

Q1 - 24 June - Shift 1

The most stable trihalide of nitrogen is:

- (A) NF_3 (B) NCl_3
(C) NBr_3 (D) NI_3

Space for your notes:

Q2 - 25 June - Shift 1

Number of electron deficient molecules among the following

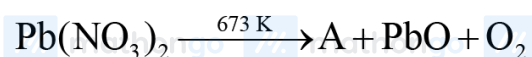
PH_3 , B_2H_6 , CCl_4 , NH_3 , LiH and BCl_3 is

- (A) 0 (B) 1
(C) 2 (D) 3

Space for your notes:

Q3 - 25 June - Shift 2

The number of bridged oxygen atoms present in compound B formed from the following reactions is



- (A) 0 (B) 1
(C) 2 (D) 3

Space for your notes:

Q4 - 26 June - Shift 1

Choose the correct stability order of group 13 elements in their +1 oxidation state.

- (A) $\text{Al} < \text{Ga} < \text{In} < \text{Tl}$ (B) $\text{Tl} < \text{In} < \text{Ga} < \text{Al}$
(C) $\text{Al} < \text{Ga} < \text{Tl} < \text{In}$ (D) $\text{Al} < \text{Tl} < \text{Ga} < \text{In}$

Space for your notes:

Q5 - 29 June - Shift 1

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Match the List-I with List- II.

List-I (Metal)	List-II Application
(A) Cs	(I) High temperature thermometer
(B) Ga	(II) Water repellent sprays
(C) B	(III) Photoelectric cells
(D) Si	(IV) Bullet proof vest

Space for your notes:

Choose the most appropriate answer from the option given below:

- (A) (A)-(III), (B)-(I), (C)-(IV), (D)-(II)
(B) (A)-(IV), (B)-(III), (C)-(II), (D)-(I)
(C) (A)-(II), (B)-(III), (C)-(IV), (D)-(I)
(D) (A)-(I), (B)-(IV), (C)-(II), (D)-(III)

Q6 - 29 June - Shift 2

Aqueous solution of which of the following boron compounds will be strongly basic in nature?

- (A) NaBH_4 (B) LiBH_4
(C) B_2H_6 (D) $\text{Na}_2\text{B}_4\text{O}_7$

Space for your notes:

Answer Key

Q1 (A)

Q2 (C)

Q3 (A)

Q4 (A)

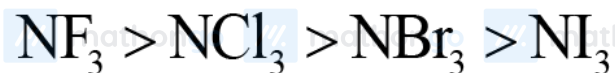
Q5 (A)

Q6 (D)

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Q1 (A)

Order of stability: -

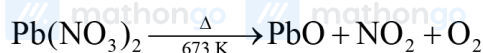


Q2 (C)

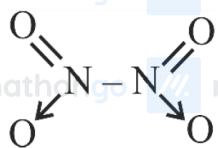
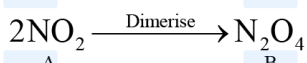
Electron deficient species have less than 8 electrons (or two electrons for H) in their valence (incomplete octet)

B_2H_6 , BCl_3 have incomplete octet.

Q3 (A)



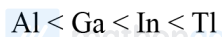
(A)



(no bridged oxygen)

Q4 (A)

Moving down the group stability of lower oxidation state increases



Q5 (A)

Hints and Solutions

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Caesium is used in devising photoelectric cells.

Boron fibres are used in making bullet-proof vest.

Silicones being surrounded by non-polar alkyl

groups are water repelling in nature.

Gallium is less toxic and has a very high boiling

point, so it is used in high temperature thermometers.

Q6 (D)

$\text{Na}_2\text{B}_4\text{O}_7$ gives H_3BO_3 and NaOH (strong base) in water.

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