Q1 2021 (31 Aug Shift 2)

The empirical formula for a compound with a cubic close packed arrangement of anions and with cations occupying all the octahedral sites in A_x B. The value of x is ____.
(Integer answer)

Q2 2021 (27 Aug Shift 1)

Match items of $List - I$ with those of $List - II$:

List–I (Property)	**List–II (Example)**
(a) Diamagnetism	(i) MnO
(b) Ferrimagnetism	(ii) O_2
(c) Paramagnetism	(iii) NaCl
(d) Antiferromagnetism	(iv) Fe_3O_4

Choose the *most appropriate* answer from the options given below :

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

Q3 2021 (26 Aug Shift 1)

Given below are two statements.

Statement **I**: Frenkel defects are vacancy as well as interstitial defects.
Statement **II**: Frenkel defect leads to colour in ionic solids due to presence of F-centres.

Choose the *most appropriate* answer for the statements from the options given below:

(1) *Statement* **I** is false but *Statement* **II** is true
(2) Both *Statement* **I** and *Statement* **II** are true

(3) *Statement* **I** is true but Statement **II** is false

(4) Both *Statement* **I** and *Statement* **II** are false

Answer Key

Q1 (1) **Q2** (3) **Q3** (3)

Q1 (1)

Anions froms CCP or FCC $\left(A^{-}\right)=4A^{-}$ per unit cell Cations occupy all octahedral voids $\left(\mathrm{B}^{+}\right)=4\,\mathrm{B}^{+}$ per unit cell

cell formula $\rightarrow \mathrm{A}_4\,\mathrm{B}_4$

Empirical formula $\rightarrow \mathrm{AB}$

$\rightarrow (\mathrm{x}=1)$

Q2 (3)

$(\mathrm{a})-(\mathrm{iii}),(\mathrm{b})-(\mathrm{iv}),(\mathrm{c})-(\mathrm{ii}),(\mathrm{d})-(\mathrm{i})$

Q3 (3)

Theory based.