

DPP - Daily Practice Problems

Chapter-wise Sheets

Date :

Start Time :

End Time :

BIOLOGY

CB38

SYLLABUS : Environmental issues

Max. Marks : 180

Marking Scheme : + 4 for correct & (-1) for incorrect

Time : 60 min.

INSTRUCTIONS : This Daily Practice Problem Sheet contains 45 MCQs. For each question only one option is correct. Darken the correct circle/ bubble in the Response Grid provided on each page.

- Acid rains are produced by
 - excess emissions of NO_2 and SO_2 from burning fossil fuels
 - excess production of NH_3 by industry and coal gas
 - excess release of carbon monoxide by incomplete combustion
 - excess formation of CO_2 by combustion and animal respiration
- DDT residues are rapidly passed through food chain causing biomagnification because DDT is
 - moderately toxic
 - non-toxic to aquatic animals
 - water soluble
 - lipo soluble
- Which of these is a pollution related to occupational health hazard disease ?
 - Pneumoconiosis
 - Asthma
 - Flurosis
 - Silicosis
- Secondary sewage treatment is mainly a
 - physical process
 - mechanical process
 - chemical process
 - biological process
- Biochemical Oxygen Demand (*BOD*) in a river water
 - has no relationship with concentration of oxygen in the water.
 - gives a measure of *Salmonella* in the water.
 - increases when sewage gets mixed with river water.
 - remains unchanged when algal bloom occurs.
- Today, concentration of green house gases is high because of
 - Use of refrigerator
 - Increased combustion of oil and coal
 - Deforestation
 - All the above
- The electrostatic precipitator is used for removing particulate matter from
 - Exhaust of the thermal power plant
 - Exhaust from the automobiles
 - Industrial effluents
 - Kitchen waste

RESPONSE
GRID

1. (a) (b) (c) (d) 2. (a) (b) (c) (d) 3. (a) (b) (c) (d) 4. (a) (b) (c) (d) 5. (a) (b) (c) (d)
6. (a) (b) (c) (d) 7. (a) (b) (c) (d)

Space for Rough Work



8. Photochemical smog formed in congested metropolitan cities mainly consists of
- Ozone, peroxyacetyl nitrate and NOX
 - Smoke, peroxyacetyl nitrate and SO₂
 - Hydrocarbons, SO₂ and CO₂
 - Hydrocarbon, ozone and SOX
9. Ozone hole means
- hole in the ozone layer in stratosphere.
 - decrease in the thickness of ozone in the stratosphere.
 - decrease in concentration of ozone in troposphere.
 - increase in the concentration of ozone in troposphere.
10. A lake near a village suffered heavy mortality of fishes within a few days. Consider the following reasons for this.
- Lots of urea and phosphate fertilizer were used in the crops in the vicinity
 - The area was sprayed with DDT by an aircraft
 - The lake water turned green and stinky
 - Phytoplankton populations in the lake declined initially thereby greatly reducing photosynthesis.
- (i) and (iii)
 - (i), (ii) and (iv)
 - (iii) and (iv)
 - (ii), (iii) and (iv)
11. Wildlife is destroyed most when
- there is lack of proper care
 - mass scale hunting for foreign trade
 - its natural habitat is destroyed
 - natural calamity occurs
12. The 'Earth Summit' held at Rio de Janerio in 1992 resulted into
- Compilation of Red list
 - Establishment of Biosphere Reserves
 - Convention on Biodiversity
 - Development of Hot Spots of Biodiversity
13. Which one of the following expanded forms of the following acronyms is correct?
- IPCC= International Panel for Climate Change
 - UNEP= United Nations Environmental Policy
 - EPA= Environmental Pollution
- Agency
- (d) IUCN= International Union for Conservation of Nature and Natural Resources
14. Photochemical smog pollution does not contain
- Nitrogen dioxide
 - Carbon dioxide
 - PAN (peroxy acetyl nitrate)
 - Ozone
15. When huge amount of sewage is dumped into a river, its B.O.D. will
- increase
 - decrease
 - sharply decrease
 - remain unchanged
16. Which of the following statements is correct?
- Primary pollutants are more harmful than secondary pollutants.
 - Primary pollutants and secondary pollutants are equally harmful.
 - Secondary pollutants are more harmful than primary pollutants.
 - DDT is a secondary pollutant
17. Which one of the following statements is incorrect regarding Bhopal gas tragedy?
- Methyl isocyanate gas leakage took place
 - Thousands of human beings died
 - Radioactive fall out engulfed Bhopal
 - It took place in the night of December 2/3, 1984
18. Lichens are the indicators of
- water pollution
 - air pollution
 - soil pollution
 - all of these.
19. Noise pollution may cause nervousness and irritability by stimulating the secretion of
- thyroid hormone
 - adrenaline hormone
 - parathyroid hormone
 - none of these
20. Atmospheric pollutant is –
- 0.0034% CO₂
 - 0.034% CO₂
 - 0.34% CO₂
 - 3.4% CO₂

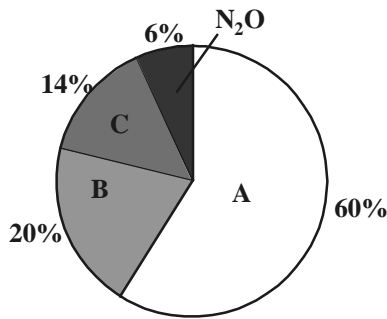
RESPONSE
GRID

- | | | | | |
|-------------|-------------|-------------|-------------|-------------|
| 8. a b c d | 9. a b c d | 10. a b c d | 11. a b c d | 12. a b c d |
| 13. a b c d | 14. a b c d | 15. a b c d | 16. a b c d | 17. a b c d |
| 18. a b c d | 19. a b c d | 20. a b c d | | |

Space for Rough Work



21. Given pie-diagram represents the relative contribution of various GHGs to total global warming. Select the correct statement(s) regarding A, B and C.



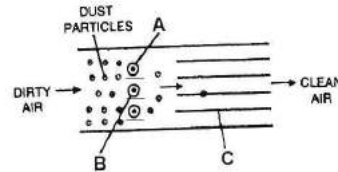
- (a) A is the gas which is produced during the combustion of fossil fuels.
 (b) B are the chemicals which are used as coolants in refrigerators
 (c) C is the gas which is the major constituent of biogas
 (d) All of these
22. Which of the following can cause DNA damage and mutations in humans?
 (a) Absorption of UV-A and UV-B
 (b) Absorption of UV-B
 (c) Absorption of UV-A
 (d) Absorption of UV-A and UV-C
23. Which of the following statements is not correct regarding jhum cultivation?
 (a) It is also called as shifting cultivation and has resulted in deforestation
 (b) It helps in increasing crop yield to a considerable extent.
 (c) A time-gap of several years is required for the recovery of the land after cultivation.
 (d) It involves cutting down of trees of the forest, burning of the plant remains and then using the land for farming.
24. Which of the following statement is incorrect ?
 (a) Carbon monoxide is the major environment pollutant
 (b) All pollutants are not waste
 (c) Nitrogen and magnesium can pollute water
 (d) Lichens are affected by sulphur
25. Noise pollution is created if noise is in excess to –
 (a) 70-75 dB (b) 50-60 dB
 (c) 80-99 dB (d) 40-65 dB
26. Which of the following does not cause pollution ?
 (a) Thermal power project (b) Steel power plant
 (c) Automobiles (d) Hydro electric project
27. Eutrophication causes reduction in
 (a) dissolved CO₂ (b) dissolved O₂
 (c) dissolved nutrients (d) none of the above
28. It is said, the Taj Mahal may be destroyed due to
 (a) Flood in Yamuna river
 (b) Decomposition of marble as a result of high temperature
 (c) Air pollutants released from oil refinery of Mathura
 (d) All of the above
29. The scrubber is used mainly to remove the following gas/es from the exhaust after spraying water/ lime
 (a) CO₂ (b) SO₂
 (c) O₂ & N₂ (d) CO & CO₂
30. Volcano is _____ source of pollution.
 (a) artificial (b) natural
 (c) Both (a) and (b) (d) man-made
31. Montreal Protocol was called to check emission of
 (a) e-wastes (b) UV radiation
 (c) CFCs (d) All of these
32. Which of the following is normally not an atmosphere pollutant ?
 (a) CO₂ (b) SO₂
 (c) Hydrogen (d) CO
33. Which of the following is not properly matched
 (a) Formaldehyde - carcinogenic
 (b) Sulphur dioxide - respiratory problems
 (c) Nitrogen oxide - brown air
 (d) Mean annual temperature - 25° C
34. Cleaning Environment with biological options such as microbes and plants is called
 (a) Bioremediation (b) Biotechnology
 (c) Biowarfare (d) Incineration
35. The 'Jhum cultivation' in India is practiced in
 (a) North- East states (b) South-West coast
 (c) South- East coast (d) Gangetic plain
36. Why is the concentration of ozone is less over the north and south poles ?
 (a) CFCs accumulate only in area where the air is cold
 (b) CFC use is highest in these areas
 (c) CFCs stick to frozen water vapour and are able to act catalysts
 (d) UV rays are stronger in the atmosphere

RESPONSE GRID	21. (a) (b) (c) (d)	22. (a) (b) (c) (d)	23. (a) (b) (c) (d)	24. (a) (b) (c) (d)	25. (a) (b) (c) (d)
	26. (a) (b) (c) (d)	27. (a) (b) (c) (d)	28. (a) (b) (c) (d)	29. (a) (b) (c) (d)	30. (a) (b) (c) (d)
	31. (a) (b) (c) (d)	32. (a) (b) (c) (d)	33. (a) (b) (c) (d)	34. (a) (b) (c) (d)	35. (a) (b) (c) (d)
	36. (a) (b) (c) (d)				

Space for Rough Work

37. The waste water from Industries may contain toxic heavy metals having density of more than
 (a) 5 g/cm^3 (b) 10 g/cm^3
 (c) 2 g/cm^3 (d) 15 g/cm^3
38. DDT causes egg shell thinning in birds because it inhibits
 (a) calmodulin (b) calcium ATPase
 (c) magnesium ATPase (d) carbonic anhydrase
39. FOAM (Friends of the Arcata Marsh) is a group of citizens responsible for the integrated process of
 (a) reducing eutrophication
 (b) sewage and water treatment
 (c) radio- active waste treatment
 (d) minimizing global warming
40. Without Green house effect the average temperature of earth surface would have been
 (a) 18°C (b) 8°C
 (c) -8°C (d) -18°C
41. Read the following statements.
 A lake near a village suffered heavy mortality of fishes within a few days. Consider the following reasons for this;
 (i) Lots of urea and phosphate fertilizer were used in the crops in the vicinity.
 (ii) The area was sprayed with DDT by an aircraft.
 (iii) The lake water turned green and stinky.
 (iv) Phytoplankton populations in the lake declined initially thereby greatly reducing photosynthesis.
 Which two of the above were the main causes of fish mortality in the lake?
 (a) (i) and (iii) (b) (i) and (ii)
 (c) (ii) and (iii) (d) (iii) and (iv)
42. Match column-I with column-II and select the correct option.
- | | |
|-------------------------------|---|
| Column-I | Column-II |
| A. Catalytic converter | I. Particulate matter |
| B. Electrostatic precipitator | II. Carbon monoxide and nitrogen oxides |
| C. Earmuffs | III. High noise level |
| D. Land fills | IV. Solid wastes |

- (a) A-I; B-II; C-III; D-IV
 (b) A-II; B-I; C-III; D-IV
 (c) A-IV; B-III; C-II; D-I
 (d) A-III; B-II; C-IV; D-I
43. The given diagram shows electrostatic precipitator. Identify A, B and C.



- (a) A - Discharge corona, B - Negatively charged wire, C - Collection plate grounded
 (b) A - Discharge corona, B - Positively charged wire, C - Collection plate grounded
 (c) A - Discharge corona, B - Negatively charged wire, C - Collection plate burnt
 (d) A - Uncharge corona, B - Positively charged wire, C - Collection plate never grounded
44. Which of the following statements is/are correct about 'Eco San' toilets?
 (a) It is a sustainable system for handling human excreta or faecal matter by using dry 'composting toilets'.
 (b) These are very useful for the rural areas where sewer systems are not possible.
 (c) These toilets are hygienic, efficient, practical & most effective for the disposal of human waste.
 (d) All of the above
45. Algal blooms impart a distinct colour to water due to
 (a) their pigments.
 (b) excretion of coloured substances.
 (c) formation of coloured chemicals in water facilitated by physiological degradation of algae.
 (d) absorption of light by algal cell wall.

RESPONSE GRID	37. (a)(b)(c)(d)	38. (a)(b)(c)(d)	39. (a)(b)(c)(d)	40. (a)(b)(c)(d)	41. (a)(b)(c)(d)
	42. (a)(b)(c)(d)	43. (a)(b)(c)(d)	44. (a)(b)(c)(d)	45. (a)(b)(c)(d)	

Space for Rough Work

DAILY PRACTICE PROBLEM DPP CHAPTERWISE 38 - BIOLOGY			
Total Questions	45	Total Marks	180
Attempted		Correct	
Incorrect		Net Score	
Cut-off Score	40	Qualifying Score	60
Success Gap = Net Score – Qualifying Score			
Net Score = (Correct × 4) – (Incorrect × 1)			

HINTS & SOLUTIONS

DPP/CB38

- (a) NO_2 and SO_2 after reacting with water in atmosphere produce HNO_3 & H_2SO_4 which fall down as acid rain.
- (d) DDT residues are rapidly passed through food chain causing biomagnification because DDT is liposoluble. Biomagnification, also known as bioamplification or biological magnification, is the increase in concentration of a substance, such as the pesticide DDT, that occurs in a food chain as a consequence of:
 - Persistence (slow to be broken down by environmental processes)
 - Food chain energetics
 - Low (or non-existent) rate of internal degradation/excretion of the substance (often due to water-insolubility).
- (d) Silicosis is caused by exposure to dust containing silica.
- (d) In secondary treatment mainly settled sewage flows to an aerobic biological treatment stage where it comes into contact with micro-organisms which remove and oxidise most of the remaining organic pollutants.
- (c) Biochemical Oxygen Demand (BOD) in river water increases when sewage gets mixed with river water. Biochemical oxygen demand or biological oxygen demand (BOD) is a chemical procedure for determining how fast biological organisms use up oxygen in a body of water. It is used in water quality management and assessment, ecology and environmental science. BOD is considered as an indication of the quality of a water source.
- (d) 7. (a) 8. (a)
- (b) Ozone layer is present in the stratosphere in the atmosphere of the earth. It protects the earth from UV rays (less than 300 nm). Hole in the ozone layer means thinning of ozone layer that allows harmful UV rays to reach earth which cause skin diseases.
- (a) Lots of urea and phosphate fertilizer were used in the crops in the vicinity and the lake water turned green and stinky. Due to this, lake near a village suffered heavy mortality of fishes within a few days.
- (c) If natural habitat is destroyed, wild life is affected worstly.
- (c)
- (d) The correct acronym is IUCN, International Union for Conservation of Nature and Natural resources.
- (b) Photochemical smog is made by the deposition of dust & carbon particles on the pollutant gases and water vapours. The gases found in photochemical smog are NO_2 , PAN, O_3 etc.
- (a) Due to dumping of huge amount of sewage, the oxygen levels are depleted, which are reflected in terms of BOD values of water. The number of microbes also increases tremendously and these also consume most of the oxygen. Thus BOD of the river water will increase.
- (c) Primary pollutants persist in the form they are released in the environment. Secondary pollutants are formed by reaction amongst the primary pollutants. Secondary pollutants are more toxic than primary pollutants. So, DDT is a primary pollutant.
- (c) Bhopal gas tragedy, the world's worst industrial catastrophe was not due to radioactive fallout, but it was because of leakage of phosgene and methyl isocyanate gas.
- (b) Lichens are indicators of air pollution, especially of the concentration of sulphur dioxide in the atmosphere. Air pollutants dissolved in rain water, mainly sulphur dioxide can damage lichens and prevent them from growing. So, lichens are natural indicators of air pollution.
- (b) Noise pollution causes anxiety, stress and irritability. Adrenaline hormone is released when body is under stress. So noise pollution leads to secretion of adrenaline hormone, which provides added energy to the body to deal the stressful situation.
- (b)
- (a) In the given pie diagram, greenhouse gases are shown. 'A' is CO_2 which is produced due to deforestation and large scale combustion of fossil fuels. 'B' is CH_4 which is produced by incomplete biogas combustion and is the major constituent of biogas. 'C' is water vapour.
- (b) Ultraviolet radiations are of three types - UV - C (100 - 280 nm), UV - B (280 - 320 nm) and UV - A (320 - 390 nm). UV radiation of wavelengths shorter than UV-B, are almost completely absorbed by earth's atmosphere, given that the ozone layer is intact. But, UV-B damages DNA and mutation may occur. It causes aging of skin, damage to skin cells and various types of skin cancers.
- (b) In Jhum cultivation crops are cultivated for 2-3 years without manuring. It results in nutrient depletion, reduced moisture retention of soil and increased soil erosion.
- (b) 25. (c) 26. (d) 27. (b)
- (c) Yellowing and blackening of Taj Mahal at Agra is due to SO_2 and other pollutants released by Mathura refinery.
- (b) 30. (b) 31. (c) 32. (a) 33. (d) 34. (a)
- (a) The 'Jhum cultivation' is also known as 'Slash and burn agriculture'.
- (c)
- (a) Unlike domestic sewage, waste water from industries like petroleum, paper manufacturing, metal extraction and processing, chemical manufacturing, etc. often contain toxic substances, notably heavy metals (defined as elements with density $> 5\text{g/cm}^3$); such as mercury, cadmium, copper, lead etc.) and a variety of organic compounds.
- (b) DDT causes egg shell thinning in birds because it inhibits calcium ATPase.
- (b) Friends of the Arcata Marsh (FOAM) is a non-profit organization which for the last twenty years has advanced knowledge and educated the public about treatment and reuse of wastewater. The purpose of the FOAM is to stimulate understanding of the Arcata Marsh and Wildlife Sanctuary, its relationship with Arcata's integrated wastewater treatment system, the surrounding watersheds and bay, and their link with the earth's water cycle.
- (d) The green house effect is a naturally occurring phenomenon that is responsible for heating of Earth's surface and atmosphere. Without a green house effect, the average temperature at earth's surface would have been around -18°C , rather than the present average of $+15^\circ\text{C}$.
- (a) The presence of a large amount of nutrients in water causes excessive growth of planktons or free-floating algae to produce algal bloom. Such algal blooms deteriorate the quality of water, cause the mortality of fishes and impart distinct colour to water bodies.



42. (b) A : Catalytic converter is a device incorporated in the exhaust system of a motor vehicle, containing a catalyst for converting pollutant gases into less harmful ones. As the exhaust passes through the converter, unburnt hydrocarbons are converted into carbon dioxide, water, carbon monoxide and nitric oxide are changed to carbon dioxide and nitrogen gas respectively.
B : Electrostatic precipitator is a device that removes suspended dust particles from a gas or exhaust by applying a high-voltage electrostatic charge and collect the particles on charged plates.
C : Earmuffs is a pair of soft fabric coverings, connected by a band across the top of the head, that are worn over the ears to protect them from cold or high noise level.
D : Land - fill is a site for the disposal of solid waste in which refuse is buried between layers of dirt so as to fill in or reclaim low-lying ground.
43. (a) Electrostatic precipitator is a device that removes suspended dust particles from a gas or exhaust by applying a high-voltage electrostatic charge and collecting the particles on charged plates. In the given diagram of electrostatic precipitator, the parts marked as A, B and C are respectively discharge corona, negatively charged ions, and collection plate grounded.
44. (d)
45. (a) An algal bloom is a rapid increase in the population of phytoplankton algae in an aquatic system. Typically only one or a few species are involved and the bloom is recognized by discoloration of the water resulting from the high density of pigmented cells.