

chm101 List of Questions

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Q1 In the periodic table, period 6 contains ----- elements

- ☐ 32
- ☐ 16
- ☐ 24
- ☐ 8

Q2 Which of these is not an isotope of hydrogen?

- ☐ Protium
- ☐ Deutrium
- ☐ Tritium
- ☐ Neutrium

Q3 _____ forms an oxide also known as heavy water.

- ☐ Protium
- ☐ Deutrium
- ☐ Tritium
- ☐ Neutrium

Q4 Which of the isotopes of hydrogen is radioactive?

- ☐ Protium
- ☐ Deutrium
- ☐ Tritium
- ☐ Neutrium

Q5 All these can be used as raw materials for the production of oxygen except

- ☐ coke
- ☐ carbon(II)oxide
- ☐ steam
- ☐ nitrogen

Q6 Hydrogen can be obtained economically as a bi-product in the electrolysis of -----

- ☐ brine
- ☐ water
- ☐ sodium hydroxide
- ☐ platinum

Q7 Which if these is not a property of hydrogen?

- ☐ it is colourless
- ☐ it has a pungent smell
- ☐ it can be oxidized to water
- ☐ It reduces sulphur to hydrogen sulphide

Q8 Hydrogen may be used for all but one of the following.

- ☐ synthesis of zinc
- ☐ hydrogenation of oil
- ☐ manufacture of methanol

- ☐ Synthesis of ammonia

Q9 Hydrogen may not be advantageous as a fuel because-----

- ☐ It has unlimited quantities in the sea
- ☐ It is pollution free
- ☐ It can be stored and used when needed
- ☐ it is a secondary source of energy

Q10 Hydrogen may be used for all but one of the following

- ☐ Synthesis of ammonia
- ☐ hydrogenation of oil
- ☐ manufacture of methanol
- ☐ synthesis of zinc

Q11 _____types of hydride compounds can be formed depending on the electronegativity of the elements

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4

Q12 When alkali metals are heated with hydrogen they form-----hydrides

- ☐ covalent
- ☐ ionic
- ☐ metallic
- ☐ non-stoichiometric

Q13 Silt is an example of ----- hydride

- ☐ superior
- ☐ covalent
- ☐ metallic
- ☐ ionic

Q14 Which of these statements is not true of metallic hydrides?

- ☐ they are volatile
- ☐ they are deficient in hydrogen
- ☐ most have metallic appearance
- ☐ They are all conductors of heat

Q15 Sodium Hydride is an example of ----- hydride

- ☐ covalent
- ☐ ionic
- ☐ metallic
- ☐ non-stoichiometric

Q16 All these are types of metal lattices except-----

- ☐ body-centred cubic
- ☐ hexagonal
- ☐ hexagonal
- ☐ cubic close packed

Q17 Which of these statements is not true of metallic elements?

- ☐ they are ductile
- ☐ they have lustre
- ☐ They form acidic oxides
- ☐ they are malleable

Q18 All these are consequences of the sole valence electron in alkali metals except -----

- ☐ the metals are soft
- ☐ good conduction of electricity
- ☐ good conduction of heat
- ☐ the silvery luster

Q19 Which of these statements is not true?

- ☐ liquid ammonia is used to form carbides
- ☐ All metals react with carbon to form carbides
- ☐ lithium reacts with carbon to form ionic carbides
- ☐ Acetylene is necessary for the formation of some carbide

Q20 In the group of the alkali metals the degree of hydration----- down the group.

- ☐ decreases
- ☐ increases
- ☐ is constant
- ☐ has no fixed pattern

Q21 When a metal is surrounded by solvent molecules not water, the phenomenon is called-----

- ☐ instability
- ☐ hydration
- ☐ complexation
- ☐ Solvation

Q22 Which of these element does not belong to the alkali metals

- ☐ caesium
- ☐ rubidium
- ☐ lithium
- ☐ Radium

Q23 Decrease in hydration energy makes a compound -----

- ☐ electropositive
- ☐ electronegative
- ☐ insoluble
- ☐ soluble

Q24 Which of these increases solubility of compounds

- ☐ two cations
- ☐ a small cation and a large anion
- ☐ a large cation and anion
- ☐ a small cation and anion

Q25 The charge on cations----- down a group

- ☐ remains constant

- ☐ does not have a fixed pattern
- ☐ increases
- ☐ decreases

Q26 Hydrides of alkali metals react with water to librate-----

- ☐ light
- ☐ oxygen
- ☐ hydrogen
- ☐ ammonia

Q27 Alkali metals react with sulphur to form ---- types of sulphides

- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5

Q28 Ionization energy----- down the group within the alkali metals

- ☐ increases
- ☐ has no fixed pattern
- ☐ remains constant
- ☐ decreases

Q29 Within the alkali metals atomic size -----

- ☐ has no pattern
- ☐ remains the same
- ☐ increases down the group
- ☐ decreases down the group

Q30 Potassium compounds can be used for all but one of the following

- ☐ manufacture of glass
- ☐ liquid detergents
- ☐ plant fertilizer
- ☐ gun powder

Q31 Alkali metals can be used for all but one of the following

- ☐ as street lights
- ☐ as rocket fuel
- ☐ as a coolant
- ☐ underground high voltage transmission

Q32 A consequence of ----- is the formation of a chelate ring

- ☐ intramolecular covalent bonding
- ☐ intermolecular covalent bonding
- ☐ intramolecular hydrogen bonding
- ☐ intermolecular hydrogen bonding

Q33 Which of these hydrides has the high boiling point?

- ☐ boron hydride
- ☐ stannane
- ☐ water

- ☐ methane

Q34 Which of these metals is radioactive?

- ☐ rubidium
- ☒ francium
- ☐ potassium
- ☐ lithium

Q35 The most abundant metal in sea water is -----

- ☐ zinc
- ☒ sodium
- ☐ lithium
- ☐ rubidium

Q36 Which of these bonds has the weakest bond energy?

- ☒ hydrogen bond
- ☐ electrovalent bond
- ☐ covalent bond
- ☐ metallic bond

Q37 The attractive force which binds a hydrogen atom of one molecule with an electronegative atom of another molecule of the same compound is called-----

- ☐ nuclear bond
- ☐ electromagnetic force
- ☒ hydrogen bond
- ☐ covalent bond

Q38 Increase in principal quantum number(n) means-----of the atomic radii

- ☐ shrinking
- ☐ no change
- ☒ increase
- ☐ decrease

Q39 Except for rubidium and caesium,

- ☒ all common cations are smaller than all common anions
- ☐ all common cations are larger than all common anions
- ☐ all common cations are of the same size with all common anions
- ☐ the cations are not available

Q40 _____ is defined as one-half of the distance between the nuclei of two adjacent metal atoms in the close packed crystal lattice

- ☐ ionic radius
- ☒ metallic radius
- ☐ covalent radius
- ☐ atomic radius

Q41 _____ states that as far as possible in a given atom in the ground state, electrons in the same sub shell will occupy different orbitals and will have parallel spins.

- ☐ Paul Exclusion principles
- ☒ Hund's rule

- ☐ Guy's law
- ☐ Aufbau's principle

Q42 The alkali metals belong to the ----- elements

- ☐ d-block
- ☐ f-block
- ☐ p-block
- ☐ s-block

Q43 Which is of these periods of the periodic table has only eight elements?

- ☐ 1
- ☐ 3
- ☐ 5
- ☐ 7

Q44 Increase in principal quantum number(n) means-----of the atomic radii

- ☐ shrinking
- ☐ no change
- ☐ increase
- ☐ decrease

Q45 In the equation for ionization, effective nuclear charge is represented as-----

- ☐ I
- ☐ Z^*
- ☐ e
- ☐ v

Q46 The ability of an element to participate in a chemical reaction is measured in form of its -----

- ☐ electron density
- ☐ electron cloud
- ☐ ionization energy
- ☐ nuclear charge

Q47 ____ is the energy released or absorbed when an electron is added to the gaseous atom in its ground state

- ☐ electron charge
- ☐ electronegativity
- ☐ ionization energy
- ☐ electron affinity

Q48 Electron affinity can be affected by all but one of the following

- ☐ effective nuclear charge
- ☐ atomic radius
- ☐ mass number
- ☐ electronic configuration

Q49 Halogens have ----- electron affinity

- ☐ exothermic
- ☐ endothermic
- ☐ positive

- ☐ zero

Q50 An orbital can have at the most two electrons of opposite spin can be called the -----

- ☐ aufbau principle
☐ Hendry's law
☐ Hund's rule
☐ Exclusion principle

Q51 In the mordern form of Mendeleev peroidic table, elements are arranged in -----horizontal rows.

- ☐ 6
☐ 7
☐ 8
☐ 9

Q52 The positions of K and Ar,Co and Ni do not remain anomalous any longer since ----- is used in arranging the elements.

- ☐ mass number
☐ atomic weight
☐ atomic number
☐ moecular mass

Q53 The properties of elements are periodic functions of their atomic numbers is the-----

- ☐ Lecoq de Biosbaudran' law
☐ Mordern periodic law
☐ Newlands'law
☐ Mendeleev law

Q54 What property was used by Mendeleev to classify the elements?

- ☐ atomic number
☐ atomic weight
☐ mass number
☐ chemical properties

Q55 _____ used the Law of the Octave to arrange atoms

- ☐ John Newlands
☐ Meyer
☐ De Chancourtois
☐ Dobereiner

Q56 _____ arranged elements in order of increasing atomic weight on a line which spiraled around a cylinder from bottom to top

- ☐ John Newlands
☐ Meyer
☐ De Chanourtios
☐ Mendeleev

Q57 _____ and _____ tried to classify elements into periods

- ☐ De Chancourtois and Dobereiner
☐ Gibbs and Dobereiner
☐ De Chancourtois and Le Chatiler

- ☐ Graham and Dalton

Q58 _____ is the tendency of an atom to attract towards itself the shared electron pair of a bond in which it is involved

- ☐ electron affinity
☒ electronegativity
☐ atomic attraction
☐ bonding

Q59 The second ionization energy of alkaline earth metals is less than that of corresponding alkali metals because-----

- ☐ the alkaline earth metals have higher nuclear charge and are smaller in size
☐ the alkali metals have no nuclear charge
☒ of stability of a closed shell configuration
☐ the alkali metals have higher nuclear charge and are smaller in size

Q60 _____ is the enthalpy change when one mole of crystal lattice is formed from the isolated gaseous ions

- ☐ hydration energy
☒ lattice energy
☐ ionisation energy
☐ gaseous energy

Q61 A hybrid orbitals that has greater s-character is more likely to possess $\diamond? \diamond \diamond \diamond? \diamond$.

- ☐ Higher ionization energy
☒ Greater electronegativity
☐ Lower electronegativity
☐ All of the above

Q62 Which of these is an sp-hybridized compound?

- ☐ CH_4
☐ C_2H_4
☒ C_2H_2
☐ C_2H_6

Q63 The presence of hydrogen bond in most molecules is responsible for the following except;

- ☐ High melting point
☒ Low boiling point
☐ High solubility in water
☐ Very high boiling point

Q64 Which of these is not a covalent hydride?

- ☐ Ammonia
☐ Ethyne
☐ Hydrochloric acid gas
☒ NaH

Q65 When alkali metals are heated with hydrogen they form-----hydrides

- ☐ covalent
☒ Ionic

- ☐ metallic
- ☐ non-stoichiometric

Q66 Hydrogen can be obtained economically as a bi-product in the electrolysis of -----

- ☐ brine
- ☐ water
- ☐ Sodium hydroxide
- ☐ Calcium chloride

Q67 One of these elements behave partly as the alkaline metals as well as a halogen element;

- ☐ Helium
- ☐ Fluorine
- ☐ Hydrogen
- ☐ Silicon

Q68 The tendency of an atom to attract shared electron pair of bond towards itself is known as

- ☐ Electronegativity
- ☐ Electron affinity
- ☐ Ionization energy
- ☐ Hydrogen bonding

Q69 Which of the following is not true as we move down a group of s and p-block elements in the periodic table

- ☐ Effective nuclear charge is relatively constant
- ☐ Atomic radius increase steadily
- ☐ The value of principal quantum number increases
- ☐ Electronegativity also increases

Q70 The energy required to remove two valency electrons of a metallic atom is called;

- ☐ Ionization energy
- ☐ Electron affinity
- ☐ Activation energy
- ☐ Second ionization energy

Q71 Which of these elements has the electronic configuration of

$1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10} 4s^1$

- ☐ Cu
- ☐ Zn
- ☐ Kr
- ☐ Ca

Q72 All common cations are smaller than all common anions except one of these;

- ☐ Rubidium
- ☐ Calcium
- ☐ Magnesium
- ☐ Sodium

Q73 One half of the distance between the nuclei of two atoms bonded together by a single bond is known as

- ☐ Covalent radius

- ☐ Ionic radius
- ☐ Van der waals radius
- ☐ ionic radius

Q74 one of the following is not a d-block element?

- ☐ Vanadium
- ☐ Zinc
- ☐ Titanium
- ☐ Aluminium

Q75 Which of these is not an s-block element

- ☐ K
- ☐ Ca
- ☐ Zn
- ☐ Mg

Q76 The energy absorbed or released when an electron is added to a gaseous atom is known as

- ☐ Electronegativity
- ☐ Ionization energy
- ☐ Electron affinity
- ☐ corrosion

Q77 One half of the distance between the nuclei of two adjacent metal atoms in a close crystal lattice is called?

- ☐ Ionic radius
- ☐ Covalent radius
- ☐ Metallic radius
- ☐ Van der waal's radius

Q78 One of the following scientists never made any contribution to the development of periodic table?

- ☐ J.J Thompson
- ☐ John Newlands
- ☐ Luther Meyer
- ☐ Mendeleev

Q79 Which of these is not a property of metallic element?

- ☐ Form basic oxide
- ☐ Conduct heat and electricity
- ☐ They are malleable and lustrous
- ☐ They form acidic oxide

Q80 Newlands law of octaves was rejected mainly because of;

- ☐ Elements were arranged in increasing order of atomic mass
- ☐ The cycle of repetition shown by elements is similar to octave in music
- ☐ It could not hold good for elements heavier than calcium
- ☐ Many radioactive elements have not been discovered then