

Answer the Following Questions:

Question ONE:

(23 marks)

A- Put ✓ or × and correct the false

(13 marks)

- 1) Disposal is the initial stage during solid waste management.
- 2) Organic pollutants are persistent and can not be degraded in the environment by natural processes.
- 3) The food transformation is a traditional biotechnology.
- 4) Increasing the stratum's oxygenation ultimately benefits the soil remediation's overall efficiency.
- 5) The air composition is stable in all parts of the atmosphere.
- 6) Bioremediation can be effective only where environmental conditions permit microbial growth and activity.
- 7) Biotic factors in the natural environment depend on external factors such as temperature and humidity.
- 8) Bioremediation is the process of decontaminating polluted sites through the addition of only exogenous microorganisms.
- 9) Bioremediation does not rely on the natural abilities of soil microorganisms.
- 10) Oxides of nitrogen and Sulphur lead to significant air pollution
- 11) The diversity of life forms of the water bodies gets affected by untreated waste
- 12) Increasing thermal stress contributes to coral bleaching
- 13) Scientists are working on a new type of activated sludge for air purification

B- Identify the following items

(10 marks)

- 1) Ecobiotechnology
- 2) Microbiocenosis
- 3) Biodeterioration
- 4) Biological hazards
- 5) Trophic levels

Question Two:

(18 marks)

A- Answer the following items:

(7 marks)

- 1- Compare between biodegradation and bioremediation.
- 2- Compare between detritus and grazing food chains.

B- Complete the missing parts:

(11 marks)

- The rate of application of new aspects of biotechnology will depend on.....(1).....
- The three main layers of biosphere are(2).....
- Biotopes are divided into(3).....

- Biogeochemical processes occurring with the help of microorganisms are classified as.....(4).....
- It is the prevailing greenhouse gas in the atmosphere.....(5).....
- The end products of biodegradation are(6).....
- Advantages of Biodegradation are(7).... (8)....and.....(9).....
- Factors affecting biodegradations are ...(10)... and ...(11)...

Question Three:

(19 marks)

- 1- Majority of the waste produced by commercial industries has better results when treated by _____
 a) Biological methods
 b) Chemical methods
 c) Physical methods
 d) Physio-chemical methods
- 2- Which of the following is not a source of urban waste?
 a) Municipal Services
 b) Residential area of towns and cities
 c) Industrial area
 d) Rural waste
- 3- Which of the following is a competitive and sustainable environmental alternative?
 a) Bio-leaching
 b) Bio-remediation
 c) Bio-fortification
 d) Immobilization
- 4- Which of the following is not a process of remediation?
 a) Vitrification
 b) Thermal
 c) Bio-leaching
 d) Chemical
- 5- Which of the following urban waste is not categorized as toxic waste?
 a) Old medicines
 b) Paints
 c) Fertilizer
 d) Agricultural wastes
- 6- Which of the following is not caused by the altered primary productivity of water bodies?
 a) Algal blooms
 b) Adverse health effects
 c) Reduction in water quality
 d) Increase in water quality
- 7- Which of the following doesn't include the activity of microorganisms?
 a) Bio-magnification
 b) Bio-remediation
 c) Bio-degradation
 d) Bio-leaching
- 8- According to the classical concepts, a gene is a unit of _____
 a) physiological functions
 b) transmission or segregation of characters
 c) mutation
 d) all the previous may be true

- 9- At this stage of the mechanism, molecules enter inside the microbial cells, and metabolic reactions produce energy (ATP):
- a) Mineralization
 - b) Assimilation
 - c) Biofragmentation
 - d) all the previous not true
- 10- To treat a soil contaminant, the environment and the microorganisms in it are left undisturbed. What is the best description of this process?
- a) Natural attenuation
 - b) Biostimulation
 - c) Bioaugmentation
 - d) Ex-situ bioremediation
- 11- Which one is NOT used for bio-remediation?
- a) Bacteria
 - b) Fungi
 - c) Plants
 - d) seashells
- 12- To treat a soil contaminant, the soil is removed from the site and water, oxygen, and nitrogen fertilizer are added to support bioremediation. What is the best description of this process?
- a) Ex-situ bioremediation
 - b) In-situ bioremediation
 - c) Natural attenuation
 - d) Not bioremediation
- 13- Which among the following is not considered as the principal environmental factor?
- a) pH
 - b) Temperature
 - c) Soil type
 - d) Pressure
- 14- The bioremediation process involving the usage of plants to degrade pollutants is?
- a) Composting
 - b) Biopile
 - c) Phytoremediation
 - d) Land farming
- 15- Which of the following technique is used to re-mediate contamination at the boundary level of water table?
- a) Biosparging
 - b) Bio-accumulation
 - c) Bio-degradation
 - d) Bio-magnification
- 16- Which of the following process involves super-aeration of groundwater?
- a) Biosparging
 - b) Bio-accumulation
 - c) Bio-degradation
 - d) Bio-magnification
- 17- Which of the following require attention by national government?
- a) National issues
 - b) International issues

- c) Regional issues
 - d) Municipal issues
- 18- Which of the following is the central intermediate of almost all the metabolism?
- a) Acetyl CoA
 - b) Oil
 - c) Natural gas
 - d) Carbon dioxide
- 19- What does physical method of treatment of contaminated materials include?
- a) Microorganisms
 - b) Concentration and excavation
 - c) Toxic compounds
 - d) Ethidium bromide

With Best Wishes

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