

## **FINAL ANSWER KEY**

Question 6/2026/OL

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Exam: Tradesman Smithy Forging and Heat Treatin

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Department Technical Education

Question1:-Which of the following is the combination of fire?

A:-Fuel, heat and carbon dioxide

B:-Fuel, light and oxygen

C:-Fuel, heat and oxygen

D:-Fuel, heat and carbon

Correct Answer:- Option-C

Question2:-What is the best method to avoid accident?

A:-By observing safety precautions relating to a job, machine and working place

B:-By wearing safety equipments

C:-Doing things in one's own way

D:-Doing things with a highly skilled working practice

Correct Answer:- Option-A

Question3:-The accuracy of British type steel rule is

A:-1/16 inch

B:-1/64 inch

C:-1/32 inch

D:-1/128 inch

Correct Answer:- Option-B

Question4:-Which personal protective equipment is used for ear protection?

A:-Helmet

B:-Ear plug

C:-Goggles

D:-Leather apron

Correct Answer:- Option-B

Question5:-The type of hacksaw blade used for cutting conduit, thin tubings and other sheet metal works is

A:-1.8 mm pitch blade

B:-1.4 mm pitch blade

C:-1 mm pitch blade

D:-0.8 mm pitch blade

Correct Answer:- Option-D

Question6:-What stands for C in ABC of first aid?

A:-Circulation

B:-Circumstances

C:-Critical

D:-Care

Correct Answer:- Option-A

Question7:-What is the name of the hazard if the machine is unguarded while working?

A:-Physical hazard

B:-Biological hazard

C:-Electrical hazard

D:-Mechanical hazard

Correct Answer:- Option-D

Question8:-Which type of extinguishers are used to control B class fire?

A:-Water filled extinguishers

B:-Dry powder extinguishers

C:-Fire blanket

D:-Carbon dioxide extinguishers

Correct Answer:-**Question Cancelled**

Question9:-The odd leg caliper is used to

A:-For finding the external diameter of round bar

B:-For finding the centre of a round bar

C:-For finding the internal diameter of a pipe

D:-For finding the angles

Correct Answer:- Option-B

Question10:-The part of hammer which is used for striking is known as

A:-Pein

B:-Cheek

C:-Face

D:-Eye hole

Correct Answer:- Option-C

Question11:-The outside caliper is used as

- A:-Direct measuring instrument
- B:-Indirect measuring instrument
- C:-Both (1) and (2)
- D:-Precision measuring instrument

Correct Answer:- Option-B

Question12:-Which type of hand tool is used to set down right angles (shoulders) while forging?

- A:-Fullers
- B:-Bolsters
- C:-Punch
- D:-Set hammer

Correct Answer:- Option-D

Question13:-Which of the following file is used for filing wood and rubber?

- A:-Rasp cut file
- B:-Single cut file
- C:-Double cut file
- D:-Curved cut file

Correct Answer:- Option-A

Question14:-Which type of metal is used to make anvil?

- A:-Mild steel
- B:-Cast iron
- C:-Wrought iron
- D:-Cast steel

Correct Answer:- Option-D

Question15:-Which of the following is not a type of chisel?

- A:-Cross cut chisel
- B:-Diamond point chisel
- C:-Bullnose chisel
- D:-Round nose chisel

Correct Answer:- Option-C

Question16:-The nut used to fix blade in hacksaw frame is known as

- A:-Castle nut
- B:-Wing nut
- C:-Thumb nut
- D:-Lock nut

Correct Answer:- Option-B

Question17:-The file is made up of

- A:-Stainless steel
- B:-Cast iron
- C:-Mild steel
- D:-High carbon steel

Correct Answer:- Option-D

Question18:-The instrument used for removing pinning of file is

- A:-File card
- B:-Wire brush
- C:-Dresser
- D:-Scriber

Correct Answer:- Option-A

Question19:-The type of chisel used for squaring materials at the corner is

- A:-Flat Chisel
- B:-Diamond point chisel
- C:-Cross cut chisel
- D:-Web chisel

Correct Answer:- Option-B

Question20:-Which type of vice is used in forging shop for hammering work pieces?

- A:-Bench vice
- B:-Pin vice
- C:-Hand vice
- D:-Leg vice

Correct Answer:- Option-D

Question21:-The carbon percentage of cast iron is

- A:-0.1% to 0.6%
- B:-0.5% to 1%
- C:-2% to 4%
- D:-0.6% to 1.7%

Correct Answer:- Option-C

Question22:-What is the specific gravity of aluminium?

- A:-2.7
- B:-8.5
- C:-10.6
- D:-4.6

Correct Answer:- Option-A

Question23:-The melting point of copper is

- A:-982°C
- B:-832°C
- C:-728°C
- D:-1083°C

Correct Answer:- Option-D

Question24:-The ore of lead is

- A:-Malachite
- B:-Galena
- C:-Bauxite
- D:-Cassiterite

Correct Answer:- Option-B

Question25:-The melting point of zinc is

- A:-420°C
- B:-658°C
- C:-327°C
- D:-1005°C

Correct Answer:- Option-A

Question26:-What is the specific gravity of lead

- A:-9.7
- B:-8.2
- C:-11.36
- D:-7.6

Correct Answer:- Option-C

Question27:-Crane hooks are made of

- A:-Copper
- B:-Wrought iron
- C:-Babbit metal
- D:-Cast iron

Correct Answer:- Option-B

Question28:-The specific gravity of tin is

- A:-2.3
- B:-8.3
- C:-1.6
- D:-7.8

Correct Answer:- Option-D

Question29:-The process of reduction of iron ore to pig iron is called

- A:-Squeezing
- B:-Drawing
- C:-Smelting
- D:-Forging

Correct Answer:- Option-C

Question30:-The specific gravity of copper is

- A:-8.92
- B:-7.1
- C:-10.3
- D:-2.9

Correct Answer:- Option-A

Question31:-The carbon percentage of high carbon steel is

- A:-0.15% to 0.3%
- B:-0.6% to 1.7%
- C:-2.5% to 3.2%
- D:-3% to 4%

Correct Answer:- Option-B

Question32:-The property of a material which enables it to draw out into thin wire is called

- A:-Malleability
- B:-Stiffness
- C:-Elasticity
- D:-Ductility

Correct Answer:- Option-D

Question33:-The property of a material will break easily when given a sudden blow is called

- A:-Elasticity
- B:-Plasticity
- C:-Brittleness
- D:-Resilience

Correct Answer:- Option-C

Question34:-The ore of zinc is

- A:-Bauxite
- B:-Calamine
- C:-Pyrites

D:-Austenite

Correct Answer:- Option-B

Question35:-What is the melting point of Nickel?

A:-1450°C

B:-1007°C

C:-858°C

D:-660°C

Correct Answer:- Option-A

Question36:-The carbon percentage of medium carbon steel is

A:-2.5% to 3%

B:-1% to 2%

C:-0.3% to 0.6%

D:-0.75% to 0.8%

Correct Answer:- Option-C

Question37:-High speed steel is an alloy of

A:-16% Nickel, 6% vanadium, 2% cobalt

B:-20% Tungsten, 4% Cadmium, 1% Chromium

C:-10% Vanadium, 3% Chromium, 2% Molybdenum

D:-18% Tungsten, 4% Chromium, 1% Vanadium

Correct Answer:- Option-D

Question38:-The melting point of cadmium is

A:-428°C

B:-320°C

C:-660°C

D:-932°C

Correct Answer:- Option-B

Question39:-Brass is an alloy of

A:-Copper and Zinc

B:-Copper and Lead

C:-Copper and Nickel

D:-Copper and Tin

Correct Answer:- Option-A

Question40:-The melting point of Bronze is

A:-930°C

B:-658°C

C:-1005°C

D:-735.C

Correct Answer:- Option-C

Question41:-When a metal is sufficiently heated it acquires plastic stage what change happens to the metal?

- A:-It becomes soft
- B:-It becomes hard
- C:-It becomes tensile
- D:-It becomes fatigue

Correct Answer:- Option-A

Question42:-Upsetting or jumping belongs to

- A:-Cross section of metal is increased
- B:-Cross section of metal is decreased
- C:-Length of metal is decreased
- D:-Cross section of metal is increased with reduction in its length

Correct Answer:- Option-D

Question43:-Which one of the following is exact in reverse process of upsetting or jumping?

- A:-Drifting
- B:-Bending
- C:-Drawing out
- D:-Setting down

Correct Answer:- Option-C

Question44:-What is the name of the operation performed in removing, excess metal from the job before finishing it?

- A:-Upsetting
- B:-Cutting
- C:-Bending
- D:-Drifting

Correct Answer:- Option-B

Question45:-What is the usual temperature range for hot cutting operations

- A:-850°C to 950°C
- B:-500°C to 600°C
- C:-700°C to 750°C
- D:-600°C to 700°C

Correct Answer:- Option-A

Question46:-Which one of the following operation in which the punch is forced through a job to produce hole?

A:-Setting down

B:-Roll piercing

C:-Punching

D:-Drawing out

Correct Answer:- Option-C

Question47:-What type of welding is Forge welding?

A:-Pressure welding

B:-Non pressure welding

C:-Percussion welding

D:-Friction welding

Correct Answer:- Option-A

Question48:-Two bars made to join end to end by welding such that the joint formation is at right angles to length of the piece. Which type of joint is this?

A:-Lap joint

B:-Butt joint

C:-T joint

D:-Corner joint

Correct Answer:- Option-B

Question49:-What type of press are used for heavy work while press forging?

A:-Hydraulic press

B:-Mechanical press

C:-Hand press

D:-Pneumatic press

Correct Answer:- Option-A

Question50:-Which one of the following forging operation is used for mass production of identical articles in industries?

A:-Press forging

B:-Roll forging

C:-Drop forging

D:-Hand forging

Correct Answer:- Option-C

Question51:-What is the forging temperature range for mild steel?

A:-750°C - 1300°C

B:-900°C - 1300°C

C:-800°C - 1150°C

D:-940°C - 1180°C

Correct Answer:- Option-A

Question52:-What is the forging defect when shallow surface depressions caused by not removing the scales from the dies?

- A:-Mismatch defect
- B:-Scale pits defect
- C:-Ingots defect
- D:-Slag and blow hole defect

Correct Answer:- Option-B

Question53:-Which one of the range of temperature is used for copper brass and bronze forging?

- A:-750°C - 1250°C
- B:-900°C - 1300°C
- C:-600°C - 950°C
- D:-900°C - 1180°C

Correct Answer:- Option-C

Question54:-While forge welding the ends of the metal pieces to be joined are made to overlap each other and then hammered. The weld joint is

- A:-V weld
- B:-Butt weld
- C:-Lap weld
- D:-Groove weld

Correct Answer:- Option-C

Question55:-The resistance of the material to permanent deformation such as indentation, wear, abrasion, scratch is known as

- A:-Brittleness
- B:-Hardness
- C:-Creep
- D:-Ductility

Correct Answer:- Option-B

Question56:-What mechanical test is used for material properties which are used in engineering design analysis of structure and material development?

- A:-Hardness test
- B:-Creep test
- C:-Bend test
- D:-Fatigue test

Correct Answer:- Option-A

Question57:-Which one of the following test is hardness test?

- A:-Free bend test
- B:-Tensile test
- C:-Brinell test
- D:-Radiographic test

Correct Answer:- Option-C

Question58:-Which hardness test method is used to develop for production control

- A:-Knoop hardness test
- B:-Rockwell hardness test
- C:-Brinell hardness test
- D:-Vickers hardness test

Correct Answer:- Option-B

Question59:-Which one of the following is used to convert molten pig iron to steel?

- A:-Bessemer convertor
- B:-Blast furnace
- C:-Cupola furnace
- D:-Black smith forge furnace

Correct Answer:- Option-A

Question60:-Which one of the following is not used for making steel?

- A:-Cupola furnace
- B:-Open hearth furnace
- C:-Bessemer converter
- D:-High frequency furnace

Correct Answer:- Option-A

Question61:-The temperature of open hearth process is prepared up to \_\_\_\_\_°C while making steel.

- A:-1400°C
- B:-1600°C
- C:-1500°C
- D:-1300°C

Correct Answer:- Option-C

Question62:-What type of steel production furnace is used for making press tools, cutting tools and precision measuring tools?

- A:-High frequency furnace
- B:-Open hearth furnace
- C:-Bessemer converter
- D:-Blast furnace

Correct Answer:- Option-A

Question63:-The furnace used to convert pig iron to cast iron

- A:-Cupola furnace
- B:-Blast furnace
- C:-Open hearth furnace
- D:-Bessemer converter

Correct Answer:- Option-A

Question64:-Which one of the following furnace is used for producing pig iron

- A:-Cupola furnace
- B:-Blast furnace
- C:-Open hearth furnace
- D:-High frequency furnace

Correct Answer:- Option-B

Question65:-Induction furnaces are classified in to

- A:-Two types
- B:-One type
- C:-Three types
- D:-Four types

Correct Answer:- Option-A

Question66:-Which of the following is the hardest structure that appears on the iron-carbon equilibrium diagram?

- A:-Pearlite
- B:-Cementite
- C:-Ferrite
- D:-Branite

Correct Answer:- Option-B

Question67:-The crystal structure of cementite grain is

- A:-Triclinic
- B:-Orthorhombic
- C:-Hexagonal
- D:-Monoclinic

Correct Answer:- Option-B

Question68:-What is the product of austenite decomposition by an eutectoid reaction?

- A:-Pearlite
- B:-Cementite

C:-Ferrite

D:-Bainite

Correct Answer:- Option-A

Question69:-The approximate value of tensile strength of ferrite is

A:-8200 Kg/cm<sup>2</sup>

B:-10000 Kg/cm<sup>2</sup>

C:-980 Kg/cm<sup>2</sup>

D:-2800 Kg/cm<sup>2</sup>

Correct Answer:- Option-D

Question70:-Which of the following is the softest structure?

A:-Bainite

B:-Pearlite

C:-Ferrite

D:-Cementite

Correct Answer:- Option-C

Question71:-Which of the following process produces hard case without quenching?

A:-Nitriding

B:-Cyaniding

C:-Pack carburising

D:-Induction hardening

Correct Answer:- Option-A

Question72:-Which process is generally preferred for hardening of machine tool guide ways?

A:-Vacuum hardening

B:-Flame hardening

C:-Induction hardening

D:-Carbo nitriding

Correct Answer:- Option-B

Question73:-Which of the following process produces maximum hardness value in steel parts?

A:-Carburising

B:-Annealing

C:-Nitriding

D:-Cyaniding

Correct Answer:- Option-C

Question74:-The process of introducing carbon and nitrogen in to a solid ferrous

alloy is known as

- A:-Carbonitriding
- B:-Cyaniding
- C:-Carburising
- D:-Nitriding

Correct Answer:-**Question Cancelled**

Question75:-In which of the following process ammonia bath is generally used?

- A:-Flame Hardening
- B:-Nitriding
- C:-Cyaniding
- D:-Case hardening

Correct Answer:- Option-B

Question76:-The main objective of tempering is

- A:-To reduce ductility
- B:-To improve ductility
- C:-To increase brittleness
- D:-To improve internal stresses

Correct Answer:- Option-B

Question77:-Austempering heat treatment process is done to improve

- A:-Toughness
- B:-Hardness
- C:-Brittleness
- D:-Machinability

Correct Answer:- Option-A

Question78:-Heat treatment given to hardened steel to improve its ductility is

- A:-Annealing
- B:-Normalizing
- C:-Tempering
- D:-Hardening

Correct Answer:- Option-C

Question79:-In austempering process of heat treatment, the austenite changes in to

- A:-Martensite
- B:-Troostite
- C:-Sorbite
- D:-Bainite

Correct Answer:- Option-D

Question80:-In normalising operation of steel castings, the cooling is done in

- A:-Oil bath
- B:-Water
- C:-Air
- D:-Furnace

Correct Answer:- Option-C

Question81:-Which of the following is a intermetallic compound?

- A:-Ferrite
- B:-Cementite
- C:-Pearlite
- D:-Austenite

Correct Answer:- Option-B

Question82:-Which of the following heat treatment method is used to avoid cracking of hardened steel?

- A:-Martempering
- B:-Normalizing
- C:-Austempering
- D:-Annealing

Correct Answer:-**Question Cancelled**

Question83:-Which of the following process does not improve hardness?

- A:-Nitriding
- B:-Flame hardening
- C:-Cyaniding
- D:-Annealing

Correct Answer:- Option-D

Question84:-Which of the following is the common surface hardening treatment of steel?

- A:-Carburizing
- B:-Tempering
- C:-Quenching
- D:-Boronizing

Correct Answer:- Option-A

Question85:-The commonly used flame for flame hardening is \_\_\_\_\_

- A:-Hydrogen flame
- B:-Oxy-acetylene flame

C:-Oxy-LPG flame

D:-Methane flame

Correct Answer:- Option-B

Question86:-In a third angle projection of presenting the six standard views, the Top view is located at

A:-Right hand side of front view

B:-Above the front view

C:-Left hand side of front view

D:-Below the front view

Correct Answer:- Option-B

Question87:-Centroidal lines are usually represented by

- (i) Chain thin double-dashed
- (ii) Long-dashed double-dotted (narrow)
- (iii) Dashed thick

A:-Only (iii)

B:-Both (i) and (ii)

C:-Both (i) and (iii)

D:-All of the above (i, ii and iii)

Correct Answer:- Option-B

Question88:-In the aligned system of dimensioning which of the following statements is most accurate according to BIS (Bureau of Indian Standards) conventions?

A:-Dimensions are always placed horizontally regardless of the orientation of the feature being dimensioned

B:-Dimensions may be read from any edge of the drawing, including the top or left, depending on the drafter's preference

C:-Dimensions are placed parallel to the dimension line and aligned such that they can be read from the bottom or right-hand side of the drawing sheet

D:-Dimensions are placed below the dimension line in the aligned system and are read only from the bottom of the sheet

Correct Answer:- Option-C

Question89:-In an isometric projection of a cube, the square faces appear as

A:-Rectangles due to distortion along the vertical axis

B:-Parallelograms because of unequal scaling

C:-Rhombuses because all edges are equally foreshortened

D:-Trapeziums due to the inclination of the cube

Correct Answer:- Option-C

Question90:-Which of the following lists of fractions is arranged in ascending order?

A:- $\frac{5}{8}$ ,  $\frac{3}{4}$ ,  $\frac{1}{2}$ ,  $\frac{2}{3}$

B:-1/2, 2/3, 3/4, 5/8

C:-1/2, 5/8, 2/3, 3/4

D:-3/4, 2/3, 5/8, 1/2

Correct Answer:- Option-C

Question91:-What is the square root of 45796?

A:-206

B:-216

C:-204

D:-214

Correct Answer:- Option-D

Question92:-If  $x+\frac{1}{x}=5$  , what is the value of  $x^2+\frac{1}{x^2}$ ?

A:-21

B:-23

C:-25

D:-27

Correct Answer:- Option-B

Question93:-Two bells ring at intervals of 36 minutes and 48 minutes. If both bells ring together at 9:00 AM, at what time will they next ring together?

A:-11:12 AM

B:-11:24 AM

C:-11:36 AM

D:-11:48 AM

Correct Answer:- Option-B

Question94:-The HCF of two numbers is 16, and their difference is 48. If one of the numbers is 112, what is the other number?

A:-64

B:-80

C:-96

D:-128

Correct Answer:- Option-A

Question95:-A solid metallic sphere of radius 7 cm is melted and recast into smaller spherical balls, each of radius 1 cm. How many such smaller spheres can be formed?

A:-343

B:-364

C:-512

D:-539

Correct Answer:- Option-A

Question96:-Which of the following correctly defines the SI unit of force, the Newton (N)?

- A:-The force required to accelerate 1 kg of mass at 1 m/s<sup>2</sup>
- B:-The force required to accelerate 1 g of mass at 1 m/s<sup>2</sup>
- C:-The force required to accelerate 1 kg of mass at 1 cm/s<sup>2</sup>
- D:-The force required to accelerate 1 g of mass at 1 cm/s<sup>2</sup>

Correct Answer:- Option-A

Question97:-Which of the following statements about limiting friction is correct?

- A:-Limiting friction is always greater than the kinetic friction
- B:-Limiting friction acts only when the object is in motion
- C:-Limiting friction is independent of the normal reaction
- D:-Limiting friction depends on the area of contact

Correct Answer:- Option-A

Question98:-Which of the following is not a unit of pressure measurement?

- A:-Psi
- B:-mm of Hg
- C:-Bar
- D:-N/m

Correct Answer:- Option-D

Question99:-Assertion (A) : The coefficient of friction has no unit and no dimension.

Reason (R) : It is defined as the ratio of the frictional force to the normal reaction force

- A:-Both (A) and (R) are true, and (R) is the correct explanation of (A)
- B:-Both (A) and (R) are true, but (R) is not the correct explanation of (A)
- C:-(A) is true, but (R) is false
- D:-(A) is false, but (R) is true

Correct Answer:- Option-C

Question100:-In a third-order (third-class) lever, the positions of effort, fulcrum and load are

- A:-Load is between fulcrum and effort
- B:-Effort is between load and fulcrum
- C:-Fulcrum is between load and effort
- D:-All three are at the same point

Correct Answer:- Option-B