Andhra Pradesh State Council of Higher Education

Notations:

1. Options shown in green color and with ✓ icon are correct.

2.Options shown in red color and with * icon are incorrect.

Question Paper Name: Metallurgy 29th Sep 2021 Shift1

Duration: 120

Total Marks: 120

Display Marks: No

Share Answer Key With Delivery Engine: Yes

Calculator: None

Magnifying Glass Required?: No

Ruler Required?: No

Eraser Required?: No

Scratch Pad Required?: No

Rough Sketch/Notepad Required?: No

Protractor Required?: No

Show Watermark on Console?: Yes

Highlighter: No

Auto Save on Console? (SA type of questions will

be always auto saved):

Is this Group for Examiner? : No

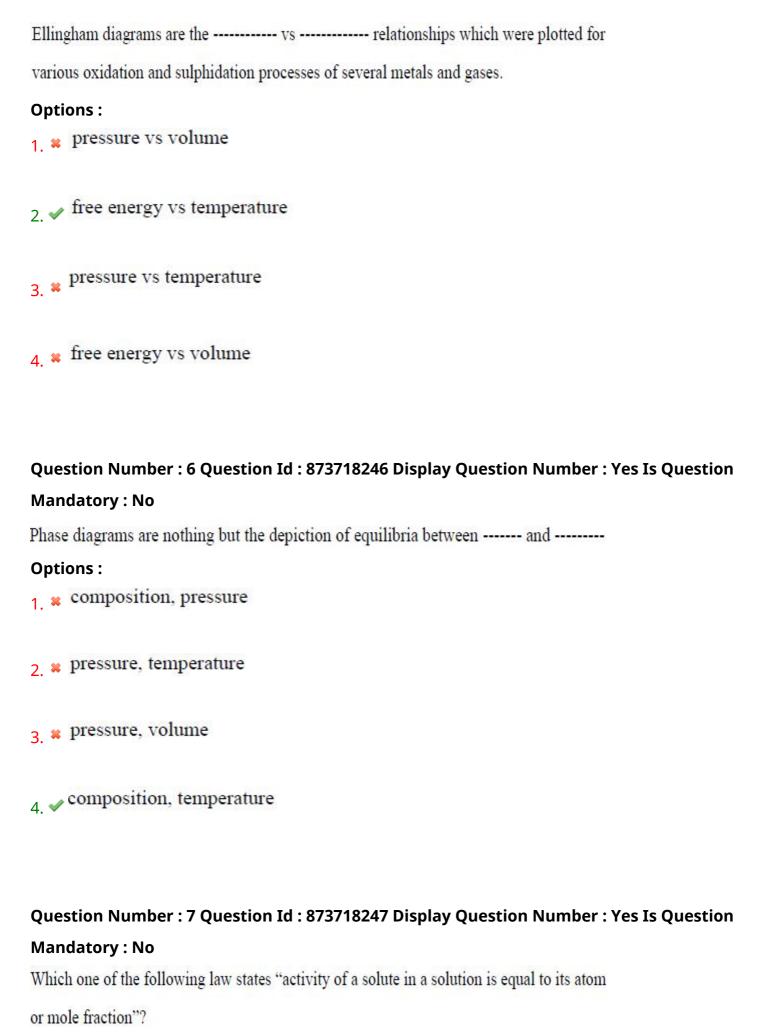
Metallurgy

Yes

Section Id :	8737183
Section Number :	1
Mandatory or Optional :	Mandatory
Number of Questions :	120
Section Marks :	120
Enable Mark as Answered Mark for Review and	Yes
Clear Response :	res
Question Number : 1 Question Id : 873718241 Displa	ay Question Number : Yes Is Question
Mandatory : No	
In a closed system can be exchanged to its surroun	dings, but not
Options :	
1. * matter, energy	
2. ✓ energy, matter	
3. * pressure, volume	
4. * volume, pressure	
Question Number : 2 Question Id : 873718242 Displa	ay Question Number : Yes Is Question
·	ay Question Number . Tes is Question
Mandatory: No Which one of the following is considered as intensive	e property of a system?
Options:	. property of a system:
MANUAL PROPERTY AND ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERT	
1. * Volume	
2. * Internal energy	
3. * Mass	

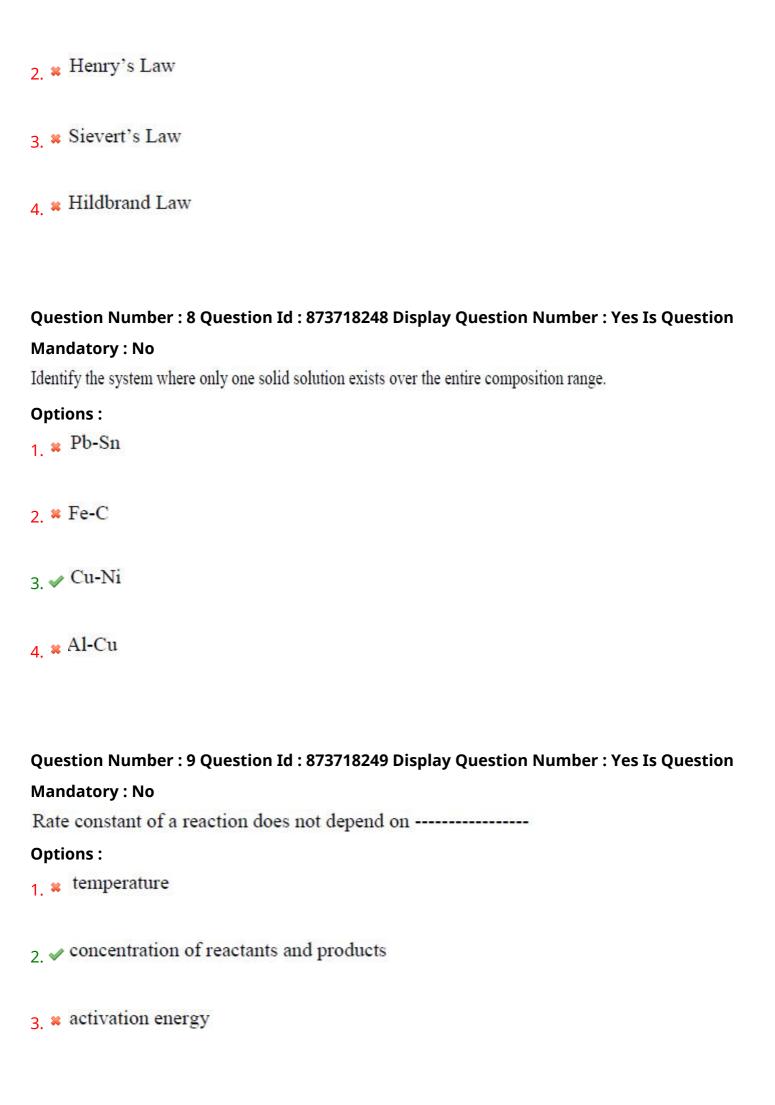
4. Density
Question Number : 3 Question Id : 873718243 Display Question Number : Yes Is Question
Mandatory : No
The law of conservation of energy represents law of thermodynamics.
Options:
1. ✔ first
2. * second
3. * third
4. * zeroth
Question Number : 4 Question Id : 873718244 Display Question Number : Yes Is Question
Mandatory : No
The amount of heat required to raise its temperature by one degree is known as
Options:
1. * activation energy
1. * activation energy2. * chemical potential
2. * chemical potential
2. ★ chemical potential 3. ★ heat capacity
2. * chemical potential
2. ★ chemical potential 3. ★ heat capacity

Question Number : 5 Question Id : 873718245 Display Question Number : Yes Is Question Mandatory : No



1. Raoult's Law

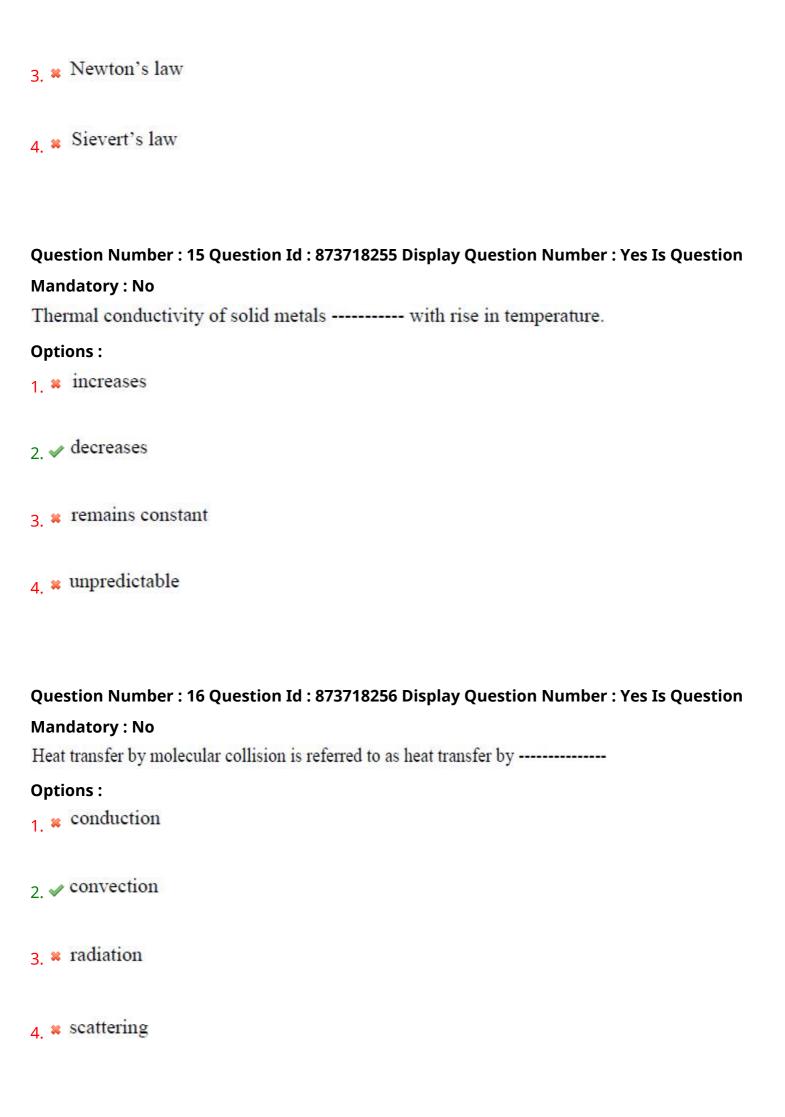
Options:



4. * catalyst
Question Number: 10 Question Id: 873718250 Display Question Number: Yes Is Question
Mandatory : No
Rate of a reaction may be expressed in terms of
Options:
1. * change in volume with temperature
2. * change in volume per unit time
3. * change in mass of a component with temperature
3. * change in mass of a component with temperature
4. ✓ change in mass of a component per unit time
Question Number : 11 Question Id : 873718251 Display Question Number : Yes Is Question
Mandatory : No
When heating one end of a metal plate, other end gets hot because of
Options:
1. * the resistance of the metal
2. * the mobility of atoms in the metal
3. w the energized electrons moving to other end of metal
4. * minor perturbation in the energy of atoms
4. **

Question Number : 12 Question Id : 873718252 Display Question Number : Yes Is Question Mandatory : No

How many modes of heat transfer are generally recognized?
Options:
1. * One
2. * Two
3. ✓ Three
4. * Four
Question Number : 13 Question Id : 873718253 Display Question Number : Yes Is Question
Mandatory : No
What is the unit of the 'rate of heat transfer'?
Options:
1. ✓ Watt
2. * Joule
3. * Newton
4. * Pascal
Question Number: 14 Question Id: 873718254 Display Question Number: Yes Is Question
Mandatory : No
Diffusion of a component in a system is governed by
Options:
1. * Stokes' law
2. ✓ Fick's first law



Question Number : 17 Question Id : 873718257 Display Question Number : Yes Is Question
Mandatory : No
Heat is transferred by all three modes of transfer, viz, conduction, convection and
radiation in
Options:
1. * electric heater
2. * steam condenser
3. * melting of ice
4. ✔ boiler
Question Number : 18 Question Id : 873718258 Display Question Number : Yes Is Question Mandatory : No
Find the operation where diffusion of solids does not occur.
Options :
1. Distillation
2. * Leaching
3. * Drying
4. * Adsorption
Question Number : 19 Question Id : 873718259 Display Question Number : Yes Is Question

Identify the fluid having highest viscosity.

Mandatory : No

Options:

- 1. Water
- 2. ✓ Honey
- 3. * Blood
- 4. * Air

Question Number : 20 Question Id : 873718260 Display Question Number : Yes Is Question Mandatory : No

The pressure for an ideal gas can be given by -----

Options:

$$1. \checkmark pV = nRT$$

$$2. \times p = RT$$

$$3. \times pV = T$$

Question Number : 21 Question Id : 873718261 Display Question Number : Yes Is Question

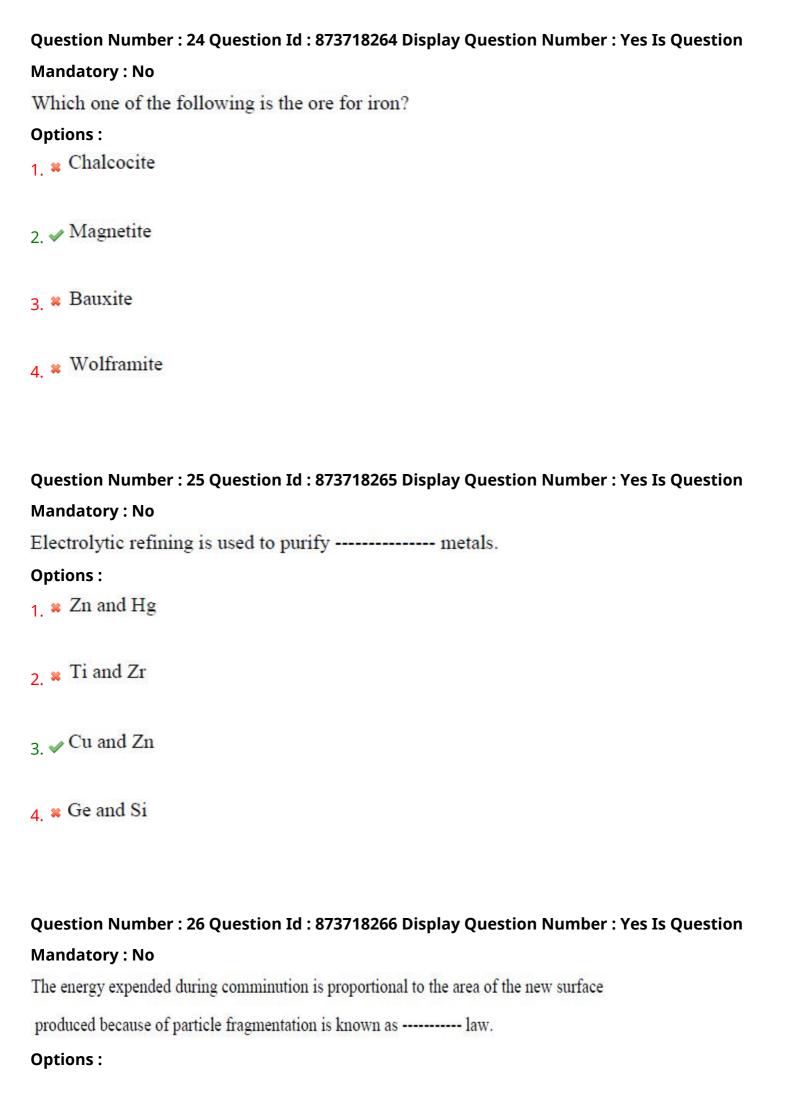
Mandatory: No

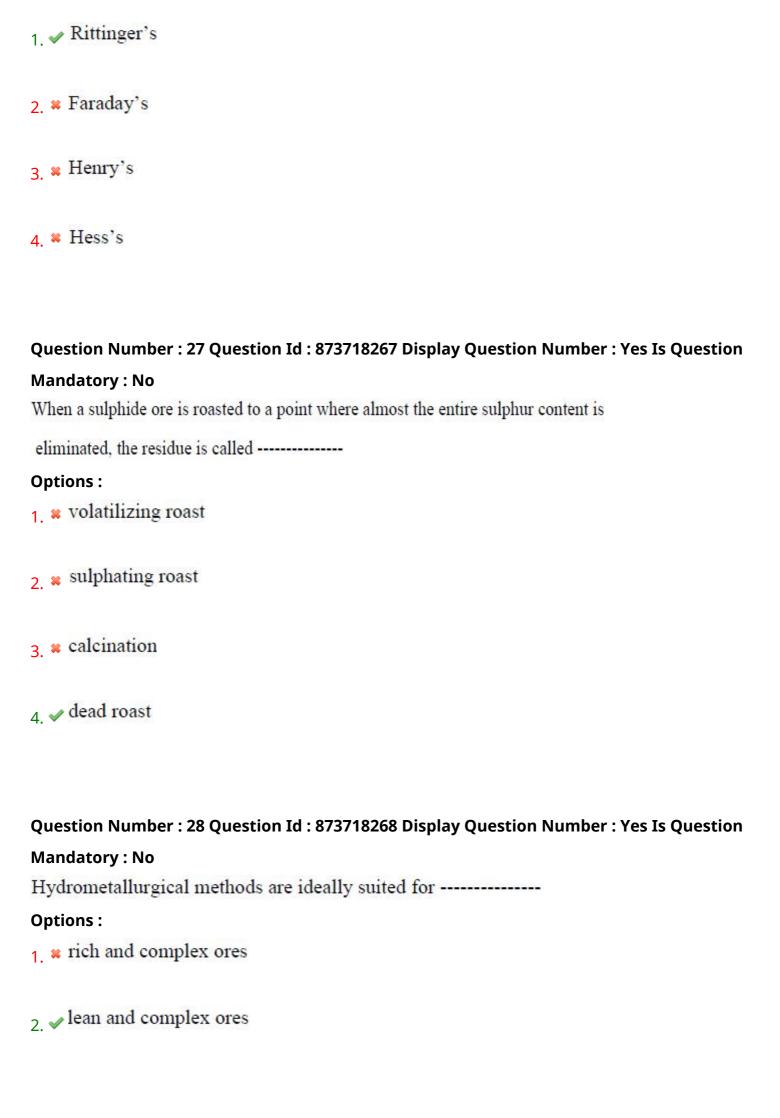
Bernoulli's principle is derived from -----

Options:

- 1. * Conservation of mass
- 2 * Newton's law of motion

3. ✓ Conservation of energy
4. * Conservation of momentum
Question Number : 22 Question Id : 873718262 Display Question Number : Yes Is Question
Mandatory : No
Frictional force encountered after commencement of motion is called
Options:
1. * Kinematic friction
2. * Frictional resistance
3. * Limiting friction
4. Dynamic friction
Question Number : 23 Question Id : 873718263 Display Question Number : Yes Is Question
Mandatory : No
Which of the following is found in the form of Monazite sand along the Kerala coast?
Options:
1. * Uranium
2. V Thorium
3. * Chromite
4. * Graphite





3. * rich and simple ores
4. * all of these
Question Number : 29 Question Id : 873718269 Display Question Number : Yes Is Question
Mandatory: No Production of magnesium from sea water is called
Options:
1. * Magnotherm process
2. * Kroll process
3. ✓ Dow process
4. * Down process
Question Number : 30 Question Id : 873718270 Display Question Number : Yes Is Question
Mandatory: No
Which one of the following process is direct smelting?
Options:
1. ✓ COREX
2. * Vacuum Arc Degassing (VAD)
3. * Blast Furnace
4. * LD

Question Number : 31 Question Id : 873718271 Display Question Number : Yes Is Question
Mandatory : No
Identify the basic oxygen furnace from the following.
Options:
1. * Open hearth furnace
2. * Bessemer converter
3. ✓ LD converter
4. * Cupola
Question Number : 32 Question Id : 873718272 Display Question Number : Yes Is Question
Mandatory : No
Hall – Heroult Process involves dissolution of in
Options:
1. * brucite, cryolite
2. * carnallite, alumina
3. ✓ alumina, cryolite
4. * olivine, brucite
Question Number : 33 Question Id : 873718273 Display Question Number : Yes Is Question
Mandatory : No
Which one is the correct sequence of operations in the case of copper extraction from
sulphide ore?
Options:

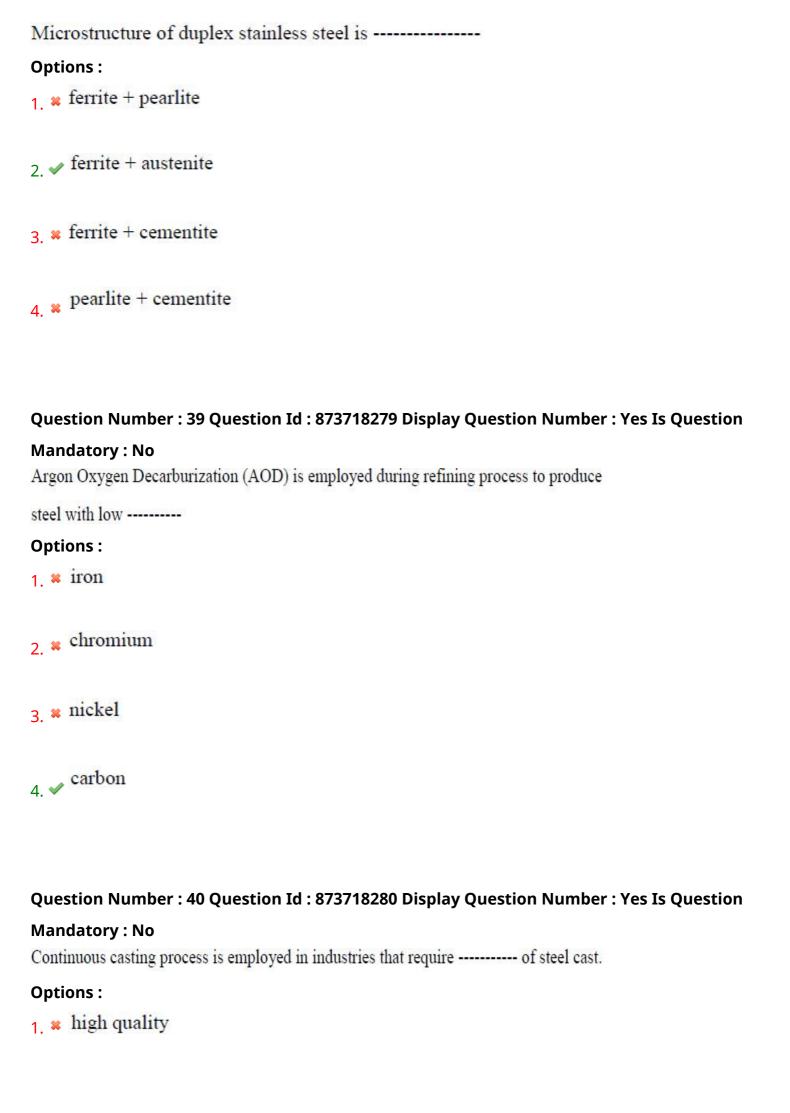
1. * Roasting - smelting - concentration - converting - refining

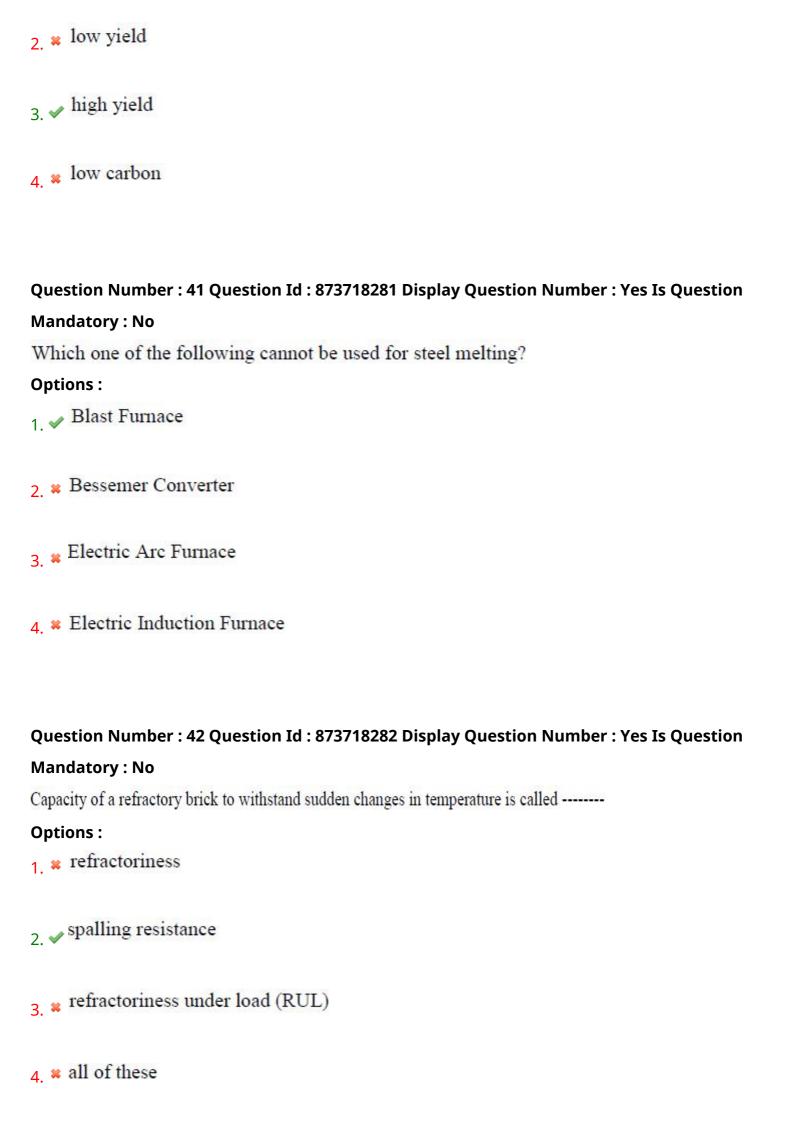
2. * Concentration - smelting - converting - roasting - refining 3. Concentration - roasting - smelting - converting - refining 4. * Smelting - concentration - Roasting - converting - refining Question Number: 34 Question Id: 873718274 Display Question Number: Yes Is Question Mandatory: No ----- is used for bauxite ore leaching in Bayer process. **Options:** 1 ***** Fe₂O₃ 2. * TiO₂ 3. * SiO₂ ∠ ✓ NaOH Question Number: 35 Question Id: 873718275 Display Question Number: Yes Is Question Mandatory: No ----- is used as a reducing metal in Kroll's process for titanium production. **Options:** 1 * Manganese 2. Magnesium 3. * Zinc

Question Number: 36 Question Id: 873718276 Display Question Number: Yes Is Question Mandatory: No ----- can be used to produce alloy steels. Options: 1. * L D process 2. W Open hearth furnace 3. Electric arc furnace △ * Acid Bessemer process Question Number: 37 Question Id: 873718277 Display Question Number: Yes Is Question Mandatory: No Which one of the following is main source of sulphur in the blast furnace charge? **Options:** 1. V Coke 2. * Iron ore 3 × Flux 4. Scrap

4. * Lead

Question Number : 38 Question Id : 873718278 Display Question Number : Yes Is Question Mandatory : No





Question Number: 43 Question Id: 873718283 Display Question Number: Yes Is Question
Mandatory : No
The heat required to run the ESR process is generated by the in the slag bath.
Options:
1. * Electrode potential
2. * Activation energy
3. * Free energy
4. Joule effect
Question Number : 44 Question Id : 873718284 Display Question Number : Yes Is Question
Mandatory : No
Which among the following is not a factor that leads to macro-segregation in ingots?
Options:
1. Zexpansion due to mild heating
2. * Density differences between the solid and liquid
3. * Density differences in the interdendritic liquid
4. Shrinkage due to solidification and thermal contraction

Question Number : 45 Question Id : 873718285 Display Question Number : Yes Is Question Mandatory : No

The packing factor for face centered cubic structure is

Options: 1 * 0.50 2. * 0.68 3. 0.74 4. * 0.82 Question Number: 46 Question Id: 873718286 Display Question Number: Yes Is Question Mandatory: No Hexagonal crystal system has **Options:** 1. * three unequal axes, no two of which are perpendicular three equal coplanar axes at 120° and a fourth unequal axis perpendicular to their plane 2. 🗸 three unequal axes, one of which is perpendicular to the other two 4 * three equal axes, mutually perpendicular Question Number: 47 Question Id: 873718287 Display Question Number: Yes Is Question Mandatory: No A covalent bond is a chemical bond that involves **Options:** 1. sharing of electron pairs between atoms 2. * sharing of free electrons among a structure of positively charged irons

3. * electrostatic attraction between oppositely charged ions in a chemical compound
4. * attraction and repulsions between atoms, molecules, and surfaces
Question Number : 48 Question Id : 873718288 Display Question Number : Yes Is Question
Mandatory : No
Ceramics are, and
Options:
1. * strong, ductile, and opaque to light
2. * soft, ductile, and combustible
hard dustile, and anagua to light
3. * hard, ductile, and opaque to light
4. ✓ hard, brittle, and opaque to light
Question Number : 49 Question Id : 873718289 Display Question Number : Yes Is Question
Mandatory : No
Identify from the following that represents interstitial solid solution.
Options:
1. * copper and zinc
2. ✓ carbon and iron
3. * silver and gold
4. * copper and tin

Question Number : 50 Question Id : 873718290 Display Question Number : Yes Is Question
Mandatory : No
What are the factors that favor substitutional solid solutions?
Options:
1. * crystal structure
2. * relative size
3. * chemical affinity
4. ✓ all of the above
Question Number : 51 Question Id : 873718291 Display Question Number : Yes Is Question
Mandatory: No
Phase diagram is also known as
Options:
1. ✔ equilibrium diagram
2. * stress-strain diagram
3. * S-curve
4. * Ellingham diagram
Question Number : 52 Question Id : 873718292 Display Question Number : Yes Is Question
Mandatory : No
Solid solution is one in which

Options:

1 * two metals are not soluble in solid state 2 * two metals are partially soluble in solid state 3 w two metals are completely soluble in solid state Question Number: 53 Question Id: 873718293 Display Question Number: Yes Is Question Mandatory: No Eutectic temperature is the one at which **Options:** 1 * liquid on cooling gives liquid and solid 2 / liquid on cooling gives two solids 3 * solid on heating gives new solid Question Number: 54 Question Id: 873718294 Display Question Number: Yes Is Question Mandatory: No Peritectoid reaction involves **Options:** 1 ✓ solid 1 + solid 2 on cooling give new solid 3 2. * solid 1 on cooling gives solid 2 + solid 3 3. * liquid on cooling gives solid 1 + solid 2

4. * liquid on cooling gives solid

Question Number : 55 Question Id : 873718295 Display Question Number : Yes Is Question

Mandatory: No

Identify allotropic metal.

Options:

- 1. * silver
- 2. * copper
- 3. * aluminium
- 4. viron

Question Number : 56 Question Id : 873718296 Display Question Number : Yes Is Question

Mandatory : No

Pearlite is nothing but combination of

Options:

- 1. ferrite + cementite
- 2. * austenite + cementite
- 3. * austenite + ferrite
- 4. * ledeburite + ferrite

Question Number: 57 Question Id: 873718297 Display Question Number: Yes Is Question

Mandatory: No

Full annealing consists in

Options:

- heating the steel to the proper temperature and then oil quenching
- 2. * heating the steel to the proper temperature and then air cooling
- 3. heating the steel to the proper temperature and then cooling slowly in the furnace
- 4 * heating the steel to the proper temperature and then water quenching

Question Number : 58 Question Id : 873718298 Display Question Number : Yes Is Question

Mandatory: No

Finer the grain better the strength. This is arrived empirically by

Options:

- 1. * Bragg equation
- 2. Hall Petch equation
- 3. Willingham equation
- 4 * Renault equation

Question Number: 59 Question Id: 873718299 Display Question Number: Yes Is Question

Mandatory: No

Morphology of carbon in grey cast iron is

Options:

1. * spheroidal

2. * combined form as cementite
3. * nodular
4. ✓ flaky
Question Number : 60 Question Id : 873718300 Display Question Number : Yes Is Question Mandatory : No
In building construction, the steel which is used for pillars, slabs, etc. is called
Options :
1. * alloy steel
2. ✓ mild steel
3. * high carbon steel
4. * high carbon high chromium steel
Question Number : 61 Question Id : 873718301 Display Question Number : Yes Is Question Mandatory : No
X-ray diffraction patterns are used for studying crystal structure of solids because
Options: 1. ✓ their wavelengths are comparable to inter atomic distances
2. * they are electromagnetic radiation, and hence do not interact with crystals
3. * their high frequency enables rapid analysis
4. * they have very high energy, hence they can penetrate through solids

Question Number : 62 Question Id : 873718302 Display Question Number : Yes Is Question
Mandatory : No
Which thermoplastic resin is used for mounting a specimen in metallography?
Options:
1. * Polycarbonate
2. * Acetal copolymer
3. V Lucite
4. * Polystyrene
Question Number : 62 Question Id : 972719202 Display Question Number : Vos Is Question
Question Number : 63 Question Id : 873718303 Display Question Number : Yes Is Question
Mandatory: No
Mandatory: No Which of the following is used in electron microscope? Options:
Mandatory: No Which of the following is used in electron microscope?
Mandatory: No Which of the following is used in electron microscope? Options:
Mandatory: No Which of the following is used in electron microscope? Options: 1. ** Electron beams
Mandatory: No Which of the following is used in electron microscope? Options: 1. * Electron beams 2. * Light waves

Which of the following property can be enhanced by reinforcing SiC in aluminium alloy?

Mandatory: No

Question Number : 64 Question Id : 873718304 Display Question Number : Yes Is Question

Options:
1. * Ductility
2. * Density
3. * Toughness
4. ✓ Wear resistance
Question Number : 65 Question Id : 873718305 Display Question Number : Yes Is Question
Mandatory : No
ceramic product is mostly used as pigment in paints.
Options:
1. × ZrO ₂
2. ✔ TiO ₂
3. * SiO ₂
4. * UO ₂
Question Number : 66 Question Id : 873718306 Display Question Number : Yes Is Question
Mandatory : No
Important assumptions in strength of materials are that the 'body which is being analyzed' is
Options:
1. v continuous, homogeneous, and isotropic
2. * porous, heterogeneous, and isotropic

3. * continuous, homogeneous, and anisotropic discontinuous, homogeneous, and anisotropic Question Number: 67 Question Id: 873718307 Display Question Number: Yes Is Question Mandatory: No Concept of Hooke's law is **Options:** 1. * pressure is inversely proportional to temperature 2. * pressure is proportional to temperature 3. ✓ stress is proportional to strain 4 * stress is inversely proportional to strain Question Number: 68 Question Id: 873718308 Display Question Number: Yes Is Question Mandatory: No Modulus of elasticity (E) is expressed as **Options:** 1. * average strain / average stress 2. vaverage stress / average strain 3. * average pressure / average temperature

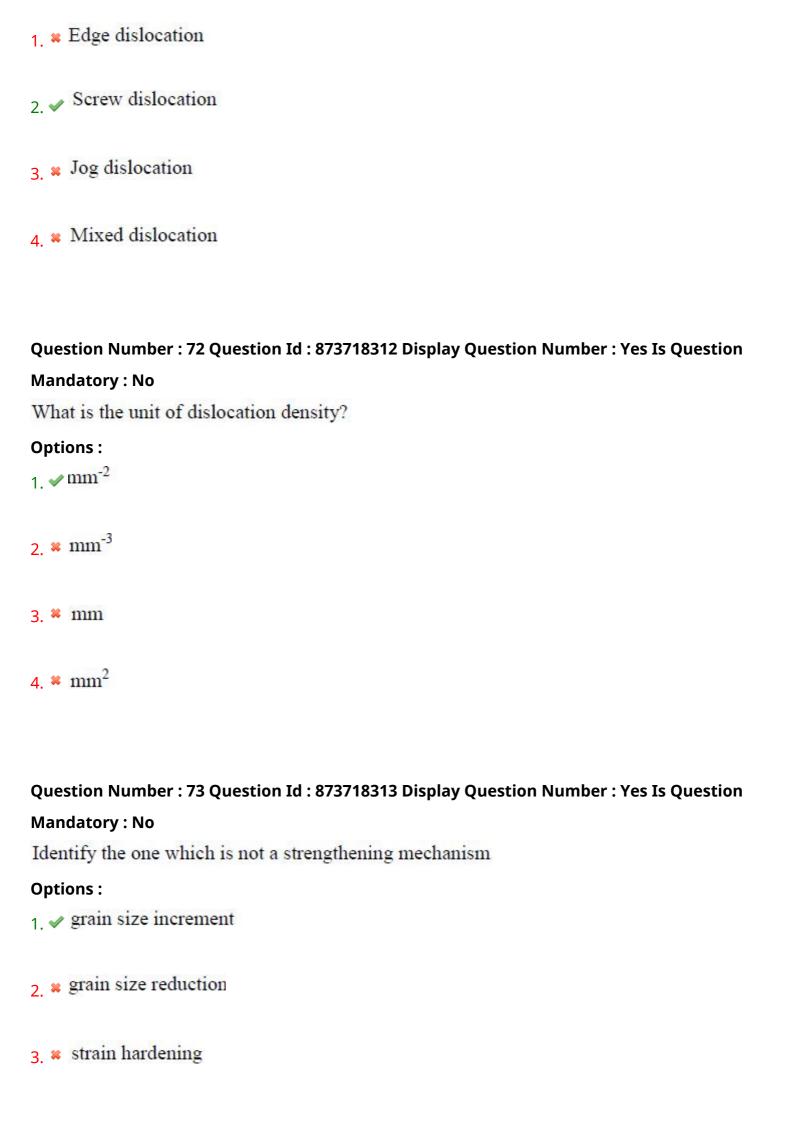
4. * average temperature / average pressure

Question Number : 69 Question Id : 873718309 Display Question Number : Yes Is Question
Mandatory : No
Identify the material exhibiting upper and lower yield points in stress-strain diagram.
Options:
1. * Grey cast iron
2. * Aluminium
3. * Copper
4. ✓ Mild steel
Question Number : 70 Question Id : 873718310 Display Question Number : Yes Is Question
Mandatory : No
Dislocation is also known as
Options:
1. * point defect
2. ✓ line defect
3. * plane defect
4. * vacancy
Question Number : 71 Question Id : 873718311 Display Question Number : Yes Is Question

Mandatory : No

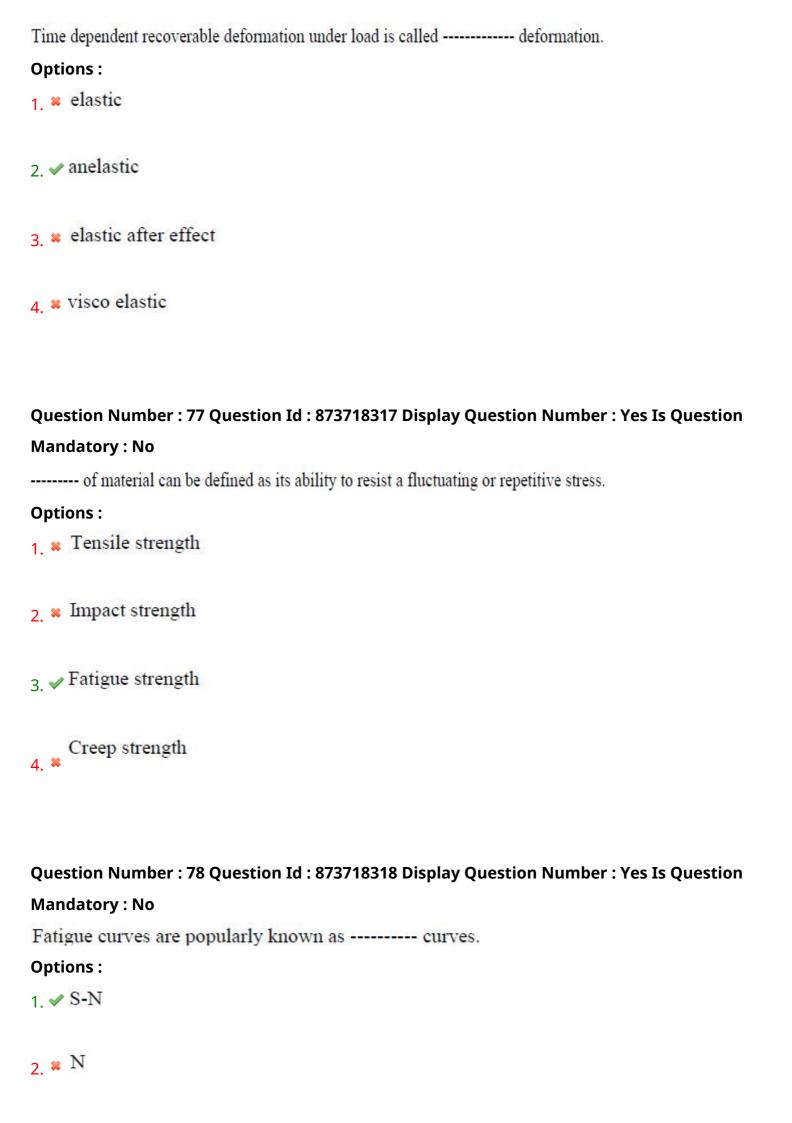
Options:

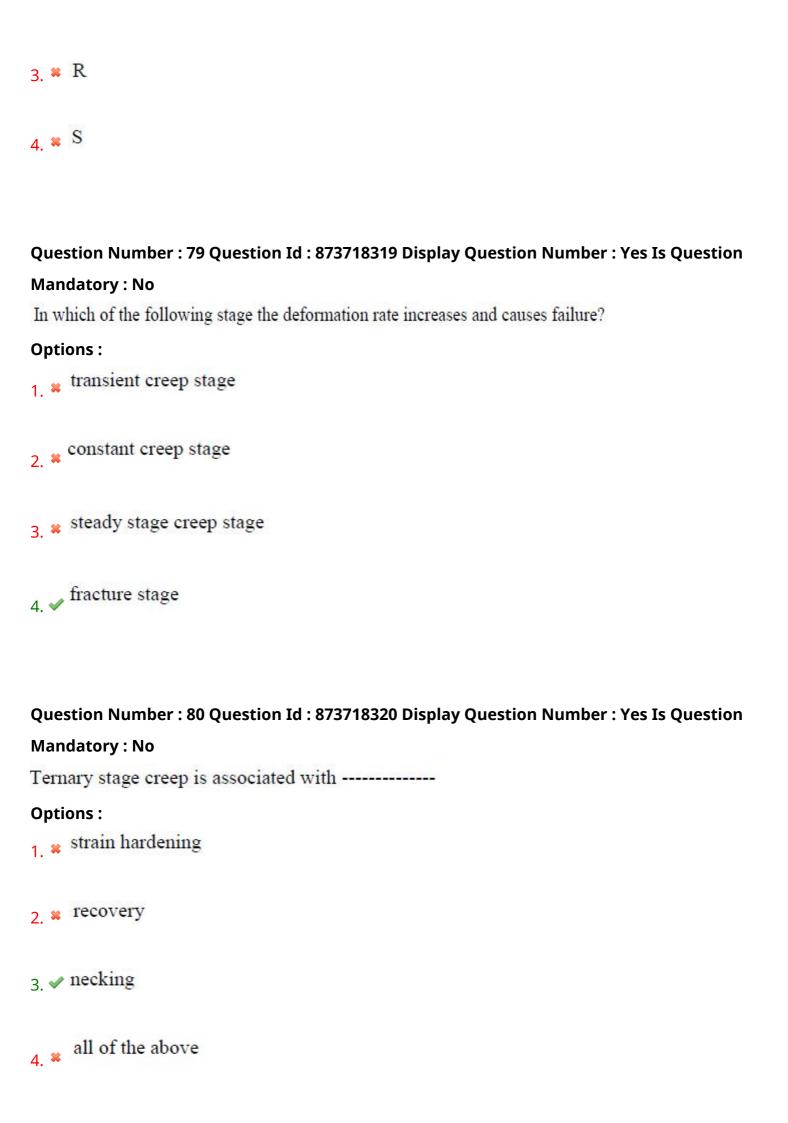
Which of the following dislocation can glide but not climb?



4. * solid solution strengthening
Question Number : 74 Question Id : 873718314 Display Question Number : Yes Is Question
Mandatory : No
Which of the following is not a way of interaction between solute atoms and dislocations?
Options:
1. * stacking fault interaction
2. * modulus interaction
3. ✓ plastic interaction
4. * elastic interaction
4. ** *********************************
Question Number : 75 Question Id : 873718315 Display Question Number : Yes Is Question
Mandatory : No
Identify the odd point in the following:
Options:
1. ** proportional limit
2. * elastic limit
3. * yield point
4. fracture point
Question Number : 76 Question Id : 872718216 Display Question Number : Ves Is Question

Question Number : 76 Question Id : 873718316 Display Question Number : Yes Is Question Mandatory : No





Question Number: 81 Question Id: 873718321 Display Question Number: Yes Is Question Mandatory: No Which of the following part of mechanics deals with study of crack propagation? **Options:** solid mechanics 2. * fluid mechanics 3. * applied mechanics fracture mechanics Question Number: 82 Question Id: 873718322 Display Question Number: Yes Is Question Mandatory: No Fracture voids usually form at **Options:** inclusions 2. * second phase particles 3. * grain boundary triple points

Question Number : 83 Question Id : 873718323 Display Question Number : Yes Is Question Mandatory : No

What causes brittle fracture?
Options:
1. ✓ notch
2. * vacancy
3. * dislocation
4. * holes
4. W Mores
Question Number : 84 Question Id : 873718324 Display Question Number : Yes Is Question
Mandatory : No
Which factor affects ductile brittle transition behaviour the most?
Options :
1. * strain rate
2. ✓ temperature
3. * triaxiality
4. * notching
Question Number : 85 Question Id : 873718325 Display Question Number : Yes Is Question
Mandatory : No
Hounsfield tensometer can be used to perform
Options:
1. ✓ tensile test
2. * compressive test

3. * hardness test
4. * toughness test
Question Number : 86 Question Id : 873718326 Display Question Number : Yes Is Question
Mandatory : No
Which among the following is a type of destructive test?
Options:
1. * ultrasonic test
2. ✓ cupping test
3. * magnetic particle test
4. ★ dye penetrant
Question Number : 87 Question Id : 873718327 Display Question Number : Yes Is Question Mandatory : No
What indenter is used for Brinell test?
Options:
1. ✓ hardened steel ball
2. * diamond ball
3. * diamond prism
4. * steel prism

Question Number : 88 Question Id : 873718328 Display Question Number : Yes Is Question
Mandatory : No
Sprue in casting refers to
Options:
1. * gate
2. * runner
3. * riser
4. ✓ vertical passage
Question Number : 89 Question Id : 873718329 Display Question Number : Yes Is Question
Mandatory : No
In permanent mold casting method
Options:
1. * molten metal is forced into mould under high pressure
2. * molten metal is poured into a rotating mould
3. ✓ molten metal is fed into the cavity in metallic mould by gravity
cavity is filled with a precalculated quantity of metal and a core is inserted to force
4. * the metal into cavity
Question Number : 90 Question Id : 873718330 Display Question Number : Yes Is Question
Mandatory : No
In hot chamber method of die casting
Options:
1. ✓ the melting pot is integral with die casting machine

2. * the melting pot is separate from the die casting machine 3 * the melting pot location has nothing to do with such a classification 4 * high temperature and low pressure alloys are used Question Number: 91 Question Id: 873718331 Display Question Number: Yes Is Question Mandatory: No Which of the following casting methods utilizes wax pattern? **Options:** 1. * Shell moulding 2. Investment casting 3 * Slush casting 4. * Plaster moulding Question Number: 92 Question Id: 873718332 Display Question Number: Yes Is Question Mandatory: No In centrifugal casting, **Options:** 1. * steel core is used 2. * cast iron core is used 3. * hard sand core is used

4. ✓ no core is u	sed
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Question Number : 93 Question Id : 873718333 Display Question Number : Yes Is Question Mandatory : No

Which of the following metal forming processes performs squeezing out of material

Options:

forging

through a hole?

- 2. * rolling
- 3. vextrusion
- 4. * drawing

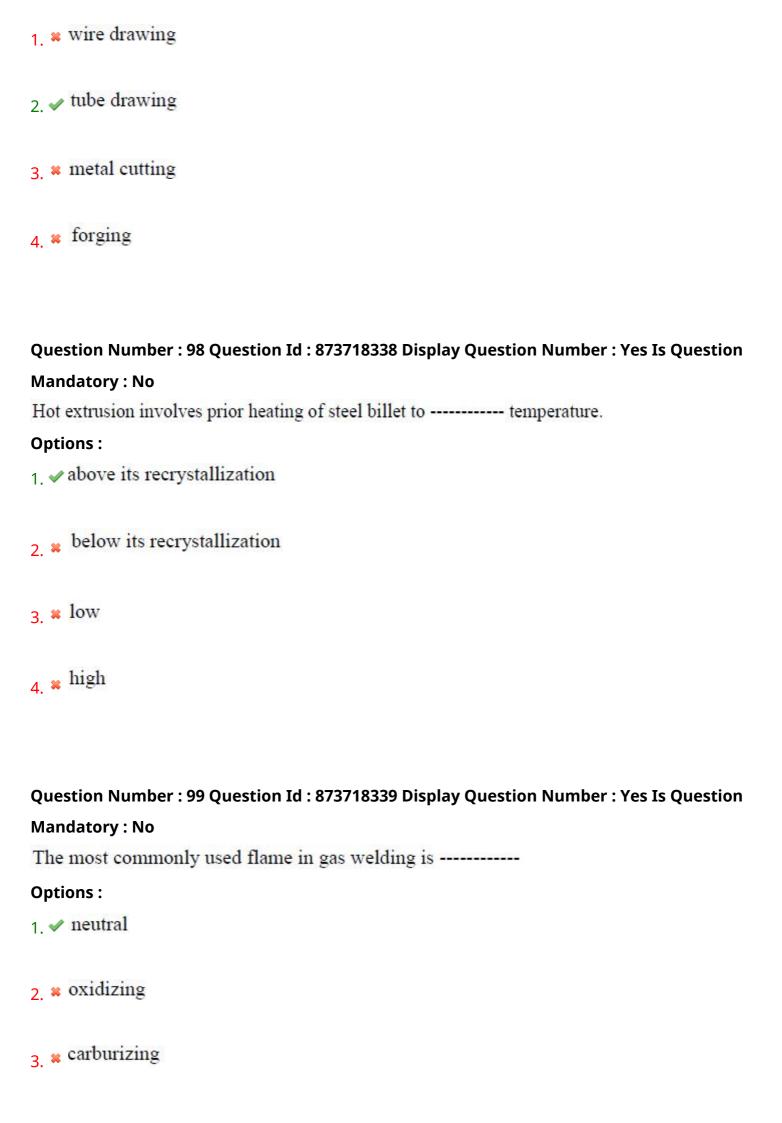
Question Number : 94 Question Id : 873718334 Display Question Number : Yes Is Question Mandatory : No

What is the best suitable process for making the wires?

- 1. * forging
- 2. drawing
- 3. * extrusion
- 4. * rolling

Question Number : 95 Question Id : 873718335 Display Question Number : Yes Is Question
Mandatory : No
Which of the following components are manufactured by the sheet metal forming process?
Options:
1. * connecting rods
2. ** engine blocks
3. ✓ car bodies
4. * electric wires
Question Number : 96 Question Id : 873718336 Display Question Number : Yes Is Question
Mandatory : No
Good surface finish and better dimensional accuracy can be achieved in
Options:
1. ✓ cold working process
2. * hot working process
3. * both cold and hot working processes
4. № neither cold nor hot working process
Question Number : 97 Question Id : 873718337 Display Question Number : Yes Is Question
Mandatory : No

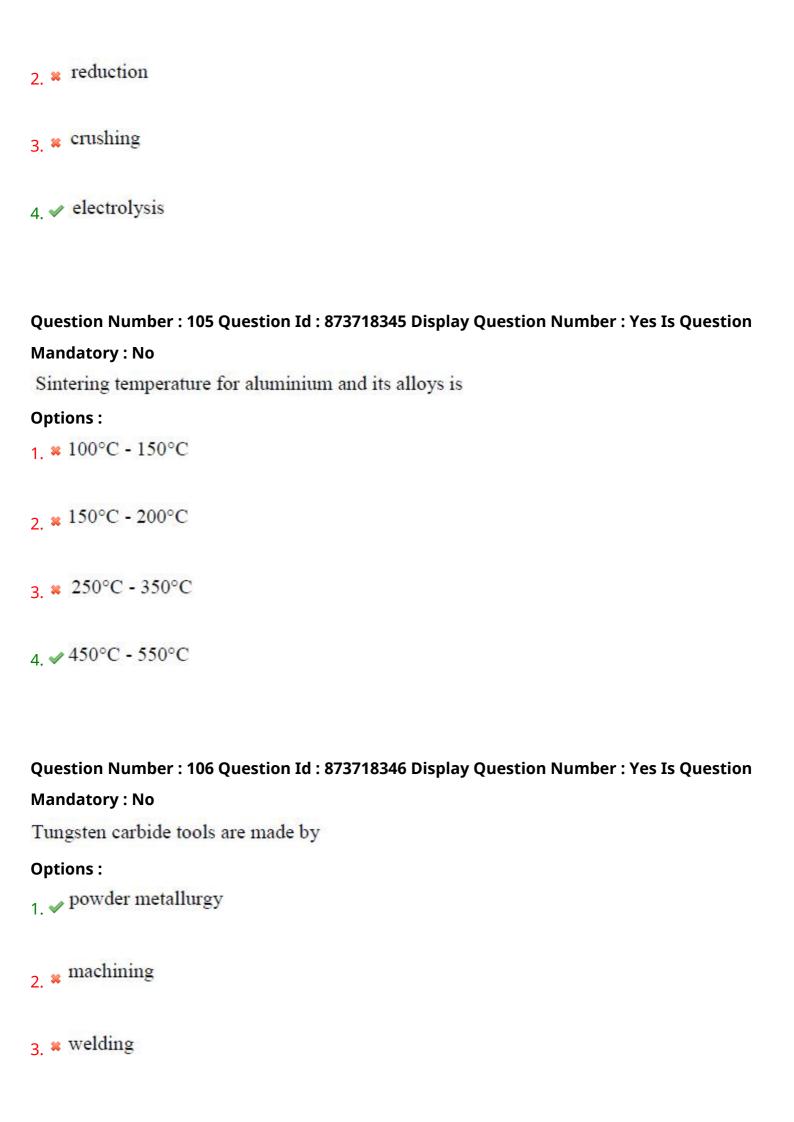
A moving mandrel is used in



4. * all of the above Question Number: 100 Question Id: 873718340 Display Question Number: Yes Is Question Mandatory: No Distortion in welding occurs due to -----**Options:** 1 * use of excessive current 2 / improper clamping methods 3. * use of wrong electrodes 4. * oxidation of weld pool Question Number: 101 Question Id: 873718341 Display Question Number: Yes Is Question Mandatory: No Which of the following is strongest for brazing joints? **Options:** 1 * butt 2. * scarf (inclined) 3. 🗸 lap 4. * all are equally strong

Question Number: 102 Question Id: 873718342 Display Question Number: Yes Is Question

Mandatory: No Which of the following equipment is generally used for arc welding? **Options:** 1. * single phase alternator 2. * two phase alternator three phase alternator 4. v transformer Question Number: 103 Question Id: 873718343 Display Question Number: Yes Is Question Mandatory: No Which of the following welding processes use consumable electrode? **Options:** 1 * Submerged arc welding 2. MIG welding 3. * TIG welding 4. * CIG welding Question Number: 104 Question Id: 873718344 Display Question Number: Yes Is Question Mandatory: No Pure copper powder can be effectively produced by **Options:** 1. * atomization



4. * casting

Question Number: 107 Question Id: 873718347 Display Question Number: Yes Is Question

Mandatory: No

---- are used in radiography for the inspection of castings.

Options:

2 * Infrared rays

3. * Ultraviolet rays

4. * Visible rays

Question Number: 108 Question Id: 873718348 Display Question Number: Yes Is Question

Mandatory: No

----- test uses the principle of capillary action.

Options:

1. * Radiography

2. Wltrasonic

3.

✓ Dye penetrant

4. * Eddy current

Question Number: 109 Question Id: 873718349 Display Question Number: Yes Is Question

Mandatory: No Non-destructive testing is used to determine **Options:** 1 * location of defects 2. * chemical composition 3. * corrosion of metal Question Number: 110 Question Id: 873718350 Display Question Number: Yes Is Question Mandatory: No Which of the following methods of inspection is mostly used for ferromagnetic materials? **Options:** 1. * Acoustic emission test 2. * Ultrasonic inspection 3. Magnetic particle inspection

Question Number: 111 Question Id: 873718351 Display Question Number: Yes Is Question

4. Wisual inspection

Mandatory: No

The following differential equation has

$$2\frac{d^2y}{dt^2} + 4\left(\frac{dy}{dt}\right)^3 + y^2 + 2 = t$$

Options:

1. * degree =2, order =1

3. * degree =4, order =3

4. * degree =1, order =1

Question Number : 112 Question Id : 873718352 Display Question Number : Yes Is Question Mandatory : No

For $\frac{d^2y}{dx^2} + 4\left(\frac{dy}{dx}\right) + 3y = 3e^{2x}$, the particular integral is

$$\frac{1}{1. \checkmark 5} e^{2x}$$

$$\frac{1}{3}e^{2x}$$

$$\frac{1}{17}e^{2x}$$

$$\frac{1}{2}e^{2x}$$

Question Number: 113 Question Id: 873718353 Display Question Number: Yes Is Question

Mandatory: No

The directional derivative of $f = x^2yz + 4xz^2$ at (1, -2, -1) in the direction of

$$2\overline{i} - \overline{j} - 2\overline{k}$$
 is

Options:

Question Number : 114 Question Id : 873718354 Display Question Number : Yes Is Question

 ${\bf Mandatory: No}$

If
$$\overline{r} = x\overline{i} + y\overline{j} + z\overline{k}$$
, then ∇ . $\overline{r} =$

Question Number: 115 Question Id: 873718355 Display Question Number: Yes Is Question

Mandatory: No

In the case of bisection method, the convergence is

Options:

- 1. * biquadratic
- 2. * quadratic
- 3. V linear
- 4. * cubic

Question Number : 116 Question Id : 873718356 Display Question Number : Yes Is Question Mandatory : No

A continuous random variable X that can assume any value between x = 2 and x = 5 has a density function given by f(x) = k(1+x). Then P[X < 4] =

Question Number: 117 Question Id: 873718357 Display Question Number: Yes Is Question

Mandatory: No

The median of the numbers 11, 10, 12, 13, 9 is

Options:

- 1. * 9
- 2. 🗸 11
- 3. * 9.5
- 4. * 10.5

Question Number : 118 Question Id : 873718358 Display Question Number : Yes Is Question Mandatory : No

If
$$A = \begin{bmatrix} 1 & 2 \\ 2 & -1 \end{bmatrix}$$
, then $A^8 =$

Options:

- 1. ✓ 625 I
- 2. ***** 5 I
- 3. **×** 6 I
- 4. * 10 I

Question Number: 119 Question Id: 873718359 Display Question Number: Yes Is Question

Mandatory: No

If $\lambda_1, \lambda_2, \lambda_3 = -----\lambda_n$ are the latent roots of a matrix A, then A^2 has the latent roots

Options:

1. *
$$\lambda_1, \lambda_2, \lambda_3 - - - - - \lambda_n$$

$$2. \checkmark \lambda_1^2, \lambda_2^2, \lambda_3^2 - - - - \lambda_n^2$$

$$\lambda_1^3, \lambda_2^3, \lambda_3^3 - - - - - \lambda_n^3$$

$$4 \times 1 + \lambda_1, 1 + \lambda_2, 1 + \lambda_3 - - - - - 1 + \lambda_n$$

Question Number: 120 Question Id: 873718360 Display Question Number: Yes Is Question

Mandatory: No

Consider the function $f(z) = u + iv = \overline{z}$

$$\frac{\partial u}{\partial x} = \frac{\partial v}{\partial y}$$

$$\frac{\partial u}{\partial y} \neq -\frac{\partial v}{\partial x}$$

$$f(z)$$
 is analytic everywhere

$$f(z)$$
 is not analytic at any point