1. Choose the correct statement :

(a) CO_2 is not responsible for greenhouse effect.

(b) CO_2 can absorb infrafred radiation but does not allow them to pass through.

(c) NO is more harmful than NO_2.

(d) acid rain contains mainly HNO_3.

2. Air pollutants that produce photochemical oxidants include :

(a) CO_2, CO and SO_2 (b) N_2O, NO and HNO_3

(c) O_2, Cl_2 and HNO_3. (d) O_3, Cl_2 and SO_2

3. Acid rains are produced by :

(a) excess NO_2 and SO_2 from burning fossil fuels

(b) excess production of NH_3 by industry and coal gas

(c) excess release of carbon monoxide by incomplete combustion

(d) excess formation of CO_2 by combustion and animal respiration.

4. Ozone layer of upper atmosphere is being destroyed by :

(a) chlorofluorocarbon (b) SO_2

(c) photochemical oxidants/O_2 & CO_2 (d) smog

5. Classical smog occurs in places of :

(a) excess CO_2 (b) cool and humid

(c) warm, dry and sunny (d) excess NH_3

6. Besides CO_2, the other green house gas is :

(a) CH_4 (b) N_2

(c) Ar (d) O_2

7. Ozone depletion in stratosphere shall result in :

(a) forest fires (b) increased incidence of skin burns and skin cancer

(c) increase in biological oxygen demand (d) global warming

8. Which of the following processes does not increase the amount of CO_2 in atmosphere ?

(a) Decay of animals (b) Breathing

(c) Photosynthesis (d) Burning of petrol

9. Consider the following statement and select the correct option :

S_1 : Dust is the non-viable particle.

S_2 : Particulates acquire negative charge and are attracted by the positive electrode.

S_3 : O_2 is a green house gas.

S_4 : Algae is a viable particulate.

(a) S_1 and S_2 only (b) S_1, S_2 and S_3 only

(c) S_1, S_2 and S_4 only (d) S_2, S_3 and S_4

10. Which causes water pollution ?

(a) Pathogens (b) Automobile exhausts

(c) *PCBs* (d) (a) and (c)

11. Most abundant water pollutant is :

(a) detergents (b) pesticides

(c) industrial wastes (d) ammonia

12. Drained sewage has biological oxygen demand (BOD) :

(a) more than that of water (b) less than that of water

(c) equal to that of water (d) none of the above

13. Sewage water is purified by :

(a) microorganism (b) light

(c) fishes (d) aquatic plants

14. DDT is :

(a) green house gas (b) biodegradable pollutant

(c) non-biodegradable pollutant (d) none of above

15. Domestic waste mostly constitutes :

(a) non-biodegradable pollution (b) biodegradable pollution

(c) effluents (d) air pollution

16. Which of the following statements is false ?

(a) The industrial and domestic sewage discharge is the main reason for river water pollution.

(b) Surface water contains a lot of organic matter and mineral nutrients.

(c) Oil spill in sea water causes heavy damage to fishery.

(d) Oil slick in sea water increases dissolved oxygen.

17. Phosphate pollution is caused by :

(a) weathering of phosphate rock only (b) agriculture fertilizers only

(c) phosphate rocks and sewage (d) sewage and agricultural fertilizers.

18. Modes of controlliing pollution in large cities includes :

(a) cleanliness and less use of insecticides
(b) proper disposal of organic wastes, sewage and industrial effluents.
(c) use of liquefied carbondioxide with a suitable detergent in place of tetrachloroethene for dry cleaning.
(d) all the above

19. The extensive use of CFC'S as refrigerant fluids and in aerosol is because of :

(a) its high chemical stability (b) good absorber of UV radiation
(c) its polar nature (d) high toxicity

20. In stratosphere, which of the following radical retards the formation of O_3 ?

(a) $\dot{C}H_3$ (b) $\dot{C}I$
(c) $\dot{F}$ (d) Cl_2

21. Which are natural sinks for $\dot{C}lO$ radicals in other parts of stratosphere ?

(a) SO_2 and NO_2 (b) NO and NO_2
(c) CH_4 and NO_2 (d) Cl_2 and F_2

22. Which of the following is the primary precursor of photochemical smog ?

(a) Hydrocarbon (b) Ozone
(c) PAN (d) Water vapour

23. In stratosphere CFCs gets broken down by the action of powerful UV radiation releasing :

(a) $\dot{C}H_3$ (b) $\dot{C}IO$
(c) $\dot{C}l$ (d) $\dot{C}FCl_2$

24. Which of the following does not contribute to water pollution ?

(a) Pathogens (b) Organic wastes
(c) chemical pollutants (d) none

25. Which of the following is false.

(a) Photochemical smog has high concentration of reducing agents and is, therefore, called as reducing smog.
(b) Non-viable particulates consist of smoke, dust, mist, fumes etc.
(c) Classical smog occurs in cool humid climate and it is mixture of smoke, fog and sulphurdioxide.
(d) Ozone reacts with unburnt hydrocarbons in polluted air to produce peroxyacetyl nitrate (PAN).

26. Ozone in the stratosphere is deleted by :

(a) CF_2Cl_2 (b) C_7F_{16}

(c) $C_6H_6Cl_6$ (d) C_6F_6

27. High concentration of fluoride is poisonous and harmful to bones and teeth at levels over

(a) 1 ppm (b) 3 ppm

(c) 5 ppm (d) 10 ppm

28. The atmospheric gas which can not produce green house effect is :

(a) N_2 (b) H_2O

(c) CO_2 (d) O_3

29. Identify the incorrect statement from the following

(a) Ozone absorb the intense ultraviolet rediation of the sun.

(b) Depletion of ozone layer is because of its chemical reaction with chlorofluro alkanes.

(c) Ozone absorbs infrared radiation

(d) Oxides of nitrozen in the atmosphere can cause the depletion of ozone layer

30. Which of the following is a sink for CO ?

(a) Haemoglobin (b) Micro organisms present in the soil.

(c) Oceans (d) Plants

1. (b)
2. (b)
3. (a) When fossil fuel burnt in automobile engines different oxides like NO, NO_2, SO_2, SO_3 are produced. In the presence of moisture these oxides convert in the acids. THese acids comes down from the atmosphere in the form of rain, called acid rain.

$$S \text{ (from fossil fuel)} + O_2 \longrightarrow SO_2$$

$$SO_2 + O_3 \longrightarrow SO_3 + O_2$$

$$SO_2 + H_2O_2 \longrightarrow H_2SO_4$$

$$SO_3 + H_2O \longrightarrow H_2SO_4$$

$$2NO_2 + H_2O \longrightarrow HNO_3 + HNO_2$$

4. (a) chlorofluoro carbons (CFC's) come in contact with atmospheric gases and enventually reach stratosphere where they cause depletion in ozoen layer.

5. (b) Classical smog contains smoke, fog and sulpher dioxide. It occurs in cool and humid climate.

6. (a) Green house gases are, CO_2, CH_4, O_3 N_2O and CFCS water vapours.

7. (b)
8. (c) During photosynthesis CO_2 is used by plants to make food for their growth.

9. (c)
10. (d) Pathogens include bacteria and other oganisms that enter water from domestic sewage and animal excreta. PCBs (Polyuchlorinated biphenyls) are used as a fluids in transformers and capacitators. The presence of these PCBs in water causes skin disorder in human. These act as carcinogenic.

11. (a) Detergents are widely used by human population and these detergents are easily mixed with water through drains and domestic sewage.

12. (a) Drained sewags has BOD value more than 17 ppm while clean water has less than 5 ppm.

13. (a) Micro-organisms oxidise the organic contents of sewage water. Thus sewage water becomes free from organic substances.

14. (c) DDT is non-biodegradable pollutant.
15. (b) Domestic waste generally contains organic matter which is biodegradable.

16. (d) Oil slick in sea water disconect the water surface of sea with atmosphere so there become lack of dissolved oxygen gas.
17. (d) Sewage consists food materials which contains phosphate and also agriculture fertilizers contain phosphate which are added in excess in corn fields.

18. (d) In large cities pollution can be controlled by accepting green chemistry.

19. (a) CFS's are chemically most stable, colourless, adourless and harmless gases.

20. (b) $\dot{C}l$ radical obtained from CFC's reacts with O_3 present in stratosphere.

$$CF_2Cl_2(g) \xrightarrow{UV} \dot{C}l(g) + CF_2\dot{C}l\,(g)$$

$$\dot{C}l(g) + O_3(g) \longrightarrow Cl\dot{O}\,(g) + O_2\,(g)$$

$$Cl\dot{O}\,(g) + O(g) \longrightarrow \dot{C}l(g) + O_2\,(g).$$

21. (c)

22. (a) Photo chemical smong result from the action of sunlight on unsaturated hydrocarbons and nitrogen oxides produced by automobiles and fuctories.

23. (c) CFC's gets broken by the action of UV radiation comming from the sun and produced $\dot{C}l$ radicals.

24. (d)

25. (a)

26. (a) Chlorofluorocarbons (CFCs or freons like CF_2Cl_2) are responsible for depletion of the ozone layer in the upper strata of atmosphere. They are stable and inert compounds. They absorb UV rays and break down liberating free atomic chlorine which causes depletion of ozone through free radical reaction.

$$\dot{C}l + O_3 \longrightarrow Cl\dot{O} + O_2$$

$$Cl\dot{O} + O_3 \longrightarrow \dot{C}l + 2O_2$$

27. (c)

28. (a)

29. (c)

30. (b) Micro organisms present in the soil is biggest source and sink.