DPP - Daily Practice Problems

Name : _____ Date : _____

Start Time : _____ End Time : _____

CHEMISTRY 28

SYLLABUS : Environmental Chemistry

Max. Marks : 120 **Time : 60 min.**

GENERAL INSTRUCTIONS

- The Daily Practice Problem Sheet contains 30 MCQ's. For each question only one option is correct. Darken the correct circle/ bubble in the Response Grid provided on each page.
- You have to evaluate your Response Grids yourself with the help of solution booklet.
- Each correct answer will get you 4 marks and 1 mark shall be deduced for each incorrect answer. No mark will be given/ deducted if no bubble is filled. Keep a timer in front of you and stop immediately at the end of 60 min.
- The sheet follows a particular syllabus. Do not attempt the sheet before you have completed your preparation for that syllabus. Refer syllabus sheet in the starting of the book for the syllabus of all the DPP sheets.
- After completing the sheet check your answers with the solution booklet and complete the Result Grid. Finally spend time to analyse your performance and revise the areas which emerge out as weak in your evaluation.

DIRECTIONS (Q.1-Q.30) : There are 30 multiple choice questions. Each question has 4 choices (a), (b), (c) and (d), out of which ONLY ONE choice is correct.

Q.1 Biodegradable pollutant is –

(a) Sewage (b) Mercury
(c) Plastic (d) Asbestos

Q.2 Which of the following is present in highest concentration in exhaust emission?

(a) CO_2
(b) Hydrocarbons
(c) CO
(d) Oxides of nitrogen

Q.3 By what method the quantity of organic pollutants in water can be determined ?

(a) By measuring BOD
(b) By pH measurement
(c) By transparency measurements
(d) By measuring the change of colour/CFC

Q.4 A dental disease characterised by mottling of teeth is due to the presence of a certain chemical element in drinking water. Which is the element ?

(a) Fluorine
(b) Mercury
(c) Boron
(d) Chlorine

RESPONSE GRID	1. ⓐⓑⓒⓓ	2. ⓐⓑⓒⓓ	3. ⓐⓑⓒⓓ	4. ⓐⓑⓒⓓ

Space for Rough Work

Q.5 Chlorine treatment of water–
(a) Disinfects by killing germs
(b) Removes hardness of water
(c) Removes all the air pollutants
(d) All above

Q.6 Pollution is rising due to–
(a) Automobiles and industries
(b) Population explosion
(c) Rains
(d) Research institute

Q.7 Sudden mass death of fishes from oxygen depletion is more likely in case of–
(a) Oligotrophic lake
(b) Oxalotrophic lake
(c) Eutrophic lake
(d) Mesotrophic lake

Q.8 Continuous sewage flow into a stream would lead to–
(a) Increase in temperature
(b) Algal bloom
(c) Eutrophication
(d) Depletion of oxygen

Q.9 Which of the following types of pollution causes the out break of jaundice?
(a) Water
(b) Land
(c) Thermal
(d) Air

Q.10 The pollutants chlorofluorocarbons are major sources of air pollution contributed by–
(a) Sewage pollutants
(b) Aerosols
(c) Industrial effluents
(d) All the above

Q.11 Acid rain is produced by–
(a) Excess production of NH_3 by industry and coal gas
(b) Excess release of carbon monoxide by incomplete combustion
(c) Excess formation of CO_2 by combustion and animal respiration
(d) Excess NO_2 and SO_2 from burning of fossil fuels

Q.12 The basic component of the smog may be –
(a) O_3 and PAN
(b) O_3
(c) PAN
(d) PVC

Q.13 Water pollution causes –
(a) Increased deoxygenation and turbidity
(b) Decreased turbidity
(c) Increased oxygenation
(d) Increased photosynthesis

Q.14 Most harmful types of environment pollutants are –
(a) Human organic wastes
(b) Non-biodegradable chemicals
(c) Natural nutrients present in excess
(d) Wastes from feed lots

Q.15 One of the pollutants that is generally helping in the early degradation of the ozone layer is
(a) SO_2
(b) DDT
(c) CO_2
(d) Freons

Q.16 The carbon dioxide content in atmospheric air is about –
(a) 3.34%
(b) 6.5%
(c) 0.034%
(d) 0.34%

RESPONSE GRID					
5. ⓐⓑⓒⓓ	6. ⓐⓑⓒⓓ	7. ⓐⓑⓒⓓ	8. ⓐⓑⓒⓓ	9. ⓐⓑⓒⓓ
10. ⓐⓑⓒⓓ	11. ⓐⓑⓒⓓ	12. ⓐⓑⓒⓓ	13. ⓐⓑⓒⓓ	14. ⓐⓑⓒⓓ
15. ⓐⓑⓒⓓ	16. ⓐⓑⓒⓓ			

Space for Rough Work

Q.17 In coming years, skin related disorders will become more common due to –

(a) Air pollution
(b) Excessive use of detergents
(c) Depletion of ozone layer
(d) Water pollution

Q.18 The term biomagnification refers to the –

(a) Increase in population size
(b) Growth of organisms due to food consumption
(c) Increase in the concentration of nondegradable pollutants as they pass through food chain
(d) Blowing up of environmental issues by man

Q.19 CO produced by incomplete combustion of fuel exerts a harmful effect because it is :

(a) a respiratory inhibitor
(b) a CO_2 antagonist
(c) carcinogenic
(d) corrosive to eye

Q.20 Which of the following is not a direct atmospheric pollutant?

(a) CO
(b) SO_2
(c) Hydrocarbons/CH_4
(d) CO_2 & water vapour

Q.21 'White lung cancer' is caused by

(a) asbestos (b) silica
(c) textiles (d) paper

Q.22 The atmospheric gas which cannot produce greenhouse effect is :

(a) N_2
(b) H_2O
(c) CO_2
(d) O_3

Q.23 The main pollutant exhausted by aeroplane is

(a) Fluorocarbons
(b) CO
(c) SO_2
(d) Carbon tetrachloride

Q.24 Which pollutant is harmful for 'Tajmahal'?

(a) Hydrogen
(b) O_2
(c) SO_2
(d) Chlorine

Q.25 Which gas is responsible for 'Bhopal Gas Tragedy' in 1984?

(a) CO
(b) methyl isocyanate
(c) SO_2 and NO_2
(d) Ethyl isocyanate

Q.26 Lead is

(a) Radiological pollutant
(b) Sound pollutant
(c) Soil pollutant
(d) Air pollutant

RESPONSE GRID					
	17. ⓐⓑⓒⓓ	18. ⓐⓑⓒⓓ	19. ⓐⓑⓒⓓ	20. ⓐⓑⓒⓓ	21. ⓐⓑⓒⓓ
	22. ⓐⓑⓒⓓ	23. ⓐⓑⓒⓓ	24. ⓐⓑⓒⓓ	25. ⓐⓑⓒⓓ	26. ⓐⓑⓒⓓ

Space for Rough Work

Q.27 The quantity of DDT in food chain

(a) Decreases

(b) Remainssame

(c) Increases

(d) Changes

Q.28 CFC, which is one of the main reasons behind air pollution, is produced by

(a) Sewage poullutant (b) Acrosols

(c) Industrial remains (d) Above all

Q.29 Which is known as 'third poison of environment' and also creates 'Blue Baby Syndrome'?

(a) Nitrates present in water

(b) Phosphates and detergents found in water

(c) Cyanide

(d) Pesticides

Q.30 Which is a dangerous radiological pollutant?

(a) C^{14} (b) S^{35}

(c) Sr^{90} (d) P^{32}

RESPONSE GRID	27.ⓐⓑⓒⓓ	28.ⓐⓑⓒⓓ	29.ⓐⓑⓒⓓ	30.ⓐⓑⓒⓓ

DAILY PRACTICE PROBLEM SHEET 28 - CHEMISTRY			
Total Questions	30	Total Marks	120
Attempted		Correct	
Incorrect		Net Score	
Cut-off Score	40	Qualifying Score	64
Success Gap = Net Score – Qualifying Score			
Net Score = (Correct × 4) – (Incorrect × 1)			

Space for Rough Work

DAILY PRACTICE PROBLEMS

CHEMISTRY SOLUTIONS

28

(1) **(a)** Sewage is a biodegradable pollutant as it can be decomposed by micro-organisms either by nature or by suitable treatment. The other options are non-biodegradable pollutants.

(2) **(c)**

(3) **(a)** By measuring BOD the quantity of organic pollutants in water can be determined. The total amount of oxygen consumed by micro-organisms (bacteria) in decomposing the organic matter present in a certain volume of a sample of water is called BOD of water.

(4) **(a)** Fluorine upto 1 ppm, F^- protects teeth against decay. However, concentrations above 2 ppm causes brown mottling of teeth.

(5) **(a)** Chlorine treatment of water disinfects by killing genus.

(6) **(a)**

(7) **(c)** Sudden mass death of fishes from oxygen depletion is more likely in case of eutrophic lake. An eutrophic lake has an excess of phosphate ions in it (due to inflow of nutrients from fertilizers) which results in dense plant population which consumes oxygen and causes oxygen depletion in water. As a result, the fishes start perishing.

(8) **(d)** Continuous sewage flow into a stream would lead to depletion of oxygen. Discharge of sewage into water results in excessive phytoplankton growth and the micro-organisms which decompose this organic matter need oxygen. This results in depletion of oxygen in water.

(9) **(a)** Water.

(10) **(b)** The pollutants chlorofluorocarbons contributed by aerosols are major source of air pollution. Once CFC's are released in the atmosphere, they mix with atmospheric gases, reach stratosphere where they are broken by UV radiations into $\dot{Cl}$ free radical which damages the ozone layer.

(11) **(d)** Acid rains are produced by excess NO_2 and SO_2 from burning of fossil fuels. SO_2 and NO_2 after oxidation and reaction with water are major contributors to acid rain :

$$2SO_2(g) + O_2(g) + 2H_2O(l) \rightarrow 2H_2SO_4(aq)$$

$$4NO_2(g) + O_2(g) + 2H_2O(l) \rightarrow 4HNO_3(aq)$$

(12) **(a)** The common components of photochemical smog are ozone (O_3), nitric oxide, acrolein, formaldehyde and peroxyacetyl nitrate (PAN).

(13) **(a)** Water pollution causes increased deoxygenation and turbidity.

(14) **(b)** Most harmful types of environment pollutants are non-biodegradable chemicals. This is because they are not degraded and their presence even in small amounts in the atmosphere is harmful. They can react with other compounds to produce even more toxic compounds.

The other options are all biodegradable pollutants which can degrade by themselves or by micro-organisms.

(15) **(d)** Freons are chlorofluorocarbons (CFC's). In stratosphere, they are broken by UV radiations to produce $\dot{Cl}$ free radical which destroys ozone layer.

(16) **(c)**

(17) **(c)** With the depletion of ozone layer, more UV radiations filter into troposphere which leads to ageing of skin, sunburns, skin cancer etc.

(18) **(c)**

(19) **(a)** CO binds with Hb to form carboxy–Hb, which is much more stable than O_2–Hb complex. As a result, oxygen carrying capacity of blood is greatly reduced resulting in respiratory problems.

(20) **(d)**

(21) **(c)** **(22)** **(a)** **(23)** **(a)**

(24) **(c)** The air around Taj Mahal has fairly high levels of SO_x and NO_x. The resulting acid rain reacts with marble, $CaCO_3$ of Taj Mahal ($CaCO_3 + H_2SO_4 \rightarrow CaSO_4 + H_2O + CO_2$) causing damage to the monument.

(25) **(b)** **(26)** **(c)** **(27)** **(c)**

(28) **(b)** **(29)** **(b)** **(30)** **(c)**