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NEET S-BLOCK ELEMENTS — PYQS

Max. Marks: 160 **Questions:** 40

Section A (MCQ) — 40 questions

Q.1 Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**.

Assertion (A): Metallic sodium dissolves in liquid ammonia giving a deep blue solution, which is paramagnetic.

Reason (R): The deep blue solution is due to the formation of amide.

In the light of the above statements, choose the correct answer from the options given below : [NEET (UG) 2023]

(1) Both A and R are true but R is NOT the correct explanation of A.
(2) A is true but R is false
(3) A is false but R is true
(4) Both A and R are true and R is the correct explanation of A.

Scan or tap for the full solution

Q.2 Which one of the following statements is correct? [NEET (UG) 2023]

(1) All enzymes that utilise ATP in phosphate transfer require Ca as the cofactor.
(2) The bone in human body is an inert and unchanging substance.
(3) Mg plays roles in neuromuscular function and interneuronal transmission.
(4) The daily requirement of Mg and Ca in the human body is estimated to be 0.2–0.3 g.

Scan or tap for the full solution

Q.3 Identify the incorrect statement from the following [NEET (UG) 2022]

(1) Alkali metals react with water to form their hydroxides.
(2) The oxidation number of K in KO_2 is +4.
(3) Ionisation enthalpy of alkali metals decreases from top to bottom in the group.
(4) Lithium is the strongest reducing agent among the alkali metals.

Scan or tap for the full solution

Q.4 Match **List - I** with **List - II**

List - I		List - II	
a.	Li	i.	absorbent for carbon dioxide
b.	Na	ii.	electrochemical cells
c.	KOH	iii.	coolant in fast breeder reactors
d.	Cs	iv.	photoelectric cell

Choose the correct answer from the options given below : [NEET (UG) 2022]

(1) (a)-(iv), (b)-(i), (c)-(iii), (d)-(ii)
(2) (a)-(iii), (b)-(iv), (c)-(ii), (d)-(i)
(3) (a)-(i), (b)-(iii), (c)-(iv), (d)-(ii)
(4) (a)-(ii), (b)-(iii), (c)-(i), (d)-(iv)

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Q.5 $CaCl_2$ and $Ca(OCl)_2$ are components of [NEET (UG) 2022 (Phase 2)]

(1) Lime water (2) Gypsum
(3) Portland cement (4) Bleaching powder

Scan or tap for the full solution

Q.6 Among the following alkaline earth metal halides, one which is covalent and soluble in organic solvents is : [NEET (UG) 2021]

(1) Beryllium chloride (2) Calcium chloride
(3) Strontium chloride (4) Magnesium chloride

Scan or tap for the full solution

Q.7 The structures of beryllium chloride in solid state and vapour phase, are : [NEET (UG) 2021]

(1) Chain in both
(2) Chain and dimer, respectively
(3) Linear in both
(4) Dimer and Linear, respectively

Scan or tap for the full solution

Q.8 The following metal ion activates many enzymes, participates in the oxidation of glucose to produce ATP and with Na^+, is responsible for the transmission of nerve signals. [NEET (UG) 2020]

(1) Copper (2) Calcium
(3) Potassium (4) Iron

Scan or tap for the full solution

Q.9 HCl was passed through a solution of $CaCl_2$, $MgCl_2$ and NaCl. Which of the following compound(s) crystallize(s)? [NEET (UG) 2020]

(1) Only NaCl
(2) Only $MgCl_2$
(3) NaCl, $MgCl_2$ and $CaCl_2$
(4) Both $MgCl_2$ and $CaCl_2$

Scan or tap for the full solution

Q.10 Which of the following is an amphoteric hydroxide? [NEET (UG) 2019]

(1) $Mg(OH)_2$ (2) $Be(OH)_2$
(3) $Sr(OH)_2$ (4) $Ca(OH)_2$

Scan or tap for the full solution

Q.11 Enzymes that utilize ATP in phosphate transfer require an alkaline earth metal (M) as the cofactor. M is [NEET (UG) 2019]

(1) Ca (2) Sr (3) Be (4) Mg

Scan or tap for the full solution

Q.12 Which of the following oxides is most acidic in nature? [NEET 2018]

(1) MgO (2) BeO (3) BaO (4) CaO

Scan or tap for the full solution

Q.13 Magnesium reacts with an element (X) to form an ionic compound. If the ground state electronic configuration of (X) is $1s^2 2s^2 2p^3$, the simplest formula for this compound is [NEET 2018]

(1) Mg_2X_3 (2) MgX_2 (3) Mg_2X (4) Mg_3X_2

Scan or tap for the full solution

Q.14 Ionic mobility of which of the following alkali metal ions is lowest when aqueous solution of their salts are put under an electric field? [NEET 2017]

(1) K^+ (2) Rb^+ (3) Li^+ (4) Na^+

Scan or tap for the full solution

Q.15 Which of the following statements is false? [NEET 2016 (Phase 1)]

(1) Ca^{2+} ions are not important in maintaining the regular beating of the heart.
(2) Mg^{2+} ions are important in the green parts of the plants.
(3) Mg^{2+} ions form a complex with ATP.
(4) Ca^{2+} ions are important in blood clotting.

Scan or tap for the full solution

Q.16 The product obtained as a result of a reaction of nitrogen with CaC_2 is [NEET 2016 (Phase 1)]

(1) $CaCN_2$ (2) Ca_2CN (3) $Ca(CN)_2$ (4) CaCN

Scan or tap for the full solution

Q.17 The suspension of slaked lime in water is known as [NEET 2016 (Phase 2)]

(1) lime water
(2) quick lime
(3) milk of lime
(4) aqueous solution of slaked lime.

Scan or tap for the full solution

Q.18 In context with beryllium, which one of the following statements is incorrect? [NEET 2016 (Phase 2)]

(1) It is rendered passive by nitric acid.
(2) It forms Be_2C
(3) Its salts rarely hydrolyze.
(4) Its hydride is electron-deficient and polymeric.

Scan or tap for the full solution

Q.19 On heating which of the following releases CO_2 most easily? [AIPMT 2015]

(1) Na_2CO_3 (2) $MgCO_3$ (3) $CaCO_3$ (4) K_2CO_3

Scan or tap for the full solution

Q.20 The function of "Sodium pump" is a biological process operating in each and every cell of all animals. Which of the following biologically important ions is also a constituent of this pump? [AIPMT 2015 (Cancelled)]

(1) K^+ (2) Fe^{2+} (3) Ca^{2+} (4) Mg^{2+}

Scan or tap for the full solution

Q.21 Which one of the following compounds is a peroxide? [AIPMT 2010 (Prelims)]

(1) KO_2 (2) BaO_2 (3) MnO_2 (4) NO_2

Scan or tap for the full solution

Q.22 Solubility of the alkaline earth metal sulphates in water decreases in the sequence [AIPMT 2015 (Cancelled)]

(1) Sr > Ca > Mg > Ba (2) Ba > Mg > Sr > Ca
(3) Mg > Ca > Sr > Ba (4) Ca > Sr > Ba > Mg

Scan or tap for the full solution

Q.23 In Castner-Kellner cell for production of sodium hydroxide [NEET 2013 (Karnataka)]

(1) brine is electrolyzed using graphite electrodes
(2) molten sodium chloride is electrolysed
(3) sodium amalgam is formed at mercury cathode
(4) brine is electrolyzed with Pt electrodes

Scan or tap for the full solution

Q.24 Which one of the alkali metals, forms only, the normal oxide, M_2O on heating in air? [AIPMT 2012 (Prelims)]

(1) Rb (2) K (3) Li (4) Na

Scan or tap for the full solution

Q.25 The ease of adsorption of the hydrated alkali metal ions on an ion-exchange resin follows the order : [AIPMT 2012 (Prelims)]

(1) $Li^+ < K^+ < Na^+ < Rb^+$ (2) $Rb^+ < K^+ < Na^+ < Li^+$
(3) $K^+ < Na^+ < Rb^+ < Li^+$ (4) $Na^+ < Li^+ < K^+ < Rb^+$

Scan or tap for the full solution

Q.26 Which of the following statements is incorrect? [AIPMT 2011 (Mains)]

(1) Pure sodium metal dissolves in liquid ammonia to give blue solution.
(2) NaOH reacts with glass to give sodium silicate.
(3) Aluminium reacts with excess NaOH to give $Al(OH)_3$.
(4) $NaHCO_3$ on heating gives Na_2CO_3.

Scan or tap for the full solution

Q.27 Match **List-I** with **List-II** for the compositions of substances and select the correct answer using the codes given below. [AIPMT 2011 (Mains)]

List-I (Substances)		List-II (Composition)	
A.	Plaster of Paris	i.	$CaSO_4 \cdot 2H_2O$
B.	Epsomite	ii.	$CaSO_4 \cdot \frac{1}{2}H_2O$
C.	Kieserite	iii.	$MgSO_4 \cdot 7H_2O$
D.	Gypsum	iv.	$MgSO_4 \cdot H_2O$
		v.	$CaSO_4$

(1) (A)-(iii), (B)-(iv), (C)-(i), (D)-(ii)
(2) (A)-(ii), (B)-(iii), (C)-(iv), (D)-(i)
(3) (A)-(i), (B)-(ii), (C)-(iii), (D)-(iv)
(4) (A)-(iv), (B)-(iii), (C)-(ii), (D)-(i)

Scan or tap for the full solution

Q.28 Which one of the following is present as an active ingredient in bleaching powder for bleaching action? [AIPMT 2011 (Prelims)]

(1) $CaOCl_2$ (2) $Ca(OCl)_2$
(3) CaO_2Cl (4) $CaCl_2$

Scan or tap for the full solution

Q.29 The compound A on heating gives a colourless gas and a residue that is dissolved in water to obtain B. Excess of CO_2 is bubbled through aqueous solution of B, C is formed which is recovered in the solid form. Solid C on gentle heating gives back A. The compound is [AIPMT 2010 (Mains)]

(1) $CaCO_3$ (2) Na_2CO_3
(3) K_2CO_3 (4) $CaSO_4 \cdot 2H_2O$

Scan or tap for the full solution

Q.30 Which of the following alkaline earth metal sulphates has hydration enthalpy higher than the lattice enthalpy? [AIPMT 2010 (Prelims)]

(1) $CaSO_4$ (2) $BeSO_4$ (3) $BaSO_4$ (4) $SrSO_4$

Scan or tap for the full solution

Q.31 Property of the alkaline earth metals that increases with their atomic number [AIPMT 2010 (Prelims)]

(1) solubility of their hydroxides in water
(2) solubility of their sulphates in water
(3) ionization energy
(4) electronegativity

Scan or tap for the full solution

Q.32 Which of the following oxides is **not** expected to react with sodium hydroxide? [AIPMT 2009]

(1) CaO (2) SiO_2 (3) BeO (4) B_2O_3

Scan or tap for the full solution

Q.33 The sequence of ionic mobility in aqueous solution is [AIPMT 2008]

(1) $Rb^+ > K^+ > Cs^+ > Na^+$
(2) $Na^+ > K^+ > Rb^+ > Cs^+$
(3) $K^+ > Na^+ > Rb^+ > Cs^+$
(4) $Cs^+ > Rb^+ > K^+ > Na^+$

Scan or tap for the full solution

Q.34 The alkali metals form salt-like hydrides by the direct synthesis at elevated temperature. The thermal stability of these hydrides decreases in which of the following orders? [AIPMT 2008]

(1) NaH > LiH > KH > RbH > CsH

(2) LiH > NaH > KH > RbH > CsH

(3) CsH > RbH > KH > NaH > LiH

(4) KH > NaH > LiH > CsH > RbH

Scan or tap for the full solution

Q.35 The correct order of increasing thermal stability of K_2CO_3, $MgCO_3$, $CaCO_3$ and $BeCO_3$ is [AIPMT 2007]

(1) $BeCO_3 < MgCO_3 < CaCO_3 < K_2CO_3$

(2) $MgCO_3 < BeCO_3 < CaCO_3 < K_2CO_3$

(3) $K_2CO_3 < MgCO_3 < CaCO_3 < BeCO_3$

(4) $BeCO_3 < MgCO_3 < K_2CO_3 < CaCO_3$

Scan or tap for the full solution

Q.36 In which of the following the hydration energy is higher than the lattice energy? [AIPMT 2007]

(1) $MgSO_4$ (2) $RaSO_4$ (3) $SrSO_4$ (4) $BaSO_4$

Scan or tap for the full solution

Q.37 The correct order of the mobility of the alkali metal ions in aqueous solution is [AIPMT 2006]

(1) $Rb^+ > K^+ > Na^+ > Li^+$ (2) $Li^+ > Na^+ > K^+ > Rb^+$

(3) $Na^+ > K^+ > Rb^+ > Li^+$ (4) $K^+ > Rb^+ > Na^+ > Li^+$

Scan or tap for the full solution

Q.38 A solid compound X on heating gives CO_2 gas and a residue. The residue mixed with water forms Y. On passing an excess of CO_2 through Y in water, a clear solution Z is obtained. On boiling Z, compound X is reformed. The compound X is [AIPMT 2004]

(1) $Ca(HCO_3)_2$ (2) $CaCO_3$

(3) Na_2CO_3 (4) K_2CO_3

Scan or tap for the full solution

Q.39 In which of the following processes, fused sodium hydroxide is electrolysed at a temperature of 330 °C for extraction of sodium? [AIPMT 2002]

(1) Castner's process (2) Downs process

(3) Cyanide process (4) Both (2) and (3)

Scan or tap for the full solution

Q.40 Mg is present in [AIPMT 2000]

(1) chlorophyll (2) haemoglobin

(3) vitamin-D (4) vitamin-B

Scan or tap for the full solution

ANSWER KEY

Ques.	1	2	3	4	5	6	7	8	9	10	11
Ans.	**2**	**4**	**2**	**4**	**4**	**1**	**2**	**3**	**1**	**2**	**4**
Ques.	12	13	14	15	16	17	18	19	20	21	22
Ans.	**2**	**4**	**3**	**1**	**1**	**3**	**3**	**2**	**1**	**2**	**3**
Ques.	23	24	25	26	27	28	29	30	31	32	33
Ans.	**3**	**3**	**2**	**3**	**2**	**2**	**1**	**2**	**1**	**1**	**4**
Ques.	34	35	36	37	38	39	40				
Ans.	**2**	**1**	**1**	**1**	**2**	**1**	**1**				