

ENVIRONMENTAL STUDIES (CV307)

MODULE 1: BASIC CONCEPTS OF ENVIRONMENT

1. What is the primary focus of environmental studies?

- a) Only technological advancements
- b) Human-environment interactions
- c) Space exploration
- d) Economic systems

Answer: b

2. Xenobiotic substances are:

- a) Naturally occurring minerals
- b) Foreign to living organisms
- c) Essential nutrients
- d) Atmospheric gases

Answer: b

3. Which is a primary air pollutant?

- a) Ozone (O_3)
- b) Sulfur dioxide (SO_2)
- c) Sulfuric acid (H_2SO_4)
- d) PAN (Peroxyacetyl nitrates)

Answer: b

4. The dose-response relationship evaluates:

- a) Economic costs of pollution
- b) Biological effects vs. exposure levels
- c) Atmospheric circulation
- d) Species diversity

Answer: b

5. Chronic environmental effects refer to:

- a) Immediate poisoning
- b) Long-term low-level exposure
- c) Temporary irritation
- d) Genetic mutations

Answer: b

6. The ozone layer is located in which atmospheric layer?

- a) Troposphere
- b) Stratosphere
- c) Mesosphere
- d) Thermosphere

Answer: b

7. PM $_{2.5}$ refers to particulate matter with diameter:

- a) 2.5 cm
- b) 2.5 micrometers
- c) 25 mm
- d) 25 nanometers

Answer: b

8. Acid rain primarily results from emissions of:

- a) CO and CO₂
- b) SO₂ and NO_x
- c) O₂ and CH₄
- d) Pb and Hg

Answer: b

9. Which pollutant causes stratospheric ozone depletion?

- a) CO₂
- b) CFCs
- c) SO₂
- d) PM_{2.5}

Answer: b

10. Hazard differs from risk in that hazard is:

- a) Probability of harm
- b) Inherent potential to cause harm
- c) Measured exposure
- d) Mitigation strategy

Answer: b

11. Secondary pollutants are formed by:

- a) Direct emission
- b) Atmospheric reactions
- c) Soil erosion
- d) Volcanic eruptions

Answer: b

12. The first step in pollution abatement is:

- a) Control
- b) Recognition
- c) Evaluation
- d) Monitoring

Answer: b

13. Which is NOT a criteria air pollutant?

- a) Lead (Pb)
- b) Carbon dioxide (CO₂)
- c) Ozone (O₃)
- d) Nitrogen dioxide (NO₂)

Answer: b

14. Thermal inversion worsens air pollution by:

- a) Increasing wind speed
- b) Trapping pollutants near ground
- c) Enhancing rainfall
- d) Destroying ozone

Answer: b

15. The "hole" in the ozone layer is most prominent over:

- a) Equator
- b) Antarctica
- c) Sahara Desert
- d) Himalayas

Answer: b

16. Aerosols in the atmosphere:

- a) Only cool the Earth
- b) Can warm or cool depending on composition
- c) Exclusively cause acid rain
- d) Remove all pollutants

Answer: b

17. The troposphere contains what percentage of atmospheric mass?

- a) 10%
- b) 75-80%
- c) 50%
- d) 95%

Answer: b

18. Minamata disease is caused by:

- a) Arsenic
- b) Mercury
- c) Lead
- d) Cadmium

Answer: b

19. Which pollutant binds irreversibly to hemoglobin?

- a) O₂
- b) CO carbon mono oxide
- c) SO₂
- d) NO₂

Answer: b

20. The concept of "anthropogenic" refers to:

- a) Natural processes
- b) Human-caused phenomena
- c) Biological cycles
- d) Atmospheric patterns

Answer: b

21. Eutrophication is primarily caused by:

- a) Heavy metals
- b) Nutrient pollution (N/P)
- c) Thermal discharge
- d) Radioactive waste

Answer: b

22. The most abundant atmospheric gas is:

- a) Oxygen
- b) Nitrogen
- c) Argon
- d) CO₂

Answer: b

23. Photochemical smog requires:

- a) SO₂ and particulates
- b) NO_x and VOCs + sunlight
- c) CO and ozone
- d) Lead aerosols

Answer: b

24. Radon gas is a:

- a) Water pollutant
- b) Radioactive indoor air pollutant
- c) Greenhouse gas
- d) Ozone depleter

Answer: b

25. The Montreal Protocol addresses:

- a) Climate change
- b) Ozone-depleting substances
- c) Acid rain
- d) Plastic pollution

Answer: b

26. The term "environment" in environmental studies comprehensively includes:

- a) Only biological components
- b) Physical, biological and socio-cultural elements
- c) Exclusively human-made structures
- d) Atmospheric conditions alone

Answer: b

27. Which atmospheric layer contains the ozone layer?

- a) Troposphere
- b) Stratosphere
- c) Mesosphere
- d) Thermosphere

Answer: b

28. Primary pollutants are distinguished from secondary pollutants by:

- a) Their greater toxicity
- b) Being directly emitted from sources
- c) Forming only in aquatic environments
- d) Having natural origins only

Answer: b

29. In pollution assessment, "abatement" refers to:

- a) Initial detection
- b) Control and reduction measures
- c) Long-term monitoring
- d) Economic valuation

Answer: b

30. Which is NOT a criteria air pollutant under US EPA standards?

- a) Ground-level ozone
- b) Carbon dioxide
- c) Particulate matter
- d) Sulfur dioxide

Answer: b

31. The acid rain cycle primarily involves:

- a) Mercury deposition
- b) Transformation of SO₂ and NO_x to acids
- c) Ozone photolysis
- d) Lead aerosol formation

Answer: b

32. Chronic exposure to environmental pollutants typically causes:

- a) Immediate fatalities
- b) Long-term health deterioration
- c) Temporary skin irritation
- d) Short-term respiratory distress

Answer: b

33. The "natural greenhouse effect" is essential because it:

- a) Causes global warming
- b) Maintains Earth's habitable temperature
- c) Generates acid rain
- d) Depletes stratospheric ozone

Answer: b

34. Photochemical smog formation requires:

- a) Low temperatures
- b) Sunlight, NO_x and VOCs
- c) High humidity

d) Atmospheric mercury

Answer: b

35. Xenobiotic compounds are problematic because they:

- a) Are essential nutrients
- b) Resist natural degradation
- c) Improve soil fertility
- d) Enhance biodiversity

Answer: b

36. The Montreal Protocol successfully addressed:

- a) Climate change
- b) Ozone-depleting substances
- c) Acid rain
- d) Plastic pollution

Answer: b

37. Thermal inversion exacerbates air pollution by:

- a) Increasing wind dispersion
- b) Trapping pollutants near ground
- c) Enhancing vertical mixing
- d) Destroying pollutants chemically

Answer: b

38. Minamata disease resulted from contamination of:

- a) Air with lead
- b) Water with mercury
- c) Soil with arsenic
- d) Food with cadmium

Answer: b

39. Eutrophication in water bodies is primarily caused by:

- a) Thermal pollution
- b) Excess nitrogen and phosphorus
- c) Heavy metal discharge
- d) Radioactive waste

Answer: b

40. The "dose-response relationship" is fundamental in:

- a) Meteorological studies
- b) Toxicology and risk assessment
- c) Atmospheric chemistry
- d) Ecosystem classification

Answer: b

41. Anthropogenic activities primarily contribute to:

- a) Natural geological cycles
- b) Modern environmental degradation

- c) Atmospheric oxygen production
- d) Biodiversity enhancement

Answer: b

42. Radon gas poses significant risk as:

- a) Water contaminant
- b) Indoor air carcinogen
- c) Greenhouse gas
- d) Soil nutrient

Answer: b

43. The Precautionary Principle in environmental protection advocates:

- a) Waiting for scientific certainty
- b) Preventive action despite uncertainty
- c) Cost-benefit analysis
- d) Post-damage compensation

Answer: b

44. Which pollutant causes irreversible binding to hemoglobin?

- a) Ozone
- b) Carbon monoxide
- c) Sulfur dioxide
- d) Nitrogen dioxide

Answer: b

45. The "hole" in ozone layer is most severe over:

- a) Equatorial regions
- b) Antarctica
- c) Industrial Europe
- d) North America

Answer: b

46. Aerosols in atmosphere can:

- a) Only warm the Earth
- b) Cool or warm depending on properties
- c) Eliminate greenhouse gases
- d) Prevent all UV radiation

Answer: b

47. The troposphere contains approximately what percentage of atmospheric mass?

- a) 50%
- b) 75-80%
- c) 30%
- d) 95%

Answer: b

48. The "Appraisal" stage in pollution management involves:

- a) Implementation of controls

- b) Problem recognition
- c) Long-term monitoring
- d) Economic valuation

Answer: b

49. Itai-Itai disease was caused by contamination of rivers with:

- a) Mercury
- b) Cadmium
- c) Lead
- d) Arsenic

Answer: b

50. The Kyoto Protocol primarily addressed:

- a) Ozone depletion
- b) Climate change
- c) Hazardous waste
- d) Biodiversity loss

Answer: b