CHAPTER 14

Environmental Chemistry

1. The smog is essentially caused by the presence of **[2004]**
(a) Oxides of sulphur and nitrogen
(b) O_2 and N_2 (c) O_2 and O_3
(d) O_3 and N_2

2. Identify the wrong statement in the following: **[2008]**
(a) Chlorofluorocarbons are responsible for ozone layer depletion
(b) Greenhouse effect is responsible for global warming
(c) Ozone layer does not permit infrared radiation from the sun to reach the earth
(d) Acid rain is mostly because of oxides of nitrogen and sulphur

3. Identify the incorrect statement from the following : **[2011RS]**
(a) Ozone absorbs the intense ultraviolet radiation of the sun.
(b) Depletion of ozone layer is because of its chemical reactions with chlorofluoro alkanes.
(c) Ozone absorbs infrared radiation.
(d) Oxides of nitrogen in the atmosphere can cause the depletion of ozone layer.

4. What is DDT among the following ? **[2012]**
(a) Greenhouse gas
(b) A fertilizer
(c) Biodegradable pollutant
(d) Non-biodegradable pollutant

5. The gas leaked from a storage tank of the Union Carbide plant in Bhopal gas tragedy was: **[2013]**
(a) Methyl isocyanate
(b) Methylamine
(c) Ammonia
(d) Phosgene

6. A water sample has ppm level concentration of following anions **[2017]**
$F^- = 10$; $SO_4^{2-} = 100$; $NO_3^- = 50$
the anion/anions that make/makes the water sample unsuitable for drinking is/are :
(a) only NO_3^- (b) both SO_4^{2-} and NO_3^-
(c) only F^- (d) only SO_4^{2-}

Answer Key														
1	2	3	4	5	6									
(a)	(c)	(c)	(d)	(a)	(c)									

SOLUTIONS

1. **(a)** Photochemical smog is caused by oxides of sulphur and nitrogen.

2. **(c)** **NOTE** Ozone layer acts as a shield and does not allow ultraviolet radiation from sun to reach earth. It does not prevent infra-red radiation from sun to reach earth.
Thus option (c) is wrong statement and so it is the correct answer.

3. **(c)** The ozone layer, existing between 20 to 35 km above the earth's surface, shield the earth from the harmful U. V. radiations from the sun.
Depletion of ozone is caused by oxides of nitrogen

$$N_2O + h\upsilon \longrightarrow \underset{\text{reactive nitric oxide}}{NO} + N$$

$$NO + O_3 \longrightarrow NO_2 + O_2$$

$$O_3 + h\upsilon \longrightarrow O_2 + O$$

$$NO_2 + O \longrightarrow NO + O_2$$

$$2O_3 + h\upsilon \longrightarrow 3O_2 \text{ (Net reaction)}$$

The presence of oxides of nitrogen increase the decomposition of O_3.

4. **(d)** DDT is a non-biodegradable pollutant.

5. **(a)**

6. **(c)** Above 2 ppm concentration of F^- in drinking water cause brown mottling of teeth.