



D AND F BLOCK ELEMENTS WORKSHEET

Class 12 - Chemistry

1. Match the items given in column I with that in column II: [1]

Column I	Column II
(a) $\text{Cr}_2\text{O}_7^{2-}$	(i) Permanganate ion
(b) CrO_4^{2-}	(ii) Dichromate ion
(c) MnO_4^{2-}	(iii) Chromate ion
(d) MnO_4^-	(iv) Manganate ion

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

2. Match the element given in column I with their stable highest oxidation state given in column II: [1]

Column I	Column II
(a) Fe	(i) +8
(b) Cd	(ii) +3
(c) Re	(iii) +2
(d) Os	(iv) +7

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

3. Match the ion given in column I with Column I given in column II [1]

Column I	Column II
(a) V^{4+}	(i) Yellow
(b) Mn^{2+}	(ii) Green
(c) Fe^{3+}	(iii) Blue
(d) Ni^{2+}	(iv) Pink

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

4. Match the ion given in column I with calculated magnetic moment given in BM in column II: [1]

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Column I	Column II
(a) Ni ²⁺	(i) 4.90
(b) Fe ²⁺	(ii) 2.84
(c) Cr ³⁺	(iii) 5.92
(d) Mn ²⁺	(iv) 3.87

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

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

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

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

5. Match the ion given in column I with unpaired electron given in column II:

[1]

Column I	Column II
(a) Cu ²⁺	(i) 3
(b) Co ²⁺	(ii) 2
(c) V ³⁺	(iii) 4
(d) Fe ²⁺	(iv) 1

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

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

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

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

6. Match the items given in column I with that in column II:

[1]

Column I	Column II
(a) MnO ₂	(i) Hydrogenation of oils
(b) Zinc	(ii) Oxidizing agent
(c) Nickle	(iii) Dry battery
(d) K ₂ Cr ₂ O ₇	(iv) Galvanization

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

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

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

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

7. Match the items given in column I with that in column II:

[1]

Column I	Column II
(a) Nuclear Fuel	(i) Ceric Sulphate
(b) Polish Glass	(ii) Uranium
(c) Crooke's lenses	(iii) CeO ₂
(d) Volumetric analysis	(iv) La ₂ O ₃

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

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

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

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

8. Match the items given in column I with that in column II:

[1]

Column I	Column II
(a) The element with the smallest radius in Lanthanoids	(i) Zinc
(b) The element with the highest possible oxidation state	(ii) Chromium
(c) Element with the maximum unpaired electron in its atom	(iii) Lutetium
(d) Element of first d-series with First Highest ionisation enthalpy	(iv) Osmium

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

9. Match the catalyst given in column I with the appropriate one in column II: [1]

Column I	Column II
(a) Finely divided iron	(i) Synthesis of Polymer
(b) $\text{FeSO}_4 + \text{H}_2\text{O}_2$	(ii) Oxidation of SO_2
(c) V_2O_5	(iii) Oxidation of alcohol
(d) $\text{TiCl}_4 + \text{Al}(\text{CH}_3)_3$	(iv) Haber Process

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

10. Match the substance given in column I with product in column II formed on their oxidation with KMnO_4 in acidic medium: [1]

Column I	Column II
(a) Hydrogen sulphide.	(i) Carbon dioxide
(b) Iodides	(ii) Sulphates
(c) Sulphites	(iii) Iodine
(d) Oxalates	(iv) Sulphur

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

11. State True or False: [10]

- (a) The magnetic moment due to the spin of unpaired electrons is given by $\sqrt{n(n+1)}$ B.M. where n is the number of unpaired electrons. [1]
(b) Fe_3O_4 is a mixed oxide of FeO and Fe_2O_3 . [1]
(c) Transition elements are more electropositive than s-block elements. [1]
(d) No rusting takes place in the absence of moisture. [1]
(e) The trivalent cation having largest size in transition series is La^{3+} . [1]
(f) The purest gold is of 24-carat. [1]
(g) When iron is heated in oxygen, it forms ferrous ferric oxide (Fe_3O_4). [1]
(h) Silver nitrate solution is kept in dark coloured bottles. [1]

- (i) Zinc dissolves in concentrated nitric acid but Hg does not. [1]
- (j) Mercurous chloride is highly poisonous. [1]
12. **Fill in the blanks:** [10]
- (a) The Chromate ion in acidic medium changes to _____. [1]
- (b) Transition elements exhibit _____ oxidation states. [1]
- (c) _____ is the purest form of iron. [1]
- (d) Silver materials are affected in the atmosphere of H₂S due to the formation of _____. [1]
- (e) The most abundant metal in the earth's crust is _____. [1]
- (f) Zinc is a solid while mercury is a _____ at ordinary temperature. [1]
- (g) The most abundant transition metal is _____. [1]
- (h) Ferrous ammonium sulphate is known as _____. [1]
- (i) Copper, silver, and gold are known as _____ metals because of their use in making _____ since ancient times. [1]
- (j) AgCl on fusion with Na₂CO₃ forms _____. [1]

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