Q1 2021 (01 Sep Shift 2)

Water sample is called cleanest on the basis of which one of the BOD values given below

(1) 11 ppm

(2) 15 ppm

(3) 3 ppm

(4) 21 ppm

Q2 2021 (31 Aug Shift 2)

The deposition of X and Y on ground surfaces is referred as wet and dry depositions, respectively. X and Y are :

(1) $\mathrm{X}=$ Ammonium salts, $\mathrm{Y}=\mathrm{CO}_2$

(2) $\mathrm{X}=\mathrm{SO}_2, \mathrm{Y}=$ Ammonium salts

(3) $\mathrm{X}=$ Ammonium salts, $\mathrm{Y}=\mathrm{SO}_2$

(4) $\mathrm{X}=\mathrm{CO}_2, \mathrm{Y}=\mathrm{SO}_2$

Q3 2021 (31 Aug Shift 1)

BOD values (in ppm) for clean water (A) and polluted water (B) are expected respectively :

(1) $\mathrm{A}>50,\ \mathrm{B}<27$

(2) $\mathrm{A}>25,\ \mathrm{B}<17$

(3) $\mathrm{A}<5,\ \mathrm{B}>17$

(4) $\mathrm{A}>15,\ \mathrm{B}>47$

Q4 2021 (27 Aug Shift 2)

In stratosphere most of the ozone formation is assisted by :

(1) cosmic rays.

(2) γ-rays.

(3) ultraviolet radiation.

(4) visible radiations.

Q5 2021 (27 Aug Shift 1)

The gas 'A' is having very low reactivity reaches to stratosphere. It is non-toxic and non-flammable but dissociated by UV-radiations in stratosphere. The intermediates formed initially from the gas 'A' are :

(1) $\mathrm{Cl\dot{O}} + \mathrm{\dot{C}F_2Cl}$

(2) $\mathrm{Cl\dot{O}} + \mathrm{C\dot{H}_3}$

(3) $\mathrm{\dot{C}H_3} + \mathrm{C\dot{F}_2Cl}$

(4) $\mathrm{\dot{C}l} + \mathrm{C\dot{F}_2Cl}$

Q6 2021 (26 Aug Shift 2)

Given below are two statements : one is labelled as Assertion $(\mathbf{A})$ and the other is labelled as Reason $(\mathbf{R})$.

Assertion $(\mathbf{A})$: Photochemical smog causes cracking of rubber.

Reason $(\mathbf{R})$: Presence of ozone, nitric oxide, acrolein, formaldehyde and peroxyacetyl nitrate in photochemical smog makes it oxidizing.

Choose the most appropriate answer from the options given below :

(1) Both $(\mathbf{A})$ and $(\mathbf{R})$ are true but $(\mathbf{R})$ is not the true explanation of $(\mathbf{A})$

(2) $(\mathbf{A})$ is false but $(\mathbf{R})$ is true.

(3) $(\mathbf{A})$ is true but $(\mathbf{R})$ is false

(4) Both $(\mathbf{A})$ and $(\mathbf{R})$ are true and $(\mathbf{R})$ is the true explanation of $(\mathbf{A})$

Q7 2021 (26 Aug Shift 1)

The conversion of hydroxyapatite occurs due to presence of $\mathrm{F^-}$ ions in water. The correct formula of hydroxyapatite is:

(1) $\left[3\mathrm{Ca_3(PO_4)_2 \cdot Ca(OH)_2}\right]$

(2) $\left[3\mathrm{Ca(OH)_2 \cdot CaF_2}\right]$

(3) $\left[\mathrm{Ca_3(PO_4)_2 \cdot CaF_2}\right]$

(4) $\left[3Ca_3(PO_4)_2 \cdot CaF_2\right]$

Answer Key

Q1 (3) **Q2** (3) **Q3** (3) **Q4** (3)

Q5 (4) **Q6** (4) **Q7** (1)

Q1 (3)

Clean water could have BOD value of less than 5 ppm whereas highly polluted water could have a BOD value of 17 ppm or more.

Q2 (3)

Oxides of nitrogen and sulphur are acidic and settle down on ground as dry deposition.

Ammonium salts in rain drops result in wet deposition.

Q3 (3)

BOD values of clean water (A) is less than 5 ppm

So $A < 5$

BOD values of polluted water (B) is greater than 17 ppm

So $B > 17$

So Ans. is 3

Q4 (3)

Ozone in the stratosphere is a product of UV radiations acting on dioxygen (O_2) molecules.

$$O_2(g) \xrightarrow{UV} O(g) + O(g)$$

$$O(g) + O_2(g) \overset{UV}{\rightleftharpoons} O_3(g)$$

Q5 (4)

In stratosphere CFCs get broken down by powerful UV radiations releasing $Cl^{\bullet}$

$$CF_2Cl_2(g) \xrightarrow{U.V.} Cl^{\bullet}(g) + {}^{\bullet}CF_2Cl(g)$$

Q6 (4)

Photochemical smog causes cracking of rubber, the common component of photochemical smog are ozone, nitric oxide, acrolein, formaldehyde and peroxyacetyle nitrate (PAN).

Q7 (1)

The F^{θ} ions make the enamel on teeth much harder by converting hydroxyapatite, $[3\,(Ca_3\,(PO_4)] \cdot Ca(OH)_2]$, the enamel on the surface of the teeth into much harder fluroappatite. $\left[3Ca_3(PO_4)_2 \cdot CaF_2\right]$