

NEET D- AND F-BLOCK ELEMENTS — OXIDATION STATES OF D-BLOCK ELEMENTS AND THEIR STABILITY — PYQS

Max. Marks: 32

Questions: 8

Section A (MCQ) — 8 questions

Q.1 The stability of Cu^{2+} is more than Cu^+ salts in aqueous solution due to - [NEET (UG) 2023]

- (1) enthalpy of atomization.
- (2) hydration energy.
- (3) second ionisation enthalpy.
- (4) first ionisation enthalpy.

Scan or tap for the full solution



Q.2 Given below are two statements :

Statement-I: Cr^{2+} is oxidising and Mn^{3+} is reducing in nature.

Statement-II: Sc^{3+} compounds are repelled by the applied magnetic field.

In the light of the above statements, choose the most appropriate answer from the options given below :

[NEET (UG) 2022 (Phase 2)]

- (1) Statement-I is incorrect but Statement-II is correct
- (2) Both Statement-I and Statement-II are correct
- (3) Both Statement-I and Statement-II are incorrect
- (4) Statement-I is correct but Statement-II is incorrect

Scan or tap for the full solution



Q.3 Identify the incorrect statement. [NEET (UG) 2020]

- (1) The transition metals and their compounds are known for their catalytic activity due to their ability to adopt multiple oxidation states and to form complexes.
- (2) Interstitial compounds are those that are formed when small atoms like H, C or N are trapped inside the crystal lattices of metals.
- (3) The oxidation states of chromium in CrO_4^{2-} and $\text{Cr}_2\text{O}_7^{2-}$ are not the same.
- (4) Cr^{2+} (d^4) is a stronger reducing agent than Fe^{2+} (d^6) in water.

Scan or tap for the full solution



Q.4 For the four successive transition elements (Cr, Mn, Fe and Co), the stability of +2 oxidation state will be there in which of the following order?

(At. nos. Cr = 24, Mn = 25, Fe = 26, Co = 27)

[AIPMT 2011 (Prelims)]

- (1) $\text{Mn} > \text{Fe} > \text{Cr} > \text{Co}$
- (2) $\text{Fe} > \text{Mn} > \text{Co} > \text{Cr}$
- (3) $\text{Co} > \text{Mn} > \text{Fe} > \text{Cr}$
- (4) $\text{Cr} > \text{Mn} > \text{Co} > \text{Fe}$

Scan or tap for the full solution



Q.5 Which one of the elements with the following outer orbital configurations may exhibit the largest number of oxidation states? [AIPMT 2009]

- (1) $3d^5 4s^1$
- (2) $3d^5 4s^2$
- (3) $3d^2 4s^2$
- (4) $3d^3 4s^2$

Scan or tap for the full solution



Q.6 Among K, Ca, Fe and Zn, the element which can form more than one binary compound with chlorine is [AIPMT 2004]

- (1) Fe
- (2) Zn
- (3) K
- (4) Ca

Scan or tap for the full solution



Q.7 Which of the following shows maximum number of oxidation states? [AIPMT 2002]

- (1) Cr
- (2) Fe
- (3) Mn
- (4) V

Scan or tap for the full solution



Q.8 Which of the following shows maximum number of oxidation states? [AIPMT 2000]

- (1) Cr
- (2) Fe
- (3) Mn
- (4) V

Scan or tap for the full solution



ANSWER KEY

Ques.	1	2	3	4	5	6	7	8			
Ans.	2	1	3	1	2	1	3	3			