supported by another workplace
 (c) held by one hand (d) held without support
48. The smallest inside micrometer has the graduation marked on the sleeve to a range of
 (a) 10 mm (b) 12 mm (c) 13 mm (d) 25 mm
49. To get least count of 5' in a vernier bevel protractor, the 23° main scale are divided into
 (a) 12 equal parts on verniar scale (b) 22 equal parts on verniar scale
 (c) 24 equal parts on verniar scale (d) 25 equal parts on verniar scale
50. The angle which is lass than 90° is called as
 (a) obtuse angle (b) acute angle
 (c) right angle (d) none of the above
51. The principle of universal bevel protractor is similar that of
 (a) Verniar bevel protractor (b) Depth micrometer
 (c) Dial test indicator (d) Fixed gauge
52. A flange micrometer is used to measure
 a. Out side diameter of a gear b. chordal thickness of gear teeth
 c. Addendum of the gear d. None of the above

Key to Exercise - 05

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|------|------|------|------|------|
| 1.d | 2.b | 3.c | 4.a | 5.a |
| 6. d | 7.a | 8.b | 9.d | 10.d |
| 11.c | 12.b | 13.a | 14.a | 15.d |
| 16.c | 17.b | 18.a | 19.d | 20.b |
| 21.d | 22.c | 23.d | 24.b | 25.a |
| 26.a | 27.a | 28.b | 29.c | 30.a |
| 31.d | 32.a | 33.a | 34.b | 35.c |
| 36.b | 37.a | 38.b | 39.c | 40.a |

41.b 42.d 43.c 44.b 45.a
46.b 47.a 48.c 49.a 50.b
51.a 52.b

Exercise-06. Metals

1. The chief chemical property of aluminium is that it is
(a) Soft (b) Brittle
(c) Strong (d) Tough
2. Gun metal is an alloy of copper,
(a) tin and zinc (b) lead and zinc
(c) zinc and nickel (d) lead and nickel
3. Generally, bearing bushes are made of
(a) Copper (b) Brass
(c) White metal (d) Gun metal
4. The chief alloying elements of stainless steel are
(a) Chromium and nickel (b) Chromium and tungsten
(c) Nickel and vanadium (d) Nickel and tungsten
5. The filaments of lamp bulbs are made of
(a) Nickel (b) Chromium
(c) Tungsten (d) Tin
6. The alloys "Duralumin" and "Hindalium" contain 95% of
(a) Copper (b) Zinc
(c) Lead (d) Aluminium
7. Muntz metal is an alloy of
(a) Copper and zinc (b) Copper and tin
(c) Copper and aluminium (d) Copper and nickel
8. Monel metal contains
(a) Nickel and aluminium (b) Nickel and copper
(c) Nickel and chromium (d) Nickel and zinc
9. Which one of the following characteristics about tin is correct ?
(a) Tin can withstand high temperature
(b) Tin is the main constituent of most solders
(c) Tin is very good conductor of electricity
(d) Tin is corrosion resistant metal.
10. Cast iron is used for manufacturing machine beds because
(a) it can resist more compressive stress
(b) it is heavy in weight
(c) it is a cheaper metal
(d) it is a brittle metal

11. Brass is an alloy of
(a) Copper and tin (b) Lead and tin
(c) Copper and zinc (d) Copper and silver
12. Aluminium in its pure form is not used for engineering work because
(a) It is brittle (b) It is very light
(c) It is costly (d) It lacks strength
13. Which among the following is the lightest metal?
(a) Lead (b) Tin
(c) Aluminium (d) Copper
14. White metal is an alloy of
(a) Copper and tin (b) Copper, zinc and tin
(c) Copper, lead, tin and antimony (d) Copper, zinc, tin and antimony
15. Galvanized iron is coated with
a) Tin (b) Zinc
(c) Lead (d) Copper
16. Carbon content in cold chisel is
(a) 0.6 to 0.7% (b) 0.85 to 0.95%
(c) 1.0 to 1.2% (d) 1.2 to 1.4%
17. Desirable hardness in a file is generally
(a) 30 HRC (b) 45 HRC
(c) 60 HRC (d) 80 HRC
18. Bronze is an alloy of
(a) Copper and tin (b) Lead and tin
(c) Copper and zinc (d) Copper and lead
19. The property by which metal can be rolled into sheet is
(a) Elasticity (b) Malleability
(c) Ductility (d) Tenacity
20. Crane hooks are made of
(a) Wrought iron (b) High carbon steel
(c) Cast steel (d) Cast iron
21. Which one of the following metals is corrosion resistant ?
(a) Aluminium (b) Tin
(c) Copper (d) Mild steel
22. Which one of the following alloys can resist saltwater corrosion .
(a) Brass (b) Gun metal
(c) Zinc alloy (d) Nickel chrome alloy
23. Which one of the following is a chemical property of metal ?
(a) Corrosiveness (b) Conductivity
(c) Hardness (d) Elasticity
24. Which one of the following properties offers resistance to abrasion ?
(a) Hardness (b) Toughness
(c) Ductility (d) Malleability
25. Which one of the following groups of properties enables the manufacture of chain

links from wrought iron?

- (a) Ductility, malleability and hardness
- (b) Hardness, toughness and ductility
- (c) Malleability, ductility and toughness
- (d) Hardness, toughness and brittleness

26. Increase of carbon content in steel results in

- (a) Increase in hardness (b) Increase in malleability
- (c) Increase in ductility (d) Increase in strength

27. Which one of the following is the capacity of a metal to withstand destruction under the action of external loads ?

- (a) Stiffness (b) Strength
- (c) Toughness (d) Ductility

28. Which one of the following is the resistance of a metal to elastic deformation ?

- (a) Ductility (b) Strength
- (c) Stiffness (d) Toughness

29. Which one among the following properties of a metal is the power of return to its original shape after deformation when the load is removed ?

- (a) Ductility (b) Malleability
- (c) Stiffness (d) Elasticity

30. Which one of the following properties of a metal has the ability to change its shape without destruction under the influence of external forces ?

- (a) Plasticity (b) Elasticity
- (c) Stiffness (d) Malleability

31. Which one among the following properties of a metal is the property by which resistance is offered to fracture by repeated bending or twisting ?

- (a) Brittleness (b) Stiffness
- (c) Toughness (d) Malleability

32. Which one of the following properties is most essential for the metals in the process of casting, welding, brazing and soldering ?

- (a) Fusibility (b) Malleability
- (c) Tenacity (d) Plasticity

33. Metals possess physical and mechanical properties. Which one of the following is a physical property of metals ?

- (a) Fusibility (b) Tenacity
- (c) Ductility (d) Malleability

34. Rust is formed from iron and which other element?

- (a) Hydrogen (b) Nitrogen
- (c) Oxygen (d) Sulphur

35. Which of these metals is liquid at room temperature?

- (a) Beryllium (b) Lithium
- (c) Mercury (d) Osmium

36. Which of the following metals can be found in a pure state in nature?

- (a) Lithium (b) Iron
- (c) Gold (d) Aluminium

37. In its simplest form, bronze is an alloy of which metals?
 (a) Copper and tin (b) Copper and zinc
 (c) Copper, zinc and nickel (d) Copper, tin and lead
38. The ability of a metal to be drawn into wire is a measure of its
 (a) Ductility (b) Toughness
 (c) Malleability (d) Hardness
39. Most metals have
 (a) High electronegativities (b) Low electronegativities
 (c) Small atomic radii (d) High ionization energies
40. Metals which burn on exposure to air are best stored
 (a) Underwater (b) Under alcohol
 (c) Under vinegar (d) Under kerosene
41. Galvanized metals have been covered with a thin sheet of
 (a) Chromium (b) Copper
 (c) Tin (d) Zinc
42. Which metal is most abundant in Earth's crust?
 (a) Calcium (b) Sodium
 (c) Aluminium (d) Iron
43. A preferred material for soldering bit is
 a. Lathe b. Tin c. Copper d. Zinc
44. Identify which non metal will conduct electricity
 a. Fiber b. Felt c. Porcelene d. Graffite

Key to Exercise-06

- | | | | | |
|------|------|------|------|------|
| 1. a | 2.a | 3.d | 4.a | 5.c |
| 6.d | 7.a | 8.b | 9.d | 10.a |
| 11.c | 12.d | 13.c | 14.c | 15.b |
| 16.c | 17.c | 18.a | 19.b | 20.a |
| 21.b | 22.c | 23.a | 24.a | 25.c |
| 26.a | 27.b | 28.c | 29.d | 30.a |
| 31.c | 32.a | 33.a | 34.c | 35.c |
| 36.c | 37.a | 38.a | 39.b | 40.d |
| 41.d | 42.c | 43.c | 44.d | |

Exercise-7. CUTTING TOOLS AND OPERATIONS

1. A cutting tool used to finish and enlarge a hole is known as
 (a) Drill (b) Tap
 (c) Die (d) Reamer

2. Which one of the following metals does not require any coolant during reaming ?
 - (a) Aluminium (b) Cast iron
 - (c) Copper (d) Steel
3. A cutting tool used to cut outside threads is called
 - (a) Drill (b) Reamer
 - (c) Die (d) Tap
4. Which one of the following is used to rectify damaged or rusted threads ?
 - (a) Die nut (b) Circular split die
 - (c) Two-piece die (d) Die plate
5. What is used for removing a broken tap ?
 - (a) Tap disposer (b) Tap wrench
 - (c) Tap extractor (d) Tap nut
6. What coolant is recommended for tapping copper or aluminium ?
 - (a) Kerosene (b) Lard oil
 - (c) Soda, water (d) Dry
7. The grooves provided on the entire length of the body of a twist drill are called
 - (a) lips (b) flutes
 - (c) margins (d) webs
8. A wedge like tool is used for removing the taper shank tools from the nose of the machine spindle ? What is this called ?
 - (a) Drill chuck (b) Drill key
 - (c) Drill socket (d) Drill drift
9. A hole, which is not made through full depth of the component is known as
 - (a) core hole (b) blind hole
 - (c) pinhole (d) bore hole
10. The drill sleeves or sockets are available with morse taper and their number range MT-1 to MT-6. Which one of the following drill sizes refers to MT-4 ?
 - (a) Drills above 14 mm upto 23 mm (b) Drills above 23 mm upto 31.75 mm
 - (c) Drills above 31.75 mm upto 50.50 mm (d) Drills above 50.50 mm upto 76 mm
11. It is the process of removing very small chips from metal surfaces by means of a sharp-edged tool. What is this tool called as ?
 - (a) Scraper (b) Chisel
 - (c) Hacksaw (d) Reamer
12. The cutting action of a file depends upon
 - (a) the kind of cut and spacing of teeth (b) arrangement of teeth on the file
 - (c) size and shape of the file (d) all of the above
13. Hacksaw blade teeth get dull due to
 - (a) high speed and pressure (b) pressure not released during return stroke
 - (c) coolant not used (d) any one of the above
14. Which one of the following is NOT the reason for making file faces slightly convex in form ?
 - (a) To increase the friction between the file face and the job surface.
 - (b) To give better distribution of. the pressure and to compensate slight filing movement.

- (c) To reduce the friction between the file face and the job surface.
(d) To reduce the effort in driving a file.
15. A drilled hole goes out of centre due to
(a) improper clamping of workpiece
(b) workpiece having blowholes
(c) centre punch mark not being large enough to give proper seat to the chisel edge of drill
(d) any one of the above
16. Which one of the following designations does NOT denote the grade of a file?
(a) Bastard (b) First cut
(c) Second cut (d) Smooth
17. The cutting angle of a flat chisel for chipping aluminium is
(a) 35° (b) 55°
(c) 60° (d) 70°
18. Which one among the following materials can be cut with a rasp cut file ?
(a) Steel (b) Cast iron
(c) Wood (d) Bronze
19. Which one among the following scrapers is used for scraping on bearing bush ?
(a) Flat scraper (b) Triangular scraper
(c) Half round scraper (d) Round scraper
20. Which one of the following coolants is used for reaming aluminium workpiece ?
(a) Kerosene (b) Water
(c) Air pressure (d) Lard oil
21. A double cut file is used for filing on
(a) wood (b) hard board
(c) leather (d) steel
22. Second cut in a file is the type of
(a) section (b) grade
(c) cut (d) design
23. The body of a flat chisel is usually made in the shape of
(a) rectangular (b) square
(c) hexagonal (d) octagonal
24. The chisel used to cut keyways is
(a) cape chisel (b) flat chisel
(c) round nose chisel (d) diamond point chisel
25. Snagging is a process used to remove the metal by
(a) filing (b) hacksawing
(c) chiseling (d) grinding
26. Both sides of a flat bastard file have
(a) no cut (b) single cut teeth
(c) double cut teeth (d) wavy teeth
27. The length of hacksaw blade is measured from
(a) one end of the toothed portion to the other end

- (b) centre of one pin hole to the centre of other pin hole
 - (c) end to end of blade
 - (d) end of one hole to the end of the other pin hole
28. The new hacksaw blade should not be used in the blind saw cut made by old blade because
- (a) the space is not enough to run the blade
 - (b) the blade is costly
 - (c) the new blade has sharp teeth
 - (d) none of the above
29. The safe edge of file is used to
- (a) give best finishing
 - (b) protect the adjacent sides
 - (c) finish flat surfaces only
 - (d) cut metal very quickly
30. File card is used for
- (a) cleaning the workpiece
 - (b) cleaning the file teeth
 - (c) renewing the file teeth
 - (d) cleaning the chips
31. Setting of teeth in hacksaw blade is
- (a) not required
 - (b) required to avoid friction between the blade and called workpiece
 - (c) required for increasing the strength of blade
 - (d) required for providing teeth on the blade
32. A \varnothing 6H7 hole is to be reamed in a steel workpiece What size of drill will be required ?
- (a) 5.5 mm (b) 5.8 mm
 - (c) 6.0 mm (d) 6.2 mm
33. Which one of the following materials is used for making a grinding wheel ?
- (a) Silicon carbide (b) Granite
 - (c) Sand (d) Calcium carbonate
34. Spot-facing is done to
- (a) deburr the mouth of the drilled hole.
 - (b) Make surface flat so that bolt head can take proper seat on the surface
 - (c) give fine finish to the drilled hole.
 - (d) enlarge the existing hole.
35. For tapping with M5 tap. What size drill will you use?
- (a) 4.5 mm (b) 4.0 mm
 - (c) 3.8 mm (d) 3.5 mm
36. A slight convexity is made on the cutting edges of flat chisel for
- (a) cutting sharp corners.
 - (b) allowing lubricant to reach the cutting edge.
 - (c) cutting curved surfaces.

- (d) preventing digging of the ends of cutting edge.
37. The point angle of twist drill depends upon the
(a) cutting speed (b) type of drilling machine
(c) size of the drill (d) material to be drilled
38. The point angle of twist drill for general purposes is
(a) 135° (b) 118°
(c) 90° (d) 60°
39. The relief angle given behind the cutting lips is called
(a) lip clearance angle (b) helix angle
(c) rake angle (d) chisel edge angle
40. A hole of 10 mm diameter is to be finished with a hand reamer. The hole size required for reaming should be
(a) 9.75 mm (b) 9.50 mm
(c) 9.25 mm (d) 9.00 mm
41. The process of enlarging the end of an existing hole to accommodate the head of socket screw is called
(a) spot-facing (b) boring
(c) counter-boring (d) counter-sinking
42. The process of beveling the end of existing hole is called
(a) spot-facing (b) boring
(c) counter-boring (d) counter-sinking
43. While chipping, the clearance angle is the angle between
(a) the working surface of the job and the top surface of cutting edge of chisel
(b) the working surface of the job and the bottom surface of cutting edge of chisel
(c) the surface at right angle to the cutting edge of chisel and the working surface of the job
(d) None of the above
44. The most suitable pitch of the hacksaw blade for cutting thin section tubes is
(a) 0.8 mm (b) 1.0 mm
(c) 1.4 mm (d) 1.8 mm
45. The suitable pitch of hacksaw for cutting solid brass is
(a) 0.8 mm (b) 1.0 mm
(c) 1.4 mm (d) 1.8 mm
46. The taper shank drills should be removed from the machine spindle by means of
(a) hammer (b) tang of file
(c) punch (d) drift
47. Drill chucks are held on the machine spindle by means of
(a) arbor (b) drift
(c) draw-in bar (d) chuck nut
48. What should be the blank size of round bar for cutting M16 threads with 2 mm pitch with a die?
(a) 15.5 mm (b) 15.8 mm
(c) 15.9 mm (d) 16.0 mm
49. Drill sleeve is used when the taper shank of the drill is

- (a) smaller than the machine spindle (b) larger than the machine spindle
 (c) equal to the machine spindle (d) None of the above
50. The lip clearance angle of twist drill for general purpose should be
 (a) 3 to 5° (b) 4 to 8°
 (c) 8 to 12° (d) 12° to 15°
51. The suitable cutting fluid for drilling M.S. plate is
 (a) soluble oil (b) water
 (c) compressed air (d) dry
52. The commonly used standard length of hacksaw blade is
 (a) 100 mm (b) 150 mm
 (c) 200 mm (d) 250 mm
53. The distance a drill advances into the job in one complete revolution is known as
 (a) r.p.m. (b) cutting speed
 (c) feed (d) machine speed
54. Which one of the following is used to hold the straight shank drill having diameter less than 12 mm ?
 (a) Sleeve (b) Socket
 (c) Drill chuck (d) Drill drift
55. The rate of feed depends upon
 (a) finish required (b) material of tool (drill)
 (c) material to be drilled (d) all the above
56. Which among the following is NOT the factor for selection of cutting speed and feed for reaming a hole with a machine reamer ?
 (a) Material of the job. (b) Material of the reamer.
 (c) Diameter (size) of the reamer. (d) Rigidity of the fixture.
57. A nut is to be made for a screw of M10x1.5. What should be the size of drilled hole?
 (a) 8.5 mm (b) 9.0 mm
 (c) 9.5 mm (d) 10.0 mm
58. Which among the following factors will NOT influence the selection of the cutting speed while performing operation on drilling machine ?
 (a) Width of job (b) Material of job
 (c) Material of tool (d) Operation to be performed
59. The reamer teeth and spacing are designed to assist in reaming more accurate holes with good surface finish. Which one of the following is true regarding the number of teeth and their spacing ?
 (a) Uneven number of teeth and uneven spacing
 (b) Uneven number of teeth and even spacing
 (c) Even number of teeth and uneven spacing
 (d) Even number of teeth and even spacing
60. Which among the following is an artificial abrasive ?
 (a) Aluminium oxide (b) Emery
 (c) Diamond (d) Corundum

61. The angle of drill grinding gauge is
(a) 59° (b) 118°
(c) 121° (d) 124°
62. A die nut is nothing but
(a) a nut forged by using dies
(b) a die in the shape of a nut
(c) a nut for tightening the die in the die stock
(d) a die which is used for cutting threads in nuts
63. A warding file is similar to
(a) flat file but uniform in width
(b) hand file but narrow in width
(c) flat file but thinner in thickness
(d) flat file but thinner and uniform in thickness
64. The taper shank of a drill of 20 mm diameter has
(a) MT-1 taper (b) MT-2 taper
(c) MT-3 taper (d) MT-4 taper
65. For grinding carbide materials
(a) Aluminium oxide wheel is used (b) Silicon carbide wheel is used
(c) Diamond wheel is used abrasive (d) Corundum wheel is used
66. Hacksaw blades with fine-pitched teeth are more effective on
(a) thin section metal (b) soft metals
(c) broad section metals (d) non-metals
67. When threading a blind hole, the third (finisher) tap is used
(a) to thread the hole with full threads upto the bottom
(b) to start the threads
(c) after the first (rougher) tap
(d) to form the threads easily
68. In case of a single cut file, the teeth are cut on the file face at an angle of
(a) 45° to the centre line of the file (b) 60° to the centre line of the file
(c) 75° to the centre line of the file (d) 80° to the centre line of the file
69. A short reamer with an axial hole used with an arbor or mandrel is called
(a) parallel reamer (b) adjustable reamer
(c) expansion reamer (d) chucking reamer
70. The material of twist drill is generally
(a) H.S.S. (b) Carbide steel
(c) Diamond (d) Cast steel
71. The best position to hold the job in the vice when filing is
(a) eye level (b) shoulder level
(c) elbow level (d) arm level
72. Which one among the following is NOT the cause for a broken tap while tapping ?
(a) The tap has coarse threads (b) Too much downward pressure is applied
(c) Cutting oil is not used (d) Smaller tap drill size is used

73. What will happen if the job is loosely fitted between centres in cylindrical grinding ?
(a) The job will be out of round (b) The job will be oversized
(c) The job will be thrown out (d) The job will not rotate
74. The cause for glazing of a grinding wheel is
(a) grain size is too fine (b) wheel is hard.
(c) wheel speed is too fast (d) 'A' and 'B' both
75. Which one of the following bonds is most commonly used on grinding wheels ?
(a) Vitrified (b) Rubber
(c) Shellac (d) Silicate
76. A grinding wheel marked with 'C' is made with the
(a) Aluminium oxide (b) Silicon carbide
(c) Diamond (d) Corundum
77. As per Indian Standards the grain size '46' comes under the group
(a) coarse (b) medium
(c) fine (d) very fine
78. As per Indian Standards the 'M' grade of grinding wheel comes under the group
(a) soft (b) medium
(c) hard (d) very hard
79. The symbol conventionally used for resinoid bond is
(a) 'V' (b) 'R'
(c) 'B' (d) 'E'
80. A grinding wheel is marked : 51 A 46 L 5 V - 23. Here what does 5 denote ?
(a) Kind of bond (b) Structure
(c) Kind of abrasive (d) Grain size
81. Balancing of wheel is done to
(a) make the sides of the wheel parallel
(b) make the outside diameter concentric with the bore
(c) equalize the weight in every position of the wheel
(d) none of the above
82. Grinding fluids are used to
(a) reduce the friction between the wheel face and the job
(b) wash away chips
(c) prevent loading of wheel
(d) all of the above.
83. Taps are re-sharpened by grinding
(a) flutes (b) threads
(c) diameter (d) relief
84. The tapping hole should be
(a) larger than the tap size (b) smaller than the tap size
(c) equal to the tap size (d) equal to the core (minor) diameter of the tap
85. A rough file is used
(a) on irregular jobs (b) to reduce the metal rapidly
(c) on wood (d) if smooth file is not available

86. Tap water is NOT preferred as coolant while drilling. What is the reason for this ?
 (a) Insufficient cooling effect (b) Danger of corrosion
 (c) Decrease in cutting action of drill (d) Quick evaporation of water
87. A die is
 (a) external thread cutting tool (b) internal thread cutting tool
 (c) square thread cutting tool (d) acme thread cutting tool
88. A groove is being chipped by a chisel. How will you avoid the metal breaking off as a lump, when reaching the end of the groove ?
 (a) By chipping with light force when reaching the end
 (b) By using soluble oil
 (c) By holding the chisel with less inclination
 (d) By chipping the end portion from opposite side.
89. You have to cut an aluminium block to smooth finish. Which one of the following cut of file is most suitable ?
 (a) Single cut (b) Double cut
 (c) Rasp cut (d) Circular cut
90. For cylindrical grinding a small diameter work with fairly large wheel, which among the following grades of wheel should be used ?
 (a) Soft (b) Medium (c) Hard (d) Very soft
91. The teeth of hacksaw blade are set to
 (a) provide clearance for the blade
 (b) prevent jamming and breakage of blade
 (c) make the kerf wider than the blade (d) all of the above
92. Which one the following drilling machines is used for drilling holes where electricity is not available ?
 (a) Bench drilling machine (b) Pillar drilling machine
 (c) Radial drilling machine (d) Ratchet drilling machine
93. Which of the following reamers is particularly suitable for reaming holes having key way grooves ?
 (a) Straight fluted reamer (b) Helical fluted reamer
 (c) Taper reamer (d) Pilot reamer
94. Which one of the following is NOT the cause for glazing of wheel ?
 (a) Improper dressing of wheel (b) Dirty coolant
 (c) Hard wheel in place of soft wheel (d) Feed rate is too fine
95. The effect of using a glazed or loaded wheel is
 (a) more heat generation (b) poor surface finish
 (c) excessive cutting pressure between the wheel face and the work surface
 (d) all the above
96. Which among the following is NOT the cause for loading of grinding wheel?
 (a) Dense structure (b) Feed too fine
 (c) Wheel speed more than recommended (d) Proper grain size and grade of wheel.
97. Which one the following reamers can adjust itself in case of slight misalignment when fitted on a tailstock ?
 (a) Parallel reamer (b) Taper reamer

- (c) Adjustable reamer (d) Floating reamer
98. How does a hand reamer differ from a machine reamer ?
 (a) Larger bevel lead for the cutting edges (b) More number of cutting teeth
 (c) Less number of cutting teeth (d) Unequal spacing of cutting edges
99. It is commonly observed that the face of a grinding wheel becomes shiny and smooth or glazed after some use due to one of the following reasons.
 (a) Grade of wheel is too hard
 (b) Abrasive of wheel is not suitable for the purpose
 (c) Grain size is too coarse
 (d) Structure of the wheel is too open
100. What is the cause of a grinding wheel becoming glazed in a grinding machine ?
 (a) Grinding wheel's grade is too soft
 (b) Grinding wheel's grade is too large
 (c) Feed and traverse are less
 (d) Grinding wheel's speed is too high and work speed is low
101. Which one the following features, refers to vitrified bond wheels ?
 (a) Used for longer period due to dense structure
 (b) Used for longer period due to an elastic structure
 (c) Not sensitive to shocks and pressure (d) Suitable for wet and dry grinding
102. Dressing and truing of a grinding wheel are
 (a) exactly the same operation
 (b) done with the same equipment
 (c) done only for coarse grinding wheels
 (d) only for from grinding wheels
103. A hardened die block (work) has to be ground. It is required to retain the same hardness even after grinding. If the work is overheated in the grinding process, it may result in work being rejected or scrapped. Probable reason for rejection is that the work surface is
 (a) discoloured (b) softened
 (c) rough (d) brittle
104. Which one of the following machine reamers is used to correct the misalignment between the reamer axis and the work axis ?
 (a) Floating blade reamer (b) Shell reamer
 (c) Machine jig reamer (d) Chucking reamer
105. You have to select a grinding wheel with suitable abrasive to grind glass. What is the type of abrasive you will select?
 (a) Diamond (b) Emery
 (c) Quartz (d) Silicon carbide
106. Which one of the following cutting fluids is used during grinding mild steel ?
 (a) Mineral oil (b) Non-synthetic cutting oil
 (c) Soluble oil (d) Paraffin
107. Grinding with a balanced grinding wheel will make it possible to achieve the required
 (a) dimensional accuracy with surface finish (b) Positional tolerance surface finish only
 (c) Positional tolerance (d) Pattern of lay
108. Counter-boring is done for

- (a) deburring hole ends (b) Enlarging the hole to accurate size
 (c) Finishing the cored hole (d) Accommodating socket head screws
109. Oil grooves are to be cut in brass half bearings. Which one of the following chisels is suitable?
 (a) Flat chisel (b) Cross cut chisel
 (c) Half-round nose chisel (d) Web chisel
110. After threading a hole by a tap, it was found that the crest of thread was not formed through out. Which one of the following reasons would have caused this defect ?
 (a) Insufficient coolant supply
 (b) Broken the tip of cutting edge of the tap
 (c) Hole size slightly less than the tap drill size
 (d) Hole size slightly more than the tap drill size
111. Which is the possible cause when a twist drill produces a rough hole on the job?
 (a) The clearance angle is too big (b) The clearance angle is too small
 (c) The cutting speed is too small (d) Feed rate is too high
112. Which angle of counter sink drill you will select for seating counter sink type A (IS – 3406-1986) ?
 (a) Counter sink drill 75° (b) Counter sink drill 80°
 (c) Counter sink drill 90° (d) Counter sink drill 120°
113. What will be the result if the clearance angle in drill is increased ?
 (a) Poor wedging action. (b) Weak cutting edge
 (c) Rough hole surface (d) Increased point angle
114. A reamed hole has patches of poor finish. Which one of the following is the cause for this defect?
 (a) The bored hole has insufficient reaming allowance
 (b) Excessive cutting speed
 (c) Wrong selection of the reamer for the job
 (d) Insufficient coolant supply
115. Appropriate tool used for spot facing
 a. Reamer b. Counter sinks c. Fly cutter d. Lathe tool
116. Which among the following is not a capability of a reamer
 a. Finishing small holes b. Accuracy to close limit
 c. Producing high quality surface finish d. finishing any machined profile

Key to Exercise-07

- | | | | | |
|------|------|------|------|------|
| 1.d | 2.b | 3.c | 4.a | 5.c |
| 6.a | 7.b | 8.d | 9.b | 10.c |
| 11.a | 12.d | 13.d | 14.a | 15.d |
| 16.b | 17.a | 18.c | 19.c | 20.a |
| 21.d | 22.b | 23.d | 24.a | 25.d |
| 26.c | 27.b | 28.a | 29.b | 30.b |
| 31.b | 32.b | 33.a | 34.b | 35.b |
| 36.d | 37.d | 38.b | 39.a | 40.a |

| | | | | |
|-------|-------|-------|-------|-------|
| 41.c | 42.d | 43.b | 44.a | 45.d |
| 46.d | 47.a | 48.b | 49.a | 50.d |
| 51.a | 52.d | 53.c | 54.c | 55.d |
| 56.d | 57.a | 58.a | 59.c | 60.a |
| 61.c | 62.b | 63.c | 64.b | 65.b |
| 66.a | 67.a | 68.b | 69.d | 70.a |
| 71.c | 72.a | 73.a | 74.d | 75.a |
| 76.b | 77.b | 78.b | 79.c | 80.b |
| 81.c | 82.d | 83.a | 84.d | 85.b |
| 86.b | 87.a | 88.d | 89.a | 90.c |
| 91.d | 92.d | 93.b | 94.a | 95.d |
| 96.d | 97.d | 98.a | 99.a | 100.d |
| 101.d | 102.b | 103.b | 104.a | 105.a |
| 106.c | 107.a | 108.d | 109.c | 110.d |
| 111.d | 112.c | 113.b | 114.a | 115.c |
| 116.d | | | | |

Exercise-8. Forging

01. Swage block is made of
 (a) Mild steel (b) Malleable cast iron
 (c) High carbon steel (d) Tool steel
02. Which one of the following is the function of tuyeres in the forge ?
 (a) Permits cooled air (b) Controls smoke and sparks
 (c) Acts as an outlet of products of combustion (d) No function
03. Which among the following parts of the anvil is called beak ?
 (a) Rectangular top surface (b) Round tapered end
 (c) Square hole (d) Bottom portion
04. Which among the following is a term used in forging in which the thickness of the job is increased by decreasing its length ?
 (a) Drawing out (b) Punching
 (c) Drifting (d) Jumping
05. Anvil is a
 (a) Heavy block of cast steel (b) Heavy block of mild steel
 (c) Heavy block of high carbon steel (d) Light block of aluminium
06. Which one of the following tongs is used while forging hexagonal bolt ?
 (a) Round tong (b) Side tong
 (c) Hollow tong (d) Pipe tong
07. Forging is done when the metal is in

- (a) Liquid condition (b) Plastic condition
(c) Elastic condition (d) None of the above
08. Which one of the following operations is performed when bottom swage and top fuller are used together ?
(a) Hollowing (b) Drawing out
(c) Jumping (d) Bending
09. Forging is done at.
(a) the melting point of the metal (b) below the melting of the metal
(c) above the melting point of the metal (d) None of the above
10. Which one of the following vices is usually used in forging shop ?
(a) Hand vice (b) Bench vice
(c) Leg vice (d) Pin vice
11. Cast iron cannot be forged because it has the property of
(a) softness (b) stiffness
(c) toughness (d) brittleness
12. The most suitable heating temperature for forging low alloy steel is
(a) 750°C (b) 850°C
(c) 1100°C (d) 1200°C
13. Which among the following is a forging defect, which occurs during the upsetting process when faces of the stock become square?
(a) Buckling of stock (b) Folds
(c) Surface and internal cracks (d) None of the above
14. Which among the following is used for bending hooks of flat and round steel bars ?
(a) Bending links (b) Bending blocks
(c) Bolster swages (d) Fork tool
15. Fullers are used for
(a) Necking and grooving (b) Forming the heads of rivets, bolts etc
(c) Making shoulders with right angles (d) Drawing down
16. A high carbon steel has to be forged. Which colour indicates the most suitable forging temperature?
(a) Yellow (b) Dark cherry red
(c) White (d) Light yellow
17. The process of local thinning down of a stock by forging operation is called as :
(a) setting down (b) drawing down
(c) swaging out (d) punching
18. A high speed steel has to be forged. Which colour indicates the most suitable forging temperature ?
(a) Light yellow (b) Dark cherry red
(c) White (d) Yellow

Key to Exercise-08

01.b 2.c 3.b 4.d 5.a

6.b 7.b 8.a 9.b 10.c
11.d 12.c 13.a 14.c 15.a
16.d 17.a 18.d

Exercise-9. Heat Treatment

1. The purpose of normalizing steel is to
 - (a) remove induced stresses
 - (b) improve machinability
 - (c) soften the steel
 - (d) increase the toughness and reduce brittleness
2. A carbon steel piece is heated just above 730°C, maintained at that temperature for a few hours and then slowly cooled. What heat treatment process is carried out ?
 - (a) Normalizing (b) Casehardening
 - (c) Hardening (d) Annealing
3. A given component cracked after heat treatment. What can be the possible reason ?
 - (a) It was heated for long time
 - (b) It was not properly cleaned before heating
 - (c) It was suddenly cooled in brine
 - (d) It was slowly cooled in air
4. Case hardening is a method of producing hard skin on the surface of
 - (a) High-carbon steel parts (b) Cast iron (heavy parts)
 - (c) Low-carbon steel parts (d) Alloy steel parts
5. To reduce internal stresses of a hardened tool, the method of heat treatment generally applied is
 - (a) Stabilising (b) Annealing
 - (c) Normalising (d) Tempering
6. The toughness in a steel is increased and brittleness is decreased by a heat treatment operation called as
 - (a) Annealing (b) Normalizing
 - (c) Tempering (d) Case hardening
7. In a case hardening process, ammonia gas is introduced on steel; the process is known as
 - (a) Cyaniding (b) Nitriding
 - (c) Carburizing (d) Ammonising
8. "Cyaniding " and "Nitriding" are two methods of
 - (a) Hardening(b) Case hardening
 - (c) Tempering (d) Normalising
9. After heating upto required hardening temperature, why must tool steels be quenched ?
 - (a) To induce internal stresses
 - (b) To build up hardening structure

- (c) To fall off the scale
(d) To return it to its original structure
10. A punch is made out of unalloyed steel. After hardening a crack takes place. What can be the reason to develop this crack ?
(a) The punch is too long heated (b) The punch is too little heated
(c) The punch is too slowly quenched (d) The punch is suddenly quenched
11. Heat treatment of metals is necessary
(a) To produce certain desired properties
(b) To make good appearance on the component
(c) To increase strength of the metal
(d) To make the metal rust-proof
12. The external surface of the part made of mild steel can be hardened by
(a) Tempering (b) Normalising
(c) Case hardening (d) Hardening
13. In nitriding process the NH_3 gas is introduced at
(a) 500°C to 560°C (b) 575°C to 600°C
(c) 600°C to 650°C (d) 650°C to 700°C
14. H.S.S. is tempered at
(a) 220°C to 230°C (b) 230°C to 270°C (c) 280°C to 400°C (d) 550°C to 600°C
15. The instrument used to measure high temperature in the furnace is
(a) Thermometer (b) Barometer
(c) Colorimeter (d) Pyrometer
16. Which one of the following processes is used for hardening the surface of tool steel ?
(a) Carburizing (b) Cyaniding
(c) Induction hardening (d) Hardening
17. Lower critical temperature of high carbon steel while hardening is
(a) 960°C (b) 900°C
(c) 723°C (d) 560°C
18. Approximate hardness of HSS milling cutter is
(a) 45 HRC (b) 52 HRC
(c) 62 HRC (d) 75 HRC
19. The purpose of heat treatment is
(a) To change the mechanical properties of steel.
(b) To change the internal structure of steel
(c) To change the appearance of the component.
(d) To change the chemical properties of steel.
20. One component of C50 steel is heated to 830°C , soaked at it for some time and then quenched
in oil. Again it is heated to 600°C and quenched in oil. Name this process of heat treatment.
(a) Annealing (b) Normalizing
(c) Hardening and tempering (d) Case hardening
21. Which one of the following groups of quenching media is in order of their severity of the cooling rate, i.e. from slow to rapid cooling ?
(a) Oil, forced air, brine solution (b) Forced air, oil, brine solution

- (c) Brine solution, oil, forced air (d) Forced air, brine solution, oil
22. Which one of the following processes is adopted to improve the internal structure of steel, which has been subjected to severe hammering ?
(a) Hardening (b) Annealing
(c) Normalising (d) Tempering
23. Which one of the following structures of steel is obtained due to the drastic cooling from the austenite structure ?
(a) Pearlite (b) Cementite
(c) Martensite (d) Troostite
24. Which one of the following processes by which steel is heated to the required temperature and then cooled slowly in the furnace itself ?
(a) Tempering (b) Hardening
(c) Nitriding (d) Annealing
25. What is the main purpose of annealing ?
(a) To improve machinability (b) To improve magnetism
(c) To increase hardness (d) To increase toughness
26. During heat treatment when carbon is dissolved to form solid solution, it is known as
(a) Ferrite (b) Pearlite
(c) Austenite (d) Cementite
27. Which one of the following is the solid carburizing material ?
(a) Charcoal (b) Petrol
(c) Ammonia (d) Kerosene
28. While hardening, after heating the steel to the required temperature, it is held at that temperature as soaking time for normally
(a) 5 minutes for 10 mm thickness (b) 10 minutes for 5 mm thickness
(c) 2 minutes for 20 mm thickness (d) 20 minutes for 2 mm thickness
29. Which one of the following quenching media is used for hardening H.S.S. tool ?
(a) Water (b) Brine solution
(c) Oil (d) Soda water
30. What is the hardening temperature for H.S.S. tool ?
(a) 1250°C (b) 950°C
(c) 850°C (d) 750°C
31. Which one of the following is the purpose of tempering a hardened steel component ?
(a) To increase toughness (b) To increase ductility
(c) To increase hardness (d) To reduce hardness
32. While normalizing the steel should be cooled
(a) in still air to room temperature (b) in oil
(c) by forced air (d) in water
33. The process of increasing carbon percentage on the surface of low-carbon steel is known as
(a) Hardening (b) Nitriding
(c) Carburizing (d) Tempering
34. The process of producing a component with tough and ductile core and a hard outer surface is known as
(a) Hardening (b) Case hardening

- (c) Tempering (d) Annealing
35. The process of heating steel to about 40°C above the upper critical temperature and cooling it in still air to room temperature is known as
 (a) Hardening (b) Annealing
 (c) Normalizing (d) Tempering
36. Which one of the following heat treatment processes produces a scale-free surface on the component ?
 (a) Flame hardening (b) Case hardening
 (c) Nitriding (d) Induction hardening
37. In heat treatment process annealing is done to
 (a) increase the toughness
 (b) increase the softness
 (c) increase the hardness
 (d) increase the brittleness
38. After hardening process, the metal becomes more hardened and also will become more
 (a) Brittle (b) Ductile (c) Malleable (d) Tough
39. For case hardening the first stage is carburising. By carburising it is meant...
 (a) Increasing the percentage of carbon of the steel piece
 (b) Increasing the percentage of carbon of the core of the piece
 (c) Increasing the percentage of carbon on the surface
 (d) Decreasing the percentage of carbon of the steel piece
40. For annealing hypoeutectoid steel according to the carbon content, it should be heated to
 (a) 30°C to 50°C above the lower critical point
 (b) 30°C to 50°C above the upper critical point
 (c) 600°C to 630°C
 (d) 1000°C to 1030°C
41. Liquid carburising is done in a heated salt bath. Which one of the following is not a carburising salt ?
 (a) Sodium carbonate (b) Sodium sulphate
 (c) Sodium cyanide (d) Barium chloride
42. For best result of annealing, the heated steel piece is cooled
 (a) slowly in the furnace itself by switching off the heat supply
 (b) by removing the piece from the furnace and allowing it to cool in open air
 (c) by removing the piece from the furnace and placing it under a blast of air
 (d) by removing the piece from the furnace and dipping it in a tank containing water

Key to Exercise-9

- | | | | | |
|------|------|------|------|------|
| 1.a | 2.d | 3.c | 4.c | 5.d |
| 6.c | 7.b | 8.b | 9.b | 10.b |
| 11.a | 12.c | 13.a | 14.d | 15.d |
| 16.c | 17.c | 18.c | 19.a | 20.c |
| 21.b | 22.c | 23.c | 24.d | 25.a |
| 26.c | 27.a | 28.a | 29.c | 30.a |

31.a 32.a 33.c 34.b 35.c
36.d 37.b 38.a 39.c 40.b
41.b 42.a

Exercise-10. Sheet Metal Work

1. The thickness of sheet metal is indicated by a series of numbers, which is called as
 - (a) Number size
 - (b) Gauge
 - (c) Standard size
 - (d) None of the above
2. Bent snip is used for
 - (a) Removing the burr
 - (b) Making holes on the sheet
 - (c) Bending the sheet
 - (d) Cutting the sheet along curved lines
3. Which one of the following is the purpose for using plate hand groover in sheet metal worker ?
 - (a) To lock the grooved seam
 - (b) To unlock the grooved seam
 - (c) To strike the sheet
 - (d) To hold the sheet in position
4. Mallet is made of
 - (a) Lead
 - (b) Brass
 - (c) Hard wood
 - (d) Cast iron
5. Copper and brass sheets are
 - (a) Hard and brittle
 - (b) Malleable and ductile
 - (c) Malleable and brittle
 - (d) Hard and ductile
6. Which among the following joints is suitable for roofing work ?
 - (a) Lap joint
 - (b) Butt joint
 - (c) Hinged joint
 - (d) Double grooved seam joint
7. Which among the following tools is used for flattening the metal around punched hole ?
 - (a) Ball pane hammer
 - (b) Riveting hammer
 - (c) Setting hammer
 - (d) Sledge hammer
8. Which among the following types of joints is used in which the end of sheet is placed over the end of another sheet and joined together ?
 - (a) Lap joint
 - (b) Butt joint
 - (c) Knocked up joint
 - (d) Grooved seam joint
9. Sheet metal work is carried out only on metal sheets, which are
 - (a) Forged
 - (b) Cast
 - (c) Rolled
 - (d) None of the above
10. Which one of the following is the common reason for using aluminium sheets ?
 - (a) Lightness
 - (b) Brightness

- (c) Dullness (d) Darkness
11. Which one of the following notches is used when making a job with a 90° bend ?
 (a) Square notch (b) V – notch
 (c) Wired notch (d) Slant notch
12. Which one of the following stakes is used when shaping and seaming funnels and tapered articles?
 (a) Hatchet stake (b) Half-moon stake
 (c) Funnel stake (d) Creasing stake
13. Which among the following stakes provides a double ended support ?
 (a) Hatchet stake (b) Half-moon stake
 (c) Creasing stake (d) Horse stake
14. The least bend radius varies depending on the
 (a) Material and thickness of (b) Direction of plate
 (c) Working temperature (d) All the above
15. For making various types of hems and seams from the sheet metal of thickness less than 0.4 mm, the allowance should be
 (a) Twice the thickness of sheet. (b) Three times the thickness of sheet. (c)
 Four times the thickness of sheet. (d) No allowance.
16. Which one of the following sheets is used for making highly corrosive acid tanks .
 (a) Black iron sheets (b) Galvanised iron sheets
 (c) Stainless steel sheets (d) Lead sheets

Key to Exercise-10

- | | | | | |
|------|------|------|------|------|
| 1.b | 2.d | 3.a | 4.c | 5.b |
| 6.d | 7.a | 8.a | 9.c | 10.a |
| 11.b | 12.c | 13.d | 14.d | 15.d |
| 16.d | | | | |

Exercise-11. Soldering

1. In the process of soldering, you have noticed solder not sticking to sufficiently heated copper soldering bit when rubbed over solder bar. What step do you take to overcome the problem?
 (a) Pre- heat the solder (b) Clean the bit thoroughly
 (c) Change the soldering bit shape (d) Rub the bit over solder for longer period
2. Medium solder contains
 a.37% lead & 63% tin b.50% lead & 50% tin c.70% lead & 30% tin

d. none of above

3. Which is the flux used for soldering

a. Zinc chloride b. Ammonium Chloride c. Hydro chloric acid d. All the Above

4. Melting temperature range of soft solder

a. 150-350⁰c b. 600-900⁰c c. 500-600⁰c d. None of above

5. Electrician Solder contains

a. Lead 70% & Tin 30% b. Lead 58% & Tin 42% c. Lead 37% & tin 63% d. None of above

Key to Exercise- 11

1.b

2.b

3.d

4.a

5.b

Exercise-12. Riveting

1. The height of the snap head rivet is standardized to

(a) 0.5 x diameter of rivet (b) 0.7 x diameter of rivet
(c) 0.9 x diameter of rivet (d) 1.1 x diameter of rivet

2. In a riveted joint the edges of plates are simply laid over each other and riveted.

This joint is called

(a) Lap joint (b) Butt joint
(c) Edge joint (d) Corner joint

3. In a riveted joint the plates are placed end-to-end and jointed through cover plates.

This joint is called

(a) Lap joint (b) Butt joint
(c) Edge joint (d) Corner joint

4. In a riveted joint pitch is the distance between two adjacent rivets in the same row, measured parallel to the seam. It is usually equal to

(a) Diameter of the rivet hole (b) 2 x Diameter of the rivet hole
(c) 3 x Diameter of the rivet hole (d) 4 x Diameter of the rivet hole

5. In a riveted joint the minimum distance from a rivet hole centre to the nearest edge of the plate is called

(a) Back pitch (b) Allowance (c) Tolerance (d) Margin

6. A dolly is the name given to a category of tools used in

(a) Shaping sheet metal (b) Soldering sheet metal
(c) Piercing sheet metal (d) Testing sheet metal

7. If 'd' is the diameter of rivet and 't' the thickness of plate in mm in a riveted joint, Urwin's rule is

(a) $d = 2vt$ (b) $d = 4vt$ (c) $d = 6vt$ (d) $d = vt$

8. Caulking and fullering are the operation done to make riveted joints
 (a) Flexible (b) Strong
 (c) Rust-proof (d) Leak-proof
9. Which one of the following is a type of permanent fastener?
 (a) Cotter joint (b) Flange coupling
 (c) Knuckle joint (d) Riveted joint
10. The centre to centre distance between two adjacent rivets in the same row, measured parallel to the seam or edge of the plate is called
 (a) Lead (b) Pitch
 (c) Margin (d) Lag
11. The minimum distance from a rivet hole centre to the nearest edge of the plate is called
 (a) Lead (b) Pitch
 (c) Margin (d) Lag

Key to Exercise-12

- | | | | | |
|------|-----|-----|-----|------|
| 1.b | 2.a | 3.b | 4.c | 5.d |
| 6.a | 7.c | 8.d | 9.d | 10.b |
| 11.c | | | | |

Exercise-13. Welding

1. Which one of the following is a temporary joint?
 (a) Welded joint (b) Riveted joint
 (c) Soldered joint (d) Press fit joint
2. If a worker has suffered from electric shock, he should be
 (a) given an alcoholic drink (b) given a cold drink
 (c) made to walk (d) kept warm and covered
3. Which type of fire extinguisher is used in a welding shop?
 (a) Foam type extinguisher (b) Dry powder extinguisher
 (c) CO₂ extinguisher (d) Halon extinguisher
4. The arc utilized in electric arc welding is a
 (a) High voltage, high current discharge (b) Low voltage, low current discharge
 (c) Low voltage, high current discharge (d) High voltage, low current discharge
5. Which one of the following is the type of transformer used in arc welding?
 (a) Step down (b) Step up (c) One-to-one (d) Capable of increasing supply voltage
6. The welding machine, which is used to convert AC welding supply to DC welding supply is
 (a) Motor generator set (b) Engine generator set
 (c) Rectifier set (d) Welding transformer
7. In DC welding heat distribution is possible between electrode and the base metal due to the change of polarity. The distribution of heat is

- (a) Positive $2/3$ and negative $1/3$ (b) Positive $1/3$ and negative $2/3$
(c) Positive $3/4$ and negative $1/4$ (d) Positive $1/4$ and negative $3/4$
8. The size of a welding machine is determined by
(a) Input amperage (b) Output amperage
(c) Open circuit voltage (d) Closed circuit voltage
9. The position in which it is easiest to weld is
(a) Flat (b) Vertical
(c) Horizontal (d) Overhead
10. The electrode size refers to
(a) diameter of its core wire (b) diameter (overall) of electrode
(c) thickness of flux coating (d) length of electrode
11. One of the functions of electrode coating is
(a) to increase welding current (b) to stabilize the arc
(c) to prevent rusting (d) to control arc temperature
12. The electrodes are manufactured in two standard lengths namely
(a) 350 mm and 250 mm (b) 350 mm and 450 mm
(c) 400 mm and 500 mm (d) 12" and 10"
13. In an acetylene cylinder, the acetylene is dissolved in
(a) Water (b) Carbon Dioxide (c) Acetone (d) Mercury
14. The function of the central hole in the tip of the cutting blowpipe is
(a) Supply oxygen for preheating (b) Supply acetylene for preheating
(c) Supply oxygen for cutting (d) Supply acetylene for cutting
15. Cast iron contains two elements, which make it difficult to cut it by gas cutting. What are these elements?
(a) Sulphur and phosphorous (b) Silicon and graphite
(c) Graphite and phosphorous (d) Silicon and sulphur
16. Which fuel gas is used for cutting deep under water?
(a) Acetylene (b) Hydrogen
(c) LPG (d) Methane
17. If L (mm) is the length of the inner cone of the flame, the tip-to-metal distance should be
(a) L mm (b) L + 2 mm
(c) L + 4 mm (d) L + 6 mm
18. The correct flame for preheating before cutting is
(a) oxidizing flame (b) neutral flame
(c) carburising flame (d) slightly carburizing flame
19. The correct colours for oxygen and acetylene hoses are:
(a) Red for oxygen and blue for acetylene
(b) Black for oxygen and red for acetylene
(c) Black for oxygen and maroon for acetylene
(d) Red for oxygen and maroon for acetylene
20. While gas cutting the nozzle should
(a) almost touch the work (b) be 10 mm away from work
(c) be 2 mm away from work (d) be 5 mm away from work

21. If the blowpipe is moved to and fro frequently while cutting the kerf will
 (a) be more (b) of correct size
 (c) be less (d) not be affected
22. In gas cutting, if too little cutting oxygen is supplied
 (a) the metal will be cooled down (b) the kerf will be narrow
 (c) the kerf will be wide (d) the metal will fail to cut completely
23. The top edge is melted round and the cut face is not smooth in gas cutting. This is due to
 (a) extremely slow cutting speed (b) insufficient acetylene pressure
 (c) the tip being held too high (d) too much cutting oxygen pressure
24. In a gas cut plate, the cut shows grooves and has deep drag lines. This is due to
 (a) tip too close to the cut surface (b) too much travel speed
 (c) less oxygen pressure (d) smaller size cutting nozzle
25. In a gas cut plate, the cut is high quality although there is some surface roughness caused by vertical drag lines. This is due to
 (a) less preheating flame (b) impure cutting oxygen
 (c) too slow cutting speed (d) smaller size cutting nozzle
26. The size of the cutting nozzle used in oxy-acetylene cutting process depends mainly on
 (a) thickness of metal to be cut (b) purity of oxygen
 (c) duration of cut (d) type of cutting blowpipe
27. Acetylene is a fuel gas for gas cutting & welding composed of
 a. 7.7 of carbon & 92.3 % of hydrogen
 b. 92.3% carbon & 7.7 % hydrogen
 c. 100% carbon d. 50% carbon & 50% hydrogrn
28. Neutral flame in gas welding contains
 a. oxygen & Actylene in equal proportion
 b. More oxygen than Acetylene
 c. less oxygen than Acetylene
 d. None of the above

Key to Exercise-13

- | | | | | |
|------|------|------|------|------|
| 1.d | 2.d | 3.c | 4.c | 5.a |
| 6.c | 7.a | 8.b | 9.a | 10.a |
| 11.b | 12.b | 13.c | 14.c | 15.b |

| | | | | |
|------|------|------|------|------|
| 16.b | 17.b | 18.b | 19.c | 20.d |
| 21.a | 22.d | 23.c | 24.a | 25.c |
| 26.a | 27.b | 28.a | | |

Exercise-14.Miscellaneous Practice Questions

- The distance a drill moves into the work for each revolution of the spindle is called the
 - Feed of drill
 - Speed of drill
 - Depth of drill
 - Cutting speed of drill
- For sawing cast iron the coolant used is
 - water
 - dry air
 - kerosene
 - soluble oil
- Which one of the following metals is used to protect underground telephone and power cables from corrosion?
 - Copper
 - Lead
 - Nickel
 - Chromium
- The zero checking is done for (0-25 mm) depth micrometer on a
 - test piece
 - setting ring
 - surface plate
 - straight edge
- The melting point of soft solder is within the range of
 - 1000 to 160°C
 - 183° to 255°C
 - 243° to 305°C
 - 850° to 900°C
- Which one of the following is used as a coolant while drilling plastics ?
 - Water
 - Compressed air
 - Serve cut - 5
 - Serve synth - 2
- Which one of the following properties is the most essential for the metals in the process of casting, welding, brazing and soldering ?
 - Fusibility
 - Malleability
 - Tenacity
 - Plasticity
- Which one of the following metals has less carbon content?
 - Plain carbon steel
 - Wrought iron
 - Pig iron
 - Cast iron
- The composition of soft solder is lead and
 - silver
 - tin
 - copper
 - aluminium
- Metals possess physical and mechanical properties. Which one of the following is a physical property?

- (a) Fusibility (b) Tenacity
(c) Ductility (d) Malleability
11. Counterboring is done for
(a) deburring hole ends (b) enlarging holes to accurate size
(c) finishing cored holes (d) accommodating socket head screws
12. Which one of the following cutting fluids is used during grinding mild steel ?
(a) Mineral oil (b) Non synthetic cutting oil
(c) Soluble oil (d) Paraffin
13. Brass is an alloy of
(a) Copper and zinc (b) Copper and tin
(c) Copper and aluminium (d) Copper and lead
14. The cutting angle for chisel, for chipping mild steel is.....
(a) 45° (b) 50°
(c) 55° (d) 60°
15. The value of one thimble scale division in a metric micrometer is ...
(a) 1 mm (b) 0.5 mm
(c) 0.02 mm (d) 0.01 mm
16. Normal hardening temperature of less than 0.83% carbon plain carbon steel is ...
(a) Below the upper critical range (b) Above the upper critical range
(c) Below the lower critical range (d) Above the lower critical range
17. In heat treatment process normalising is done to ...
(a) Improve the machinability (b) Refine grain structure
(c) Increase the hardness (d) Increase the brittleness
18. After threading a hole by a tap, it was found that the crest of thread was not formed completely. This defect is due to ...
(a) Insufficient coolant supply
(b) Broken the tip of cutting edge of the tap
(c) Hole size slightly less than the tap drill size
(d) Hole size slightly more than the tap drill size
19. A nut, which can be tightened/loosened by thumb pressure and used in hack saw frame is called ...
(a) Ring nut (b) Thumb nut
(c) Cap nut (d) Wing nut
20. The faces of anvil and spindle of outside micrometer is made of ...
(a) Cast iron (b) Steel
(c) Tungsten carbide (d) Aluminium alloy
21. Measuring gauges require wear resistance. Which heat treatment process is required to get such property ?
(a) Normalizing (b) Case hardening
(c) Annealing (d) Tempering
22. Which one of the following is the formula for tap drill size to form 100% thread ?

- (a) Major dia. - $TPI \times 1/ \text{pitch}$
 - (b) Major dia. - $TPI \times \text{pitch}$
 - (c) Major dia. - $2 \times \text{depth of thread}$
 - (d) Major dia. - $1.5 \times \text{pitch}$
23. Which angle makes rake angle in a twist drill ?
- (a) Chisel angle
 - (b) Point angle
 - (c) Helix angle
 - (d) Lip clearance angle
24. Ductility is the property of metal which helps to manufacture ...
- (a) wires
 - (b) sheets
 - (c) pipes
 - (d) plates
25. Leakage should be checked before using oxy-acetylene welding equipment. What type of water can be used on the acetylene connection?
- (a) Salt water
 - (b) Soap water
 - (c) Hard water
 - (d) Fresh water
26. In vernier bevel protractor 23 degree is divided into how many vernier divisions?
- (a) 25
 - (b) 20
 - (c) 12
 - (d) 10
27. The drilled hole is larger than the size of drill used. The reason is ...
- (a) Too much feed
 - (b) Helix angle not accurate
 - (c) Lip clearance not accurate
 - (d) unequal length of the cutting edges
28. What is the specification of vernier height gauge ?
- (a) Length of scribe
 - (b) Height of base
 - (c) Width of beam
 - (d) Height of the main scale
29. Malleability is the property of metals which helps to manufacture ...
- (a) rods
 - (b) plates
 - (c) thin sheets
 - (d) wires
30. Two operations are done in oxy-acetylene gas cutting, they are preheating and cutting. Which flame should be set for preheating before cutting ?
- (a) Neutral flame
 - (b) Oxidising flame
 - (c) Carburising flame
 - (d) Slightly carburising flame
31. The function of flux during soldering is...
- (a) to prevent corrosion
 - (b) to provide wet surface
 - (c) to avoid porosity in solder
 - (d) to remove oxides from the soldering surface
32. The eye hole of the hammer is oval and tapers towards the centre because ...
- (a) it reduces the weight
 - (b) it is easy to manufacture
 - (c) it reduces the effort required to hammer
 - (d) to wedge the handle
33. Which is the possible cause when a twist drill produces a rough hole on the job ?
- (a) The clearance angle is too big
 - (b) The clearance angle is too small
 - (c) The cutting speed is too small

- (d) Feed rate is too high
34. The process of inducing toughness and reducing brittleness by heat treatment is called...
(a) Annealing (b) Hardening
(c) normalising (d) Tempering
35. The nozzle sizes are selected according to the thickness of the plates to be welded. Which one of the following nozzle size is suitable for 5 mm thickness of mild steel plates to be welded ?
(a) 5 (b) 7 (c) 10 (d) 13
36. The process of heating the high carbon steel above upper critical temperature followed by a slow cooling is termed as ...
(a) normalizing (b) annealing
(c) hardening (d) tempering
37. What is the correct tap drill for tapping M16 tap?
(a) 14 mm (b) 14.16 mm
(c) 15.03 mm (d) 15.08 mm
38. In riveted joints the pitch of rivet is the minimum distance between the rivet should be three times of rivet dia. If the pitch of rivet is too close it will
(a) lead to gaping (b) be difficult for riveting
(c) split the edges of joint (d) tear the metal along the centre line of the rivets
39. Best conductor of heat and electricity is ...
(a) Nickel (b) Copper
(c) Chromium (d) Aluminium
40. Annealing is the process of heating the steel above upper critical temperature and cool it ...
(a) open atmospheric air (b) covered with ash or sand
(c) suddenly quenching in water (d) suddenly quenching in oil.
41. Calculate the drill size for 20 mm reamed hole using the formula, undersize of hole = 0.3 mm and oversize for drill = 0.05 mm.
(a) 19.80 mm (b) 19.75 mm
(c) 19.70 mm (d) 19.65 mm
42. It is possible to measure the angle of a component to an accuracy of one minute with...
(a) Bevel protractor (b) Vernier Bevel protractor
(c) Combination set (d) Sine bar with slip gauges
- 43 . Which machine reamer has guides on front and rear sides?
(a) Jig reamer (b) Rose reamer
(c) Shell reamer (d) Chucking reamer
44. In a vernier micrometer, vernier scale is graduated on
(a) thimble (b) spindle
(c) barrel (d) frame
45. The purpose of heat treatment is..
(a) to make bright (b) to change in shape (c) to produce certain required properties
(d) to prevent it from rusting
46. Calculate the tap drill size in mm to tap M12 x 1 thread...
(a) 9.6 mm (b) 10.8 mm

(c) 11.38 mm (d) 11.62 mm

47. In which method of manual bending of sheet metal the folding line is to coincide with edge of bending tool?

(a) Folding bar method (b) Hatched stake method

(c) Angle iron and 'C' clamp (d) 'C' clamp and hardwood

48. What coolant is used for drilling the aluminium job?

(a) Dry air (b) Kerosene

(c) Soluble oil (d) Mineral oil

Key to Exercise-14

| | | | | |
|------|------|------|------|------|
| 1.a | 2.b | 3.b | 4.c | 5.b |
| 6.b | 7.a | 8.b | 9.b | 10.a |
| 11.d | 12.c | 13.a | 14.c | 15.d |
| 16.b | 17.b | 18.d | 19.d | 20.c |
| 21.b | 22.c | 23.c | 24.a | 25.b |
| 26.c | 27d | 28.d | 29.c | 30.a |
| 31.d | 32.d | 33.d | 34.d | 35.d |
| 36.b | 37.b | 38.d | 39.b | 40.b |
| 41.d | 42.d | 43.a | 44.c | 45.c |
| 46.b | 47.b | 48.b | | |