

1. Which soil horizon contains decomposed plants and animals?
 - a) A horizon
 - b) B Horizon
 - c) C Horizon
 - d) O Horizon
2. According to the settling jar experiment, which soil is the heaviest and fell to the bottom of the jar?
 - a) Clay
 - b) Humus
 - c) Sand
 - d) Silt
3. Which fertilizer produces acidity in soil
 - a) Ammonium sulfate
 - b) Sodium nitrate
 - c) Calcium nitrate
 - d) Calcium sulfate
4. Negative soil pollution is
 - a) Reduction in soil productivity due to erosion and overuse
 - b) reduction in soil productivity due to addition of pesticides
 - c) reduction in soil productivity due to addition of industrial waste
 - d) converting fertile land into harden land by dumping ash, sludge and garbage
5. What is the purpose of the “screening” step of EIA?
 - i. To assess the quality of the project design
 - ii. To facilitate informed decision making by providing clear, well-structured, factual analysis of the effects and consequences of proposed actions
 - iii. To determine whether a full EIA needed
 - a) i , ii, iii
 - b) ii,iii
 - c) i, iii
 - d) i , ii
6. Which one of the steps below is NOT included in the scoping process?
 - a) Set up the team of experts that will conduct the EIA
 - b) Identify and describe the environmental impacts and create a contingency plan
 - c) Describe the project area and the area of the project influence.
 - d) Outline project alternative for preparation, implementation and closure.
7. What is not included in an Impact assessment?
 - a) a detailed assessment of the planned project and selected alternatives compared to the baseline conditions
 - b) All the data collection, analyses, and developed plans summarized together in a well-structured and concise document
 - c) Qualitative descriptions measuring high, medium and low impacts

- d) Quantitative descriptions such as indicating the cubic metres of water withdrawn, sewage produced, and pollutants released
8. ISO-14001 gives stress on
- a) Plan- do- Check-Act
 - b) Environmental Protection
 - c) Prevention rather than detection
 - d) Prevent pollution
9. What is not a feature of ISO 14001:2015
- a) Improve resource efficiency
 - b) Product Design
 - c) Reduce Waste
 - d) Reduce costs
10. The baseline studies in EIA pertain to _____
- a) Collection of demographic data only
 - b) prediction of significant residual environmental impact
 - c) existing environmental settling of proposed development area
 - d) selection of best project option available
11. When organic matter in a sanitary landfill decomposes it produces
- a) Carbon dioxide
 - b) Hydrogen
 - c) Methane
 - d) Nitrous oxide
12. Sodium and potassium content in soil is determined by
- a) spectrophotometry
 - b) titrimetry
 - c) Atomic Absorption Spectrometry
 - d) Flame photometry
13. Life Cycle Assessment (LCA) may be applied to: a. A product. b. A product, process or activity. c. An organisation.
- a) A Activity
 - b) An organisation
 - c) A product
 - d) A product, Process, Project, Activity
14. The Life Cycle Assessment (LCA) consists of the following stages:
- a) Goal and scope definition, inventory analysis, impact assessment and interpretation.
 - b) Goal and scope definition, inventory analysis, impact assessment, costing analysis and interpretation
 - c) Costing analysis
 - d) Goal and scope definition, inventory analysis, aspects assessment and interpretation
15. A benefit cost analysis of a project shows its benefit cost ratio to be 0.80
- a) According to this ratio project should not be implemented
 - b) According to this ratio project should be implemented

- c) The ratio implies that net benefits of the project exceed zero
 - d) The ratio is not significant
16. The process of converting environmental pollutants into harmless products using naturally occurring microbes is called
- a) **In situ-bioremediation**
 - b) Ex situ bioremediation
 - c) bioleaching
 - d) extrinsic bioremediation
17. Which of the following microbes are used for treatment of industrial waste
- a) ***Aspergillus niger***
 - b) *Trichoderma* species
 - c) *Pseudomonas putida*
 - d) All of the above
18. Suitable method for treating acidic or basic hazardous waste is _____
- a) Precipitation
 - b) Hydrolysis
 - c) **Neutralization**
 - d) Electrolysis
19. What is the process flow in an integrated solid waste management system?
- a) **generation, segregation, transfer, sorting, treatment, recovery and disposal**
 - b) generation, transfer, segregation, sorting, treatment, recovery and disposal
 - c) generation, sorting, segregation, transfer, treatment, recovery and disposal
 - d) generation, segregation, sorting, transfer, treatment, recovery and disposal
20. What is the aim of RCRA?
- a) Management of waste
 - b) Management of liquid waste
 - c) **Management of hazardous waste**
 - d) Management of solid waste
21. If the environmental lapse rate is much higher than adiabatic lapse rate, _____ type of plume behavior is observed
- a) **Looping**
 - b) Trapping
 - c) Lofting
 - d) Fumigating
22. Red sea is the most saline open sea because of _____
- a) **High temperature and confined circulation**
 - b) Low rate of surface evaporation
 - c) Open from all the sides
 - d) Receives huge amount of sediment load from many rivers
23. _____ is the standard weighting of the audible frequencies commonly used for the measurement of Peak Sound Pressure level.
- a) A-Frequency weighting

- b) C- Frequency weighting
 - c) Z- Frequency weighting
 - d) B- Frequency weighting
24. Groundwater refers to _____
- a) The water present in the capillary zone
 - b) The water present in the zone of saturation
 - c) The water present in the zone of aeration
 - d) The water present in the aquiclude
25. High drainage density in an area represent _____
- a) The area having porous material
 - b) Lower runoff potential
 - c) Lesser infiltration rate
 - d) High runoff Potential
26. Under which act noise was identified as a pollutant by virtue an amendment enacted in 1987?
- a) The Water Act, 1974
 - b) The Air Act, 1981
 - c) The Wildlife Protection Act, 1972
 - d) The Motor Vehicle Act, 1988
27. Which of the following does not come under Dryland Soil Salinity?
- a) Develops through a rising water table and subsequent evaporation
 - b) Refers to the salinization of soil due to human activities
 - c) May be due to presence of restricted drainage due to impermeable layer
 - d) Groundwater dissolve salts present in rocks/aquifer and eventually reaches to the surface
28. A wave through a solid tube travelled to and fro in 10 sec. If the length of the tube is 50 m, what is the velocity of the wave?
- a) 10 m/s
 - b) 5 m/s
 - c) 100 m/s
 - d) 500 m/s
29. The function of automobile catalytic converter is to control emissions of_____.
- a) carbon dioxide and hydrocarbon
 - b) carbon monoxide and hydrocarbon
 - c) carbon monoxide and carbon dioxide
 - d) carbon monoxide and nitrogen dioxide
30. Flaring is a high temperature _____process used to burn combustible components.
- a) Oxidation
 - b) Reduction
 - c) Adiabatic
 - d) Extraction
31. Which n-percentile sound level is mostly used as an indicator of upper limit of traffic noise?
- a) L₁₀
 - b) L₅₀

- c) L₉₀
 - d) L₆₀
32. Why is the study of meteorology important in air pollution studies? Identify the “most appropriate” answer.
- a) It helps in analyzing the weather phenomenon and its association with the air pollution.
 - b) It helps in understanding the movement and fate of pollutants from the source to the recipient.
 - c) It helps in forecasting natural disasters like hurricanes, tornados, tsunamis.
 - d) It helps in understanding the transformation of pollutants.
33. Identify the instrument that records and electronically relays information about temperature, pressure, humidity, etc. as it moves upward in the atmosphere.
- a) Dropsonde
 - b) Radiosonde
 - c) Weather balloon
 - d) Sounding Barometer
34. Which is not the natural source of air pollution?
- a) Forest fire
 - b) Volcanic eruption
 - c) Waste burning
 - d) mixing of dust into atmosphere
35. Which of the following is correct range of human capacity to hear a sound?
- a) 20 Hz – 20,000 Hz
 - b) 200 Hz- 20,000 Hz
 - c) 200 Hz- 2,000 Hz
 - d) 20 Hz- 2,000 Hz
36. In Bag filters, filter fabrics are never made of _____
- a) Metallic wires
 - b) Polyester wires
 - c) Cotton Wires
 - d) Nylon Fibres
37. The effect of Sulphate aerosol in the Earth’s atmosphere is to _____
- a) Decrease Precipitation
 - b) Destroy Ozone
 - c) Cool global climate
 - d) Warm global climate
38. Which of the following biogeochemical cycle does not have an atmospheric pool?
- a) Sulphur
 - b) Carbon
 - c) Oxygen
 - d) Phosphorous
39. Which of the following is not a pattern of distribution of organisms?
- a) Superimposed
 - b) Uniform

- c) Clumped
 - d) Random
40. Which of the following species of organism depend upon passive mode of dispersal?
- a) *Panthera tigris*
 - b) *Vulpes vulpes*
 - c) *Ficus benghalensis*
 - d) *Passer domesticus*
41. _____ competition occurs when growth and reproduction are depressed equally across individuals in a population as the intensity of competition increases.
- a) Contest
 - b) Content
 - c) Monotonous
 - d) Scrambled
42. _____ is the term used to describe the population consisting many local population, coined by population ecologist Richard Levins in 1970.
- a) Metapopulation
 - b) Multipopulation
 - c) Parapopulation
 - d) Gammapopulation
43. $dN/dt = rN((K-N)/K)$ is a well known mathematical expression which describe the relation between two species using the same resources; also popularly known as _____.
- a) Gauss' Equation
 - b) Malthusian growth model
 - c) Lotka - Volterra model
 - d) Tolerance limit model
44. Which of the following is not true for metapopulations?
- a) These are of two or more species in habitat and both can be termed as metapopulations
 - b) There is an exchange of individuals among the metapopulations
 - c) The demographics of the metapopulation is also governed by migration of individuals and not only births and deaths
 - d) At times, some local populations act as source populations and others act as sink population
45. Which of the following organism is R strategist?
- a) Elephant
 - b) Blue whale
 - c) House Rat
 - d) Indian bison
46. Release of chemical by certain plants species to inhibit the growth of other plants is known as _____.
- a) Amensalism
 - b) Allelopathy
 - c) Commensalism
 - d) Proto-inhibition
47. Competition between individuals for common resources may not result into one of the following.

- a) Character displacement
- b) Resource partitioning**
- c) Resource enhancements
- d) Competitive exclusion

48. In an ecosystem, a predator feeds heavily on the more abundant species and pays little attention to the less abundant species. As the relative abundance of the second prey species increases, the predator turns its attention to that species. This is popularly known as _____.

- a) Shifting
- b) Alternating
- c) Redirecting
- d) Switching**

49. A species, that has a disproportionate impact on the community relative to its abundance is known as _____ species.

- a) Endangered
- b) Vulnerable
- c) Flag ship
- d) Keystone**

50. Certain types of hazards are characterized by long duration, meso to macro scale processes. Example of one such hazard is _____.

- a) Tropical cyclone
- b) Drought**
- c) Heat wave
- d) Cold wave

51. Which of the following state/region/area of India is highly susceptible to earthquakes?

- a) Rajasthan
- b) Karnataka
- c) Madhya Pradesh
- d) Assam**

52. On Richter scale, one unit increase in the magnitude means _____.

- a) 10 unit increase in the energy of the seismic event
- b) 10 times increase in the energy of the seismic event**
- c) 10^e increase in the energy of the seismic event
- d) e^{10} increase in the energy of the seismic event

53. The chronology (from left to right) of the steps for Risk estimation would be

- a) Hazard identification and evaluation → monitoring → vulnerability analysis → risk estimation**
- b) Monitoring → hazard identification and evaluation → vulnerability analysis → risk estimation
- c) Hazard identification and evaluation → vulnerability analysis → monitoring → risk estimation
- d) Vulnerability analysis → hazard identification and evaluation → monitoring → risk estimation

54. In _____ part of the cyclone, maximum wind velocity is experienced.
- a) Eye
 - b) Eye wall
 - c) Tail
 - d) 3rd rain band
55. Though the trade winds converge and rise near the equator, the tropical cyclones do not originate near the equator. What could be the reason behind this?
- a) Seasonal shifts in ITCZ (Inter tropical convergent zone) is responsible for such phenomena
 - b) Thermo - haline circulation is not co-occurring with the coriolis effect
 - c) The coriolis effect is weaker near the equator leading to reduced wind velocity
 - d) The coriolis effect is weaker near the equator leading to reduced deflection in the wind direction
56. The statement "The combination of the probability of an event and its negative consequences" closely describes _____.
- a) Disaster risk reduction
 - b) Disaster mitigation process
 - c) Disaster risk
 - d) Hazard analysis
57. _____ of the following is the slowest mass movement/mass wasting.
- a) Rock Fall
 - b) Mud flow
 - c) Land slide
 - d) Creep
58. For preparation of an efficient disaster mitigation plan, _____ is the first step towards planning.
- a) Emergency Response
 - b) Hazard Identification
 - c) Risk Assessment
 - d) Rescue and Relief operations
59. Which of the following statement is true for a disaster?
- a) They show high heterogeneity on geographical scale
 - b) They are natural as far as their origin is concerned.
 - c) They can be man-made but always triggered by natural event
 - d) They have homogenized distribution pattern across the globe
60. Bioluminescence is advantageous for the organism producing light, IN ALL BUT ONE manner of the following:
- a) It can startle the predator
 - b) It can be burglar alarm
 - c) It can help in mate recognition
 - d) It can cause death of the organisms in vicinity
61. Polyhydroxyalkanoates are accumulated in many bacterial cells as intracellular granules. These cells can be lysed to extract:
- a) Biodegradable plastics
 - b) Bioethanol

- c) Bio catalysts
 - d) Biomass
62. Golden Rice is GMO which is meant to supply adequate amounts of:
- a) Vitamin B-12
 - b) Vitamin- A
 - c) Vitamin C
 - d) Vitamin D
63. Traveller's diarrhea is generally caused by:
- a) Enteropathogens
 - b) Blood borne pathogens
 - c) Air borne pathogen
 - d) Fungal pathogens
64. Microbiological contamination of water happens due to:
- a) Sewage mix-up of fecal matter
 - b) Agricultural run off
 - c) Soil erosion
 - d) Air borne particulate matter
65. _____ are the sensitive indicators of Sulfur dioxide pollution:
- a) Mycorrhiza
 - b) Lichens
 - c) Mushrooms
 - d) Blue Green algae (BGA)
66. Which of the following is NOT a known Biofertilizer?
- a) *Azotobacter*
 - b) Phosphorus Solubilizing Bacteria (PSB)
 - c) *Vibrio cholera*
 - d) Plant Growth Promoting Rhizobacteria (PGPR)
67. _____ is a biological process that stimulates helpful microbes to use harmful contaminated material from the site to a remote treatment location.
- a) in situ remediation
 - b) ex situ remediation
 - c) Bioventing process
 - d) Air Stripping Process
68. Pneumatophores/ Aerial roots are a feature of:
- a) Lichens
 - b) Mangroves
 - c) Seagrass
 - d) Banyan Tree
69. Which of the following microorganisms most commonly degrade books and scriptures in a library?
- a) Cellulose Degrading
 - b) Pectin Degrading

- c) Protein Degrading
 - d) Lipid Degrading
70. Which of the following is best related to coral bleaching?
- a) It is due to damage of corals due to overfishing
 - b) It is due to cold temperatures of water
 - c) It is due to loss of pigment due to dying of algal partner
 - d) It is due to rise in pressure of water column
71. Air borne infections primarily spread through
- a) Respiratory discharges like phlegm
 - b) Fecal discharge
 - c) Blood and other bodily fluids
 - d) Water contamination
72. Which of the following is NOT the reason for Decline in productivity of soil?
- a) Unsustainable irrigation practices
 - b) Accumulation of salts in the soil
 - c) Protecting the vegetative cover
 - d) Deforestation
73. Among the following, which water pollutant is the cause of concern to human health the most?
- a) Oxygen demanding wastes
 - b) Inorganic Chemicals
 - c) Pathogens & Parasites
 - d) Organic Chemicals
74. Which of the following diseases have NOT been declared global emergency by WHO?
- a) HIV
 - b) Malaria
 - c) AIDS
 - d) Diarrhea
75. Pick out the cause that enhances environmental degradation:
- a) Planting of trees
 - b) Prevention of factory wastes getting mixed up with river water.
 - c) Ban on use of plastic bags.
 - d) Unplanned Urbanization
76. Which one of the following is NOT a biofuel?
- a) Biogas
 - b) Biodiesel
 - c) Biosensor
 - d) Bioethanol
77. Minamata disease is a neurological disease caused by severe.....poisoning
- a) Mercury
 - b) Cadmium
 - c) Arsenic
 - d) Barium
78. Which technique is used to identify crime suspect or to prove paternal claims?

- a) DNA Footprinting
- b) DNA Sequencing
- c) DNA Fingerprinting
- d) DNA Replication

79. Which of the following shape of the object has the highest drag coefficient under sedimentation?

- a) Sphere
- b) Half-sphere
- c) Cube
- d) Streamline body

80. In water treatment procedures, the purpose of coagulation and flocculation is to

- a) Disinfect the water supply
- b) Remove microorganisms, organic matter, and suspended fine particles
- c) Soften the water by removing calcium and magnesium
- d) Remove taste and odor problems

81. Permanent hardness of water is due to the presence of_____.

- a) Bicarbonates of calcium and magnesium
- b) Chlorides of calcium and magnesium
- c) Sulfates of calcium and magnesium
- d) Both chlorides and sulfates of calcium and magnesium

82. Biochemical Oxygen Demand for safe drinking water must be

- a) Nil
- b) 2 mg/L
- c) 5 mg/L
- d) 10 mg/L

83. Sedimentation is a physical process used in wastewater treatment to remove

- a) Particles that are less dense than water
- b) Particles that are denser than water
- c) Pertinacious material from the water
- d) Colloidal particles including clay and bacteria

84. Chemical coagulant can be used to reduce _____ between colloidal particles.

- a) Electrostatic repulsion
- b) Electrostatic attraction
- c) Intermolecular or Van der Waals force of attraction
- d) The gravitational force of attraction

85. Various species are formed in coagulation and flocculation with alum due to hydrolysis of alum salt such as Al^{3+} , $\text{Al}(\text{OH})_2^+$, $\text{Al}(\text{OH})_3(\text{s})$, $\text{Al}(\text{OH})_4^-$, $\text{Al}(\text{OH})_5^{-2}$. Which species is predominant at $\text{pH} < 4.5$?

- a) Al^{3+}
- b) $\text{Al}(\text{OH})_2^+$
- c) $\text{Al}(\text{OH})_3(\text{s})$
- d) $\text{Al}(\text{OH})_5^{-2}$

86. Choose the correct order with the increasing dose of coagulants

- a) Restabilization or charge reversal - No destabilization - Destabilization by sweep floc - Destabilization by charge neutralization
- b) No destabilization - Destabilization by charge neutralization - Restabilization or charge reversal - Destabilization by sweep floc
- c) No destabilization - Restabilization or charge reversal - Destabilization by charge neutralization - Destabilization by sweep floc
- d) Destabilization by charge neutralization - No destabilization - Restabilization or charge reversal - Destabilization by sweep floc -

87. Buoyant force acting upward on particles in a fluid is directly proportional to ____.

- a) Density of the liquid and solid particles
- b) Volume of the particles and density of the liquid
- c) Volume and density of the particles
- d) Mass and density of the particles and density of the liquid

88. Inactivation of microorganism/pathogens in water distribution systems is classified as _____

- a) Primary disinfection
- b) Secondary disinfection
- c) Tertiary disinfection
- d) Quaternary disinfection

89. The rate of aggregation of destabilized colloidal particles in a simple coagulation and flocculation is dependent upon _____.

- a) Size of the particles
- b) Charges on the particles
- c) Rate at which collision occurs between particles
- d) Amount of bulk fluid and density of particles

90. The acidity of water is its quantitative capacity to react with a _____ to a designated pH.

- a) Weak Acid
- b) Strong Base
- c) Weak Base
- d) Litmus paper

91. The most important reason for the unusual properties of water is:

- a) The covalent bonding pattern and bond length
- b) The bond angle between two hydrogen atoms in the water molecule
- c) Water can be ionized easily even at room temperature
- d) Hydrogen bonding between water molecules

92. Why water molecule is a polar molecule with opposite ends molecule with opposite charges?

- a) Because hydrogen is more electronegative, the region around hydrogen has a partial negative charge and the region near the oxygen atoms has a partial positive charge.
- b) Because hydrogen has fewer electrons, the region around hydrogen has a partial negative charge and the region near the oxygen atoms has a partial positive charge.
- c) Because hydrogen has fewer electrons, the region around hydrogen has a partial positive charge and the region near the oxygen atoms has a partial negative charge.
- d) Because oxygen is more electronegative, the region around oxygen has a partial negative charge and the region near the two hydrogen atoms has a partial positive charge.

93. Soil cation exchange capacity decrease as

- a) The amount of clay increases
- b) The amount of organic matter increases
- c) The soil pH increases
- d) The soil surface area decreases

94. Select the incorrect statement from the following option.

- a) Water that does not form lather with soap and forms white scum is called hard water
- b) Due to the presence of dissolved hardness-producing salts, the boiling point of water is depressed
- c) Hard water contains dissolved calcium and magnesium salts in it
- d) In hard water, the cleansing quality of soap is depressed

95. Which of the following statement is false?

- a) Water has very high compressibility due to intermolecular hydrogen bonding
- b) Transparency of water is important for photosynthesis
- c) The density of pure water depends on temperature, salinity, and pressure
- d) For seawater, the freezing point decreases with increasing salinity

96. Which of the following methods are NOT commonly used for biological monitoring?
- a) Most Probable Number (MPN)
 - b) High Performance Liquid Chromatography (HPLC)
 - c) Polymerase Chain Reaction (PCR)
 - d) Fluorescent *In-Situ* Hybridization (FISH)
97. To detect metal ions present in the water sample, the sample is recommended to collect in a separate bottle and _____ to minimize precipitation.
- a) Neutralize
 - b) Acidify
 - c) Alkalify
 - d) Heated
98. Zero head-space is important in the preservation of sample for which parameter analysis?
- a) VOC
 - b) TOC
 - c) COD
 - d) BOD
99. At a certain temperature, the ratio of concentrations of a solute in two immiscible solvent is always constant. This ratio is called the_____
- a) Distribution coefficient
 - b) Effective distribution coefficient
 - c) Total effective distribution coefficient
 - d) Effective portioning coefficient
100. Which of the following is the necessary step for cultivating the microorganisms?
- a) Preparing a culture medium for the growth of microorganisms
 - b) Sterilizing to eliminate all living microorganisms in the vessel
 - c) Inoculating the microorganisms in the prepared medium
 - d) All of the above