



CHEMISTRY

BOOKS - MTG IIT JEE FOUNDATION

FOOTSTEPS TOWARDS (NEET)

Questions

1. Which of the following would be described as impure?

A. Crystallized salt

B. Salt solution

C. Rock salt

D. All of these

Answer: C



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2. H_2 represents

A. 1 mole of hydrogen atoms

B. 1 g of hydrogen

C. both (a) and (b)

D. none of these

Answer: D



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3. The charge on the atom having 15 protons,
18 electrons is

A. -3

B. -1

C. -2

D. zero

Answer: A



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4. As the solid melts to form liquid,

A. interparticle forces of attraction

decreases

- B. the kinetic energy of the particles increases
- C. compressibility increases
- D. all of these

Answer: D



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5. How many total atoms are present in $CoCl_3 \cdot 6H_2O$?

A. 17

B. 22

C. 8

D. 18

Answer: B



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6. The total number of neutrons in dipositive zinc ions with mass number 65 is

A. 32

B. 35

C. 40

D. 38

Answer: B



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7. The physical state of water at $10^{\circ} C$ is

A. solid

B. liquid

C. gas

D. may be solid or liquid

Answer: B



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8. The average atomic mass of an element A is 16.2 u. There are two isotopes ${}^{16}_8A$ and ${}^{18}_8A$ of an element. What will be the percentage of these two isotopes in element A ?

A. 90%,10%

B. 10%,90%

C. 20%,80%

D. 80%,20%

Answer: A



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9. Calculate the percentage of oxygen in sulphuric acid, H_2SO_4

A. 82.18 %

B. 3.69 %

C. 65.31 %

D. 50 %

Answer: C



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10. A gas can be compressed to a fraction of its volume. The same volume of a gas can be

spread all over a room. The reason for this is that.

A. the volume occupied by molecules of a gas is negligible as compared to the total volume of the gas.

B. gases consist of molecules which are in a state of random motion.

C. gases consist of molecules having very large intermolecular space which can be

reduced or increased under ordinary conditions

D. one mole of each gas occupies 22.4 L at STP.

Answer: C



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11. The gram atomic mass of an element is 32 g. The number of moles in 48g of element are

A. 0.5mol

B. 2.5 mol

C. 1.5 mol

D. 0.75 mol.

Answer: C



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12. In an atom, an electron can jump from L shell to N shell by

- A. emitting energy
- B. absorbing energy
- C. increasing its velocity
- D. none of these

Answer: B



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13. A solution that has dissolved as much solute as it is capable of dissolving at a given temperature is

A. supersaturated solution

B. unsaturated solution

C. saturated solution

D. concentrated solution.

Answer: C



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14. When we put some crystals of potassium permanganate in a beaker containing water,

we observe that after some time whole water was turned pink. This is due to

A. boiling

B. melting of potassium permanganate crystals

C. sublimation of crystals

D. diffusion

Answer: D



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15. Match the column I with column II and choose the correct option.

	Column I (Ion)		Column II (Nature)
(A)	Chloride ion	(i)	Divalent, negative
(B)	Calcium ion	(ii)	Trivalent, positive
(C)	Aluminium ion	(iii)	Divalent, positive
(D)	Oxide ion	(iv)	Monovalent, negative

A. A-IV,B-II,C-I,D-III

B. A-IV,B-III,C-II,D-I

C. A-III,B-II,C-I,D-IV

D. A-I,B-IV,C-III,D-II

Answer: B



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16. Solvent used in crystallisation should

- A. not dissolve the impurities
- B. not react chemically with substance
- C. do not crystallise on cooling
- D. all of the above.

Answer: D



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17. Which one of the following has unit positive charge and 1 amu mass

A. A neutron

B. A proton

C. An electron

D. A helium nucleus

Answer: B



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18. Which of the following is not a chemical change ?

A. Electrolysis of water

B. Boiling of water

C. Digestion of food

D. Burning of magnesium

Answer: B



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19. Which of the following electronic configurations is wrong?

A. $\text{Be} (3) = 2,1$

B. $\text{O} (8) = 2, 6$

C. $\text{S} (16) = 2, 6 ,8$

D. $\text{P} (15) = 2, 8 , 5$

Answer: C



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20. Some elements along with their symbols are enlisted in the given table :

Elements					
(i)	Argon-Ar	(iv)	Lead-Pb	(vii)	Potassium-P
(ii)	Iron-I	(v)	Gold-Au	(viii)	Sodium-S
(iii)	Chlorine- Cl	(vi)	Magnesium- Ma	(ix)	Zinc-Zn

Identify the incorrect representation of symbols.

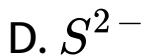
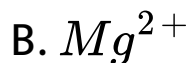
- A. III,IV,V and IX
- B. I,III,IV , V and IX
- C. II,VI,VII and VIII
- D. All of these

Answer: C



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21. Which of the following has the same number of electrons as an oxide ion (O^{2-}) ?



Answer: B



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22. Dry ice on heating produces

- A. liquid CO_2
- B. liquid water
- C. gaseous CO_2
- D. water vapour

Answer: C



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23. Simple distillation can be best used to separate

A. a mixture of benzene (boiling point 80°

C) and toluene (boiling point $110^{\circ} C$)

B. a mixture of acetone (boiling point

$56^{\circ} C$) and methyl alcohol (boiling

point $64^{\circ} C$)

C. a mixture of ethanol (boiling point $78^{\circ}C$) and water (boiling point $100^{\circ}C$)

D. none of these

Answer: A



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24. Which of the following weighs most?

A. 2 g atoms of nitrogen

B. 25g iron

C. 2×10^{23} atoms of carbon

D. 22.4 L of CO_2 at STP

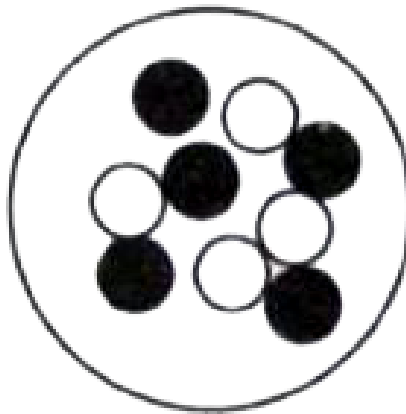
Answer: D



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25. The diagram given below shows the subatomic particles present in the nucleus of atom X.

● neutron
○ proton



X

Which is the symbol for atom X ?

A. 5_4X

B. 9_4X

C. 4_5X

D. 9_5X

Answer: B



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26. Which of the following process involves fractional distillation?

X. Separation of components of a liquid air.

Y. Separation of crude petroleum into useful fractions like gasoline, kerosene oil, diesel etc.

Z. Separation of kerosene oil and water.

A. X,Y,Z

B. X,Y

C. X,Z

D. Y,Z

Answer: B



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27. Information about two atoms, X and Y are shown below :

Atom	Nucleon number	Proton number
X	14	7
Y	15	7

Which of the following is correct about these two atoms?

A. Electronic configuration :

Atom X	Atom Y
2,8,4	2,8,5

B. Number of neutrons :

Atom X	Atom Y
7	7

C. Number of valence electrons :

Atom X	Atom Y
5	5

D. Number of electron shells :

Atom X	Atom Y
2	3

Answer: C



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28. Which of the following properties is different for solids, liquids and gases?

- A. Movement of molecules
- B. Particle size of the substance
- C. Mass of the substance
- D. Energy exchanges

Answer: A



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29. What mass of carbon dioxide (CO_2) will contain 3.011×10^{23} molecules?

A. 11.0g

B. 22.0g

C. 4.4g

D. 44.0g

Answer: B



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30. Butter is a colloid formed when

- A. fat is dispersed in fat
- B. fat is dispersed in water
- C. water is dispersed in fat
- D. proteins dispersed in water.

Answer: C



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31. $15^{\circ}C$ temperature is equal to

A. 163K

B. 15K

C. 183K

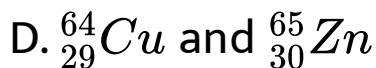
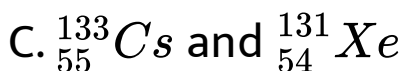
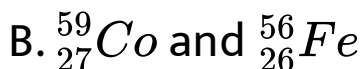
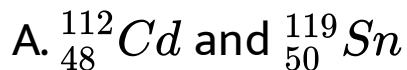
D. 288K

Answer: D



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32. Which pair of atoms contains the same number of neutrons?

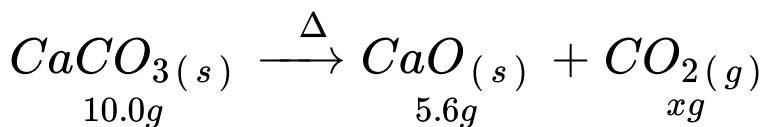


Answer: D



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33. According to the given reaction :



What is the value of x ?

A. 10.0

B. 5.6

C. 4.4

D. 11.1

Answer: C



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34. Which of the following are metalloids?

(i) Boron

(ii) Sodium

(iii) Silicon

(iv) Chlorine

(v) Germanium

A. II and IV

B. I and IV

C. III and V

D. I,III and V

Answer: D



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35. Which of the most favourable condition for liquefaction of ammonia ?

- A. High pressure, high temperature
- B. High pressure, low temperature
- C. Low pressure, low temperature
- D. Low pressure, high temperature

Answer: B



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36. A flask X contains 0.5 mole of oxygen gas. Another flask Y contains 0.4 mole of ozone gas. Which of the two flasks contains greater number of oxygen atoms?

A. Flask X

B. Flask Y

C. Both have equal number of oxygen atoms.

D. Data is insufficient.

Answer: B



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37. Which of the following is not correct?

A. Solids have fixed shape and fixed volume.

B. We can easily compress a liquid but not a gas.

C. Solids have negligible kinetic energy of the particles.

D. Property of diffusion is maximum in the gaseous state.

Answer: B



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38. The mass number of an ion is 48. It has 3 units of positive charge. The number of neutrons in the ion exceeds the number of electrons in it by 7. The atomic number of the element is

A. 21

B. 22

C. 24

D. 26

Answer: B



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39. Which of the following is likely to be a pure substance?

A. A colourless liquid that boils over the range of temperature from $70^{\circ}C$ to $80^{\circ}C$

B. A green solid which starts to melt at $80^{\circ}C$ and is completely melted at $90^{\circ}C$

C. A white solid which produced a chromatogram consisting of only one spot

D. A brown liquid that is completely miscible with water.

Answer: C



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40. Which of the following molecules are diatomic ?

(i) Nitrogen (ii) Neon (iii) Oxygen

(iv) Sulphur (v) Phosphorus (vi) Ozone

(vii) Fluorine (viii) Hydrogen (ix) Fullerene

A. ii,iv,v and vi

B. iv,v and ix

C. ii and vi

D. i,iii,vii and viii

Answer: D



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41. The rate of diffusion of a gas is

A. directly proportional to its density

B. directly proportional to its molecular mass

C. directly proportional to the square root of its molecular mass

D. inversely proportional to the square root of its molecular mass.

Answer: D



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42. Three students Nisha, David and Manu were given three unknown substances A,B and C respectively during the lab activity.

Substance	Property	
	Solubility in water	Boiling point (°C)
<i>A</i>	Soluble	55
<i>B</i>	Insoluble	46
<i>C</i>	Soluble	90

On the basis of these properties, which student has chosen the correct separation

technique, to separate a substance from the substance-water mixture?

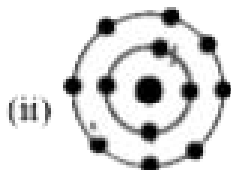
- A. Nisha-Separating funnel
- B. David- Distillation
- C. Manu-Fractional distillation
- D. All are correct

Answer: C



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43. Which of the following do not represent Bohr's model of atom correctly?



A. I and II

B. II and III

C. II and IV

D. I and IV

Answer: C



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44. Which of the following statements are correct regarding liquid state?

(i) Particle are loosely packed in the liquid state.

(ii) Fluidity is maximum in the liquid state.

(iii) Liquids cannot be compressed much.

(iv) Liquids take up the shape of any container in which they are placed.

A. I, II and III

B. I, III and IV

C. I, II and IV

D. All statement are correct

Answer: B



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