

## PROVISIONAL ANSWER KEY

Question 10/2024/OL

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Department Malabar Cements Ltd

Question1:-Strong base among the following is

A:- $\text{Cl}^-$

B:- $\text{NO}_3^-$

C:- $\text{ClO}_4^-$

D:- $\text{CH}_3\text{COO}^-$

Correct Answer:- Option-D

Question2:-The conjugate base of  $\text{HCO}_3^-$  is

A:- $\text{H}_2\text{CO}_3$

B:- $\text{HCO}_3^{2-}$

C:- $\text{CO}_3^{2-}$

D:- $\text{CO}_3^-$

Correct Answer:- Option-C

Question3:-Among the following which is not a Lewis acid

A:- $\text{BCl}_3$

B:- $\text{AlCl}_3$

C:- $\text{SF}_4$

D:- $\text{PH}_3$

Correct Answer:- Option-D

Question4:-Most organic compounds are more soluble in liquid ammonia than they are in water because

(i) ammonia is less polar than water

(ii) ammonia has lower cohesion energy

(iii) intermolecular forces make it possible for organic molecules to create cavities in liquid ammonia

A:-(i) and (ii) only

B:-(ii) and (iii) only

C:-(i) and (iii) only

D:-(i), (ii) and (iii) only

Correct Answer:- Option-D

Question5:-Alkali metals dissolve in liquid ammonia and in appearance all the solutions are blue when dilute and exhibit conductivity and are paramagnetic due to

A:-free electrons

B:-ammoniated electrons

C:-free metal ion

D:-free ammonia molecules

Correct Answer:- Option-B

Question6:-Which of the following is isoelectronic and isostructural with  $H_2O$ ?

A:- $H_2F^+$

B:- $HF_2^-$

C:- $CO_2$

D:- $BeCl_2$

Correct Answer:- Option-A

Question7:-In liquid sulphuric acid, acetic acid ionises as

A:- $CH_3COOH + H_2SO_4 \rightarrow CH_3COO^- + HSO_4^+$

B:- $CH_3COOH + H_2SO_4 \rightarrow CH_3COO^- + H_3SO_4^+$

C:- $CH_3COOH + H_2SO_4 \rightarrow CH_3COO^- + SO_4^{2-}$

D:- $CH_3COOH + H_2SO_4 \rightarrow CH_3COOH_2^+ + HSO_4^-$

Correct Answer:- Option-D

Question8:-Which of the following is incorrect about liquid ammonia?

A:-Dissolution of alkali metals in liquid ammonia is a physical process

B:-The alkali metal solutions in liquid ammonia are strong reducing agents

C:-The tendency for solvolysis is less in liquid ammonia than in water

D:-high temperature and low pressure is necessary while working with liquid ammonia

Correct Answer:- Option-D

Question9:-Which among the following are conjugate acid-base pairs?

(i)  $NH_3$  and  $N_3H$

(ii)  $HCO_3^-$  and  $H_2CO_3$

(iii)  $SO_2$  and  $HSO_4^-$

(iv)  $NH_3$  and  $NH_2^-$

A:-(i) and (ii) only

B:-(ii) and (iv) only

C:-(iii) and (iv) only

D:-(ii) and (iii) only

Correct Answer:- Option-B

Question10:-When AgCl is treated with liquid ammonia, the product obtained is

A:- $NH_4Cl$

B:- $NH_3.AgCl$

C:- $Ag(NH_3)_2Cl$

D:- $Ag(NH_3)Cl$

Correct Answer:- Option-C

Question11:-The arrangement of anions and cations in NaCl crystal (Rock salt structure) is

A:-bcc array of anions in which cations occupy all octahedral holes

B:-fcc array of anions in which cations occupy all tetrahedral holes

C:-fcc array of anions in which cations occupy all tetrahedral and octahedral holes

D:-fcc array of anions in which cations occupy all octahedral holes

Correct Answer:- Option-D

Question12:-The radius of cations in a solid measures 40 pm and anion measures 72 pm. Predict the co-ordination number of cation and structure of solid

A:-8, cubic

B:-8, tetrahedral

C:-6, tetrahedral

D:-6, octahedral

Correct Answer:- Option-D

Question13:-The dimensions of a unit cell is determined by axial distances a, b and c and axial angles  $\alpha, \beta$  and  $\gamma$

Name the following crystal system :

Axial distance

$a \neq b \neq c$

Axial angle

$\alpha = \beta = \gamma = 90^\circ$

A:-Tetragonal

B:-Orthorhombic

C:-Rhombohedral

D:-Hexagonal

Correct Answer:- Option-B

Question14:-Atoms of element P form hcp lattice and those of the element Q occupy  $\frac{2}{3}$ rd of octahedral voids. The formula of the compound is?

A:- $P_4Q_3$

B:- $P_3Q_4$

C:- $P_3Q_2$

D:- $P_2Q_3$

Correct Answer:- Option-C

Question15:-Packing efficiency of ccp structure is

A:-52.4%

B:-68%

C:-72%

D:-74%

Correct Answer:- Option-D

Question16:-Solid 'P' is insulator in solid state but conductor in molten state and in aqueous solutions. What type of solid is it?

A:-Molecular

B:-Metallic

C:-Ionic

D:-Covalent

Correct Answer:- Option-C

Question17:-Cobalt crystallises in hexagonal close packed structure. Its atomic radius is 200 pm. The length of side (a) of unit cell is (Given  $\sqrt{2}=1.414$  )

A:-566 pm

B:-438 pm

C:-687 pm

D:-369 pm

Correct Answer:- Option-A

Question18:-A compound forms cubic close packed structure. What is the total number of voids in 1 mole of it?

A:- $6.022 \times 10^{23}$

B:- $9.033 \times 10^{23}$

C:- $18.066 \times 10^{23}$

D:- $12.044 \times 10^{23}$

Correct Answer:- Option-C

Question19:-Copper crystallises such that the lattice get ABC ABC arrangement of layers. This type of three dimensional packing is called

A:-Cubic close packing

B:-Body centred cubic packing

C:-Hexagonal close packing

D:-Primitive cubic packing

Correct Answer:- Option-A

Question20:-Which of the following statements are incorrect about crystalline solid?

(i) Melt at a sharp and characteristic temperature

(ii) Definite and characteristic heat of fusion

- (iii) Isotropic
- (iv) Short range order

A:-Only (i) and (iv)

B:-Only (ii) and (iii)

C:-Only (ii) and (iv)

D:-Only (iii) and (iv)

Correct Answer:- Option-D

Question21:-Rain water is called acid rain when its pH is

A:-Below 5.6

B:-Above 5.6

C:-Is above 5.6 but less than 7

D:-Always 7

Correct Answer:- Option-A

Question22:-Carbon monoxide is one of the serious air pollutant. Then which option is wrong?

A:-Carbon monoxide binds with haemoglobin

B:-Oxygen carrying capacity of blood decreases

C:-It results in headache and cardio vascular disorder

D:-Oxygen carrying capacity of blood increases

Correct Answer:- Option-D

Question23:-Match the items given in column I with those in column II and select the correct option given below :

Column I	Column II
1. Mercury	a. Itai-itai
2. Cadmium	b. Methemoglobinemia
3. nitrate	c. Mina matha disease

A:-1-a, 2-b, 3-c

B:-1-c, 2-a, 3-b

C:-1-a, 2-c, 3-b

D:-1-b, 2-c, 3-a

Correct Answer:- Option-B

Question24:-Which of the following is not a harmful effect of ozone layer depletion?

A:-Decreases moisture content of soil

B:-Increases evaporation of surface water

C:-UV radiation cannot enter into troposphere

D:-Causes mutation to cells

Correct Answer:- Option-C

Question25:-DDT is a non degradable pollutant and is chemically

- A:-Dichloro diphenyl trichloro ethane
- B:-Dibromo diphenyl tribromo ethane
- C:-Difluoro diphenyl tri iodo ethane
- D:-Dichloro diphenyl tri iodo ethane

Correct Answer:- Option-A

Question26:-Which of the following compound is not regarded as air pollutant?

- A:- $SO_2$
- B:- $CO$
- C:- $CO_2$
- D:- $NO_2$

Correct Answer:- Option-C

Question27:-The wrong statement about classical smog is

- A:-classical smog occur in cool humid climate
- B:-classical smog is reducing smog
- C:-classical smog is a mixture of smoke, fog and sulphurdioxide
- D:-classical smog is an oxidising smog

Correct Answer:- Option-D

Question28:-Ozone layer is present in which zone of atmosphere

- A:-Troposphere
- B:-Stratosphere
- C:-Mesosphere
- D:-Ionosphere

Correct Answer:- Option-B

Question29:-Which is not a green house gas?

- A:-Chlorofluorocarbon
- B:-Water vapour
- C:-Methane
- D:-Dinitrogen pentoxide

Correct Answer:- Option-D

Question30:-Biochemical oxygen demand is a method for

- A:-Estimating the amount of chemical fertilizer in water
- B:-Estimating the amount of carbondioxide in water
- C:-Estimating the amount of organic matter in water
- D:-Estimating the amount of acid in water

Correct Answer:- Option-C

Question31:-Two instruments used for measuring length having resolution 0.1 cm

and 0.01 cm. Then which of the following option for below statements are correct  
Statement I : First measurement have more accuracy but less precision.  
Statement II : Second measurement have more accuracy and more precision.

- A:-Statements I and II are correct
- B:-Statement I is correct and II is wrong
- C:-Statement I is wrong and II is correct
- D:-Statements I and II are wrong

Correct Answer:- Option-B

Question32:-The error associated with the resolution of an instrument is

- A:-Absolute error
- B:-Relative error
- C:-Least count error
- D:-Percentage error

Correct Answer:- Option-C

Question33:-Which among the following is not the source of systematic error?

- A:-Personal error
- B:-Random error
- C:-Instrumental error
- D:-Imperfection in experimental technique

Correct Answer:- Option-B

Question34:-The magnitude of the difference between the individual measurement and true value of quantity is

- A:-Relative error
- B:-Least count error
- C:-Percentage error
- D:-Absolute error

Correct Answer:- Option-D

Question35:-Statement I : Precision gives the resolution or limit of quantity measured.

Statement II : Accuracy means a measure of how measured value is to the true value of the quantity.

- A:-Both statements are correct
- B:-Both statements are wrong
- C:-Statement I is correct and II is wrong
- D:-Statement I is wrong and II is correct

Correct Answer:- Option-A

Question36:-Statement I : The number of significant figures indicate the accuracy with which the physical quantity is measured.

Statement II : If the number of significant figure increases the accuracy of

measurement decreases.

A:-Both statements are correct

B:-Both statements are wrong

C:-Statement I is correct and II is wrong

D:-Statement I is wrong and II is correct

Correct Answer:- Option-C

Question37:-The number of significant figure in 0.00082064 is

A:-5

B:-4

C:-7

D:-8

Correct Answer:- Option-A

Question38:-Taking into account of significant figures, what is the value of 8.88 m  
\_\_\_ 0.0088 m.

A:-8.8712 m

B:-8.87 m

C:-8.871 m

D:-8.9 m

Correct Answer:- Option-B

Question39:-The number of significant figures for measurement of length 182 cm,  
0.182 cm and 0.0182 cm are

A:-3, 3, 4 respectively

B:-3, 4, 4 respectively

C:-3, 4, 5 respectively

D:-3, 3, 3 respectively

Correct Answer:- Option-D

Question40:-Accuracy in measurement of mass 9.99 g is  $\pm 0.01$  g. Then percentage of  
relative error is

A:- $\pm 0.1\%$

B:- $\pm 0.01\%$

C:- $\pm 1\%$

D:- $\pm 10\%$

Correct Answer:- Option-A

Question41:-Measurement which is close to the true value is

A:-Precise

B:-Accurate

C:-Average



D:-Error

Correct Answer:- Option-B

Question42:-Which of the following is a buffer solution?

A:- $CH_3COOH + CH_3COONa$

B:- $CH_3COOH + CH_3COONH_4$

C:- $H_2SO_4 + CuSO_4$

D:-NaCl + NaOH

Correct Answer:- Option-A

Question43:-Which of the following is used as an indicator in the titrations of strong acid and a weak base?

A:-Phenolphthalein

B:-Methylorange

C:-Thymol blue

D:-Fluorescein

Correct Answer:- Option-B

Question44:-Indeterminate errors also called

A:-accidental error

B:-random error

C:-both 1 and 2

D:-none

Correct Answer:- Option-C

Question45:-When foreign ion get trapped in growing crystal is called

A:-Inclusion

B:-Occlusion

C:-Mechanical entrapment

D:-Post precipitation

Correct Answer:- Option-B

Question46:-The normal rain water is acidic due to

A:- $NH_3$

B:- $NO_2$

C:- $SO_2$

D:- $CO_2$

Correct Answer:- Option-D

Question47:-The pH range of methyl orange as an indicator is

A:-8 - 9

B:-2 - 4

C:-3 - 5

D:-6 - 8

Correct Answer:- Option-C

Question48:-Which of the following gravimetric analysis uses temperature as a function to measure a materials physical and chemical properties

A:-precipitation gravimetry

B:-volatilisation gravimetry

C:-electro-gravimetry

D:-thermogravimetry

Correct Answer:- Option-D

Question49:-Which of the following analytical method is based on the weight of the precipitate formed

A:-Complexometric titration

B:-Redox titration

C:-Precipitation titration

D:-Gravimetric analysis

Correct Answer:- Option-D

Question50:-Which of the following is a sparingly soluble salt?

A:- $BaSO_4$

B:-AgCl

C:- $PbI_2$

D:-All of these

Correct Answer:- Option-D

Question51:-Impurities are absorbed in the surface of the precipitate is called

A:-Surface adsorption

B:-Inclusion

C:-Mechanical entrapment

D:-Post precipitation

Correct Answer:- Option-A

Question52:-When applied to scientific measurements the words accuracy and precision?

A:-have limitation

B:-are used interchangeably

C:-have distinctly different meanings

D:-can cause uncertainty in experiments

Correct Answer:- Option-C

Question53:-The oxidation state of Mn in  $KMnO_4$  is

A:-3

B:-5

C:-2

D:-7

Correct Answer:- Option-D

Question54:-EDTA is a

A:-Tetradentate ligand

B:-Hexadentate ligand

C:-Octedentate ligand

D:-Pentadentate ligand

Correct Answer:- Option-B

Question55:-Which error gives always positive error?

A:-Post precipitation

B:-Surface adsorption

C:-Inclusion

D:-Mechanical entrapment

Correct Answer:- Option-A

Question56:-Which of the following is used as an indicator in the titration of iodine with hypo?

A:-Methyl red

B:-Starch

C:-Methyl organge

D:-Potassium ferricyanide

Correct Answer:- Option-B

Question57:-The amount of NaOH used in the titration of 100 ml 0.1 N HCl is

A:-0.4 g

B:-4 g

C:-0.04 g

D:-2 g

Correct Answer:- Option-A

Question58:-Identify the incorrect statement about rust

A:-Rust and Iron have the same composition

B:-Rust is not an iron

C:-Rusting is a chemical change

D:-Rusting is a kind of oxidation

Correct Answer:- Option-A

Question59:-The equivalent weight of an acid is calculated by

- A:-Molecular weight / acidity
- B:-Molecular weight × acidity
- C:-Molecular weight / basicity
- D:-Molecular weight × basicity

Correct Answer:- Option-C

Question60:-Which sentence is true about digestion?

- A:-It is produced difficult in filtration
- B:-It is produced small precipitate
- C:-It is produced larger precipitate
- D:-All of the above

Correct Answer:- Option-C

Question61:-Gypsum is

- A:- $CaSO_4 \cdot 2H_2O$
- B:- $CaSO_4 \cdot \frac{1}{2}H_2O$
- C:- $MgSO_4 \cdot 7H_2O$
- D:- $CuSO_4 \cdot 5H_2O$

Correct Answer:- Option-A

Question62:-Average amount of Alumina ( $Al_2O_3$ ) in portland cement is

- A:-5 - 10%
- B:-2 - 3%
- C:-20 - 24%
- D:-1 - 2.5%

Correct Answer:- Option-A

Question63:-7 days compressive strength of 43 grade cement is

- A:-22  $N/mm^2$
- B:-33  $N/mm^2$
- C:-37  $N/mm^2$
- D:-43  $N/mm^2$

Correct Answer:- Option-B

Question64:-IS code for 53 grade cement is

- A:-IS 269 - 1989
- B:-IS 8112 - 1989
- C:-IS 12269 - 1987
- D:-IS 1489 - 1991

Correct Answer:- Option-C

Question65:-Initial and final setting time for ordinary Portland cement is

- A:-30 minutes and 600 minutes respectively
- B:-60 minutes and 600 minutes respectively
- C:-30 minutes and 300 minutes respectively
- D:-90 minutes and 600 minutes respectively

Correct Answer:- Option-A

Question66:-Relationship between initial setting time and final setting time is

A:- $FST_{min} = 90 + 1.2(IST_{min})$

B:- $IST_{min} = 90 + 1.2(FST_{min})$

C:- $FST_{min} = 60 + 1.2(IST_{min})$

D:- $IST_{min} = 60 + 1.2(FST_{min})$

Correct Answer:- Option-A

Question67:-Which of the following statement is/are correct about setting of cement

- (i) setting is hardening of cement
- (ii) setting time is the time required for stiffening of cement paste to defined consistency
- (iii) initial setting time is the time when the paste starts losing its plasticity

- A:-(i) and (ii) are correct
- B:-(i), (ii) and (iii) are correct
- C:-(ii) and (iii) are correct
- D:-(ii) is incorrect

Correct Answer:- Option-C

Question68:-Match the points :

Type of cement	Name of cement
(a) Type IL	(i) Portland - slag cement
(b) Type IS	(ii) Ternary - blended cement
(c) Type IP	(iii) Portland - Lime stone cement
(d) Type IT	(iv) Portland - Pozzolana cement

- A:-(a)-(iv), (b)-(iii), (c)-(ii), (d)-(i)
- B:-(a)-(iii), (b)-(i), (c)-(iv), (d)-(ii)
- C:-(a)-(ii), (b)-(iv), (c)-(iii), (d)-(i)
- D:-(a)-(i), (b)-(ii), (c)-(iii), (d)-(iv)

Correct Answer:- Option-B

Question69:-White cement gives walls more adhesive strength due to presence of

- A:-Calcium and Aluminium
- B:-Iron and Aluminium
- C:-Aluminium and Magnesium
- D:-Iron and Magnesium

Correct Answer:- Option-D

Question70:-Fitness (specific area) of 33 grade cement is

A:-300  $m^2$  /kg

B:-225  $m^2$  /kg

C:-400  $m^2$  /kg

D:-285  $m^2$  /kg

Correct Answer:- Option-A

Question71:-The substance responsible for flash setting of cement

A:-Tri calcium silicate

B:-Tri calcium aluminate

C:-Di calcium silicate

D:-Tetra calcium aluminoferrate

Correct Answer:- Option-B

Question72:-Common name of Dicalcium silicate is

A:-alite

B:-belite

C:-celite

D:-ferrite

Correct Answer:- Option-B

Question73:-White clinker contains

A:-76% alite 15% belite 7% tri calcium aluminate and 2% free lime

B:-28% alite 55% belite 2% tricalcium aluminate and 15% tetracalcium alumino ferrite

C:-76% alite 5% belite 2% tricalcium aluminate 16% tetracalcium alumino ferrite and 1% free lime

D:-None of these

Correct Answer:- Option-A

Question74:-Which of the following statements is incorrect ?

(i) Alumina imparts quick setting property to the cement

(ii) Excess magnesia will increase the strength of the cement

(iii)  $CaSO_4$  slows down or retards the setting action of cement

A:-(i), (ii) and (iii) are correct statements

B:-(i) and (ii) are correct (iii) incorrect

C:-(i) and (iii) are correct and (ii) is incorrect

D:-(i) is incorrect (ii) and (iii) are correct

Correct Answer:- Option-C

Question75:-Standard consistency test for cement is done by using

A:-Le-Chatelier's apparatus

B:-Standard briquettes test

C:-Air permeability test

D:-Vicat's apparatus

Correct Answer:- Option-D

Question76:-Air permeability test for cement is to test

A:-Consistency

B:-Fineness

C:-Tensile strength

D:-Soundness test

Correct Answer:- Option-B

Question77:-Average percentage of Gypsum mixed with chinker to slow the setting of cement

A:-2 - 3%

B:-26%

C:-5 - 10%

D:-1 - 2%

Correct Answer:- Option-A

Question78:-Match the points :

Cement type

IS Code

- |                            |                       |
|----------------------------|-----------------------|
| (a) Portland-Pozzolana     | (i) IS 445 - 1989     |
| (b) Rapid hardening cement | (ii) IS 1489 - 1991   |
| (c) Portland -slag cement  | (iii) IS 12600 - 1989 |
| (d) Low heat cement        | (iv) IS 8041 - 1990   |

A:-(a)-(iv), (b)-(iii), (c)-(ii), (d)-(i)

B:-(a)-(i), (b)-(ii), (c)-(iv), (d)-(iii)

C:-(a)-(ii), (b)-(iv), (c)-(i), (d)-(iii)

D:-(a)-(iii), (b)-(i), (c)-(iv), (d)-(ii)

Correct Answer:- Option-C

Question79:-Tobermorite gel is

A:- $3CaO \cdot Al_2O_3 \cdot 6H_2O$

B:- $3CaO \cdot SiO_2 \cdot 6H_2O$

C:- $3CaO \cdot Al_2O_3 \times CaSO_4 \cdot 7H_2O$

D:- $CaCl_2$

Correct Answer:- Option-B

Question80:-Who invented Portland cement in which year?

A:-Joseph Aspdin 1824

B:-Joseph Aspdin 1842

C:-J. Grant 1824

D:-J. Grant 1842

Correct Answer:- Option-A

Question81:-Which of the following is localised form of corrosion?

A:-Pitting

B:-Uniform corrosion

C:-Erosion corrosion

D:-Atmospheric corrosion

Correct Answer:- Option-A

Question82:-\_\_\_\_\_ corrosion occurs at the contact area of the two materials which are joined together.

A:-Fretting

B:-Pitting

C:-Uniform

D:-Erosion

Correct Answer:- Option-A

Question83:-Aluminium doesn't corrode. Unlike other metals even though it is reactive. Why?

A:-carbonate film contains holes

B:-Aluminium is covered with thin layer of aluminium oxide

C:-Oxide film contains holes

D:-None of these

Correct Answer:- Option-B

Question84:-Which metal can displace hydrogen from acids?

A:-Ag

B:-Au

C:-Na

D:-Pt

Correct Answer:- Option-C

Question85:-Identify the correct set of method used for the prevention of corrosion

A:-Dipping in water, exposure to air, electroplating

B:-Galvanising, electroplating, exposure to air

C:-Painting, exposure to air, electroplating

D:-Galvanising, Electroplating, Painting

Correct Answer:- Option-D

Question86:-Chemically ettringite is

A:-Magnesium sulpho aluminate



B:-Magnesium sulphate

C:-Calcium sulpho aluminate

D:-None of these

Correct Answer:- Option-C

Question87:-Main reason behind corrosion of steel in reinforced concrete

A:-Chloride induced corrosion

B:-Nitrate induced corrosion

C:-Carbonate induced corrosion

D:-None of these

Correct Answer:- Option-A

Question88:-Applying a layer of zinc on the surface of metal is called

A:-Surface passivation

B:-Galvanization

C:-Alloying

D:-Painting

Correct Answer:- Option-B

Question89:-Main disadvantage of corrosion

A:-Corrosion weakens the iron objects

B:-Corrosion prevents corrosion

C:-Galvanic corrosion prevents corrosion of actual metal

D:-None of these

Correct Answer:- Option-A

Question90:-One student wanted to prevent the corrosion of ball made of steel. Which of the following method cannot be used for prevention of corrosion?

A:-By coating with Magnesium

B:-By coating it with copper

C:-By coating it with oil and grease

D:-By coating with paints

Correct Answer:- Option-B

Question91:-Which of the following are example of open system.

(a) All chemical reactions carried out in closed containers

(b) Human body

(c) All chemical reactions carried out in open containers

A:-(a) and (b)

B:-All the above

C:-(b) and (c)

D:-(c) only

Correct Answer:- Option-C

Question92:-Calculate the change in internal energy of a system which absorbs 250 kJ of heat and does 100 kJ of work

A:-350 J

B:-350 kJ

C:-150 J

D:-150 kJ

Correct Answer:- Option-D

Question93:-The amount of heat required to raise the temperature of 100 g of water through 1°C is called

A:-Heat capacity of water

B:-Specific heat capacity of water

C:-Molar heat capacity of water

D:-None of these

Correct Answer:- Option-A

Question94:-Which of the following denotes specific heat capacity amount of heat required to raise temperature of

A:-18 g of water through 1°C

B:-100 g of water through 1°C

C:-1 g of water through 100°C

D:-1 g of water through 1°C

Correct Answer:- Option-D

Question95:-For 3 moles of an ideal gas what is the difference b/n molar heat capacity at constant pressure and molar heat capacity at constant volume?

A:-R

B:-3R

C:- $\frac{1}{3}R$

D:- $R^2$

Correct Answer:- Option-B

Question96:-Lattice enthalpy of an ionic solid is determined by

A:-Mayers relation

B:-Born-Habercycle

C:-Direct ionisation

D:-I law of thermodynamics

Correct Answer:- Option-B

Question97:-Measure of disorder is called

A:-Enthalpy change

B:-Entropy

C:-Free energy

D:-Internal energy

Correct Answer:- Option-B

Question98:-The difference between enthalpy and product of temperature and entropy of a substance is

A:-G

B:-H

C:-S

D:-U

Correct Answer:- Option-A

Question99:-Std Free Energy change and equilibrium constant is related as

(a)  $\Delta G^\circ = \Delta H^\circ - T\Delta S^\circ$

(b)  $\Delta G^\circ = -2.303 RT \log K$

(c)  $\Delta G^\circ = -RT \ln K$

(d)  $\Delta G^\circ = -RT \log K$

A:-(a), (b), (c) correct

B:-(a), (b), (d) correct

C:-Only (b) and (c) correct

D:-Only equation (b) correct

Correct Answer:- Option-C

Question100:-For the reaction  $3A+2B \rightarrow C$  at 298 K,  $\Delta H = 400 \text{ kJ mol}^{-1}$ ,  $\Delta S = 0.2 \text{ kJ mol}^{-1}\text{K}^{-1}$ .-At what temperature will the reaction become spontaneous?

A:-Below 2000 K

B:-Below 200 K

C:-Above 2000 K

D:-Above 200 K

Correct Answer:- Option-C