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300+ TOP Solid Waste MCQs and Answers Quiz Test Exam

Energy & Environment Management Multiple Choice Questions on “Solid Waste”.

1. The process of burning municipal solid waste at high temperature is called _____
- a) Incineration
 - b) Composting
 - c) Land filling
 - d) Shredding

Answer: a

Explanation: Incineration is the most sanitary method of disposal of municipal solid waste. Solid waste should have a high calorific value.

2. Which of the following is a biodegradable waste?
- a) Polythene bags
 - b) Synthetic fiber
 - c) Food waste
 - d) Paper

Answer: c

Explanation: Polythene bags, synthetic fiber and paper are non biodegradable wastes whereas food waste is a biodegradable waste.

3. In which method of disposal of municipal solid waste, the waste is dumped in the soil?

- a) Incineration
- b) Composting
- c) Land filling
- d) Shredding

Answer: c

Explanation: Land filling is a process of disposal of solid waste under the soil. It is usually done in low lying areas to prevent unhygienic conditions.

4. Which of the following is correct regarding disposal of waste by land filling?

- a) Economical method
- b) Preferred in low lying areas
- c) Foul gases are not produced
- d) Separation of different types of waste not required

Answer: c

Explanation: Land fill gases are produced during the dumping of waste. They are foul smell creating unhygienic conditions.

5. The density of ash produced in the municipal solid waste is _____

- a) 100 kg/m³
- b) 450 kg/m³
- c) 700 kg/m³
- d) 1000 kg/m³

Answer: c

Explanation: The range of the density of ash produced from the municipal solid waste is 700-850kg/m³.

6. The process of decomposition of biodegradable solid waste by earthworms is called _____

- a) Landfills
- b) Shredding
- c) Vermicomposting
- d) Composting

Answer: c

Explanation: The process of decomposition of biodegradable solid waste by earthworms is called Vermicomposting.

7. The waste produced in cotton mills are _____

- a) Municipal solid waste
- b) Non biodegradable waste
- c) Hazardous waste
- d) Non hazardous waste

Answer: d

Explanation: Industrial waste is produced by cotton mills that are biodegradable and are non-hazardous.

8. Which of the following is not the landfilling method?

- a) Bangalore method
- b) Area method
- c) Depression method
- d) Trench method

Answer: a

Explanation: Bangalore method is a method of composting whereas area, depression and trench method are the land filling method.

9. _____ is a liquid that passes through solid waste and extracts suspended impurities from it.

- a) Leachate
- b) Sludge
- c) Distilled water
- d) Municipal waste

Answer: a

Explanation: Leachate is a liquid that passes through solid waste and extracts suspended impurities from it. It can be minimized by the use of clay lines.

10. Which of the following is not the municipal solid waste?

- a) Radioactive substance
- b) Ashes
- c) Food waste
- d) Rubbish

Answer: a

Explanation: Rubbish, food waste and food waste are municipal solid waste, whereas radioactive substances are industrial waste.

11. Which of the following waste can be decomposed by bacteria?

- a) Radioactive substance
- b) Ashes
- c) Food waste
- d) Rubbish

Answer: c

Explanation: Food waste can be decomposed by bacteria as they are biodegradable waste, whereas ashes, rubbish is non biodegradable.

12. _____ is the cutting and tearing of municipal solid waste.

- a) Land fills
- b) Shredding
- c) Pulverization
- d) Composting

Answer: b

Explanation: Shredding is the cutting and tearing of municipal solid waste. It helps in reducing the size and volume of municipal solid waste.

13. _____ is the crushing and grinding of municipal solid waste.

- a) Land fills
- b) Shredding
- c) Pulverization
- d) Composting

Answer: c

Explanation: Pulverization is the crushing and grinding of municipal solid waste. It changes the character of municipal solid waste and reduced its volume by 40%.

14. In which method of composting, decomposition of anaerobic waste takes place?

- a) Indian method
- b) Depression method
- c) Bangalore method
- d) Trench method

Answer: c

Explanation: In the Bangalore method of composting, decomposition of anaerobic waste takes place. It is better than the Indore method.

15. Which of the following is a biological method of disposal of municipal solid waste?

- a) Land fills
- b) Shredding
- c) Pulverization
- d) Composting

Answer: d

Explanation: Composting is a biological method of decomposing the municipal solid waste under aerobic and anaerobic condition. It results in the production of humus.

16. Which was the first city to an established system of waste removal?

- a) Lahore
- b) Athens
- c) Paris
- d) London

Answer: b

Explanation: In ancient cities, food scraps and other waste were simply thrown onto the unpaved streets where they accumulated and cause various diseases. Around 320 BC in Athens, the first known law forbidding this practice was established.

17. Why burning waste is not an acceptable practice of solid waste management?

- a) Because it is very costly
- b) Because it requires modern technologies
- c) Because it cause several environmental issues
- d) Because it requires lot of space

Answer: c

Explanation: Burning waste is not an acceptable practice, because if we look into environmental or health prospective burning waste creates lots of pollution and it is harmful to both environment and as well as organisms.

18. What plan should we make to the disposal of solid waste?

- a) Integrated waste management plan
- b) Recycling of waste management plan
- c) Reducing of waste management plan
- d) Use of waste management plan

Answer: a

Explanation: The disposal of solid waste should be part of an integrated waste management plan. This integrated solid waste management is the method of collection, processing, resource recovery and final disposal of solid waste.

19. The term 'Municipal Solid Waste' is used to describe which kind of solid waste?

- a) Hazardous
- b) Toxic
- c) Non hazardous
- d) Non toxic

Answer: a

Explanation: The term 'municipal Solid Waste' is generally used to describe most of the non-hazardous solid waste from a city, town or village that requires routine collection and transport to a processing or disposal site.

20. How many main components are there in integrated waste management?

- a) One
- b) Two
- c) Three
- d) Four

Answer: c

Explanation: An integrated waste management strategy includes three main components they are source reduction, recycling and disposal. All these three types plays an important role in the solid waste management.

21. Municipal Solid Waste (MSW) contains a wide variety of materials.

- a) True
- b) False

Answer: a

Explanation: MSW contains a wide variety of materials. It can contain food waste which is classified as wet garbage and paper, plastic, tetra packs, plastic cans, glass bottles, metal items, wood pieces, aluminum foil and many more items.

22. Which of the integrated waste management is reduced on an individual level?

- a) Source reduction
- b) Recycling
- c) Disposal
- d) Burning

Answer: a

Explanation: Source reduction is one of the fundamental ways to reduce waste. On an individual level, we can reduce the use of unnecessary items while shopping, avoid buying disposable items and avoid using plastic carry bags.

23. Which of the following can be recycled many times?

- a) Plastic
- b) Wood
- c) Organic materials
- d) Aluminum

Answer: d

Explanation: Recycling is reusing some components of the waste that has some economic value. Aluminum can be recycled many times. Mining of new aluminum is expensive hence recycling of aluminum plays a significant role in aluminum industry.

24. Why plastics are difficult to recycle?

- a) Because it is very hard material
- b) Because it is very adhesive in its nature
- c) Because of different types of polymer resins
- d) Because of different sizes of plastic

Answer: c

Explanation: Plastic are difficult to recycle because of the different types of polymer resins in their production. Since each type has a distinct chemical composition, different plastics cannot be recycled together.

25. How many key characteristics of a municipal sanitary landfill are there?

- a) One
- b) Two
- c) Three
- d) Four

Answer: c

Explanation: The three key characteristics of a municipal sanitary landfill that distinguish it from an open dump are: Solid waste is placed in a suitably selected and prepared landfill site, the waste material is spread out and compacted with appropriate heavy machinery, the waste is covered each day with a layer of compacted soil.

26. How does organic material in the buried solid waste will decompose?

- a) By the action of oxidation
- b) By the action of microorganisms
- c) By the flow of water
- d) By the soil particles

Answer: b

Explanation: The organic material in the buried solid waste will decompose due to the action of microorganisms. At first the waste decomposes aerobically until the oxygen that was present in the freshly placed fill is used up by the aerobic microorganisms.

27. What is called for the process of burning municipal solid waste in a properly designed furnace under suitable temperature and operating conditions?

- a) Landfill
- b) Recycling
- c) Vermicomposting
- d) Incineration

Answer: d

Explanation: Incineration is a chemical process in which the combustible portion of the waste is combined with oxygen forming carbon dioxide and water, which are released into the atmosphere. Suitable temperature and operating conditions are required to achieve for incineration.

28. Why the recycled paper is banned for use in food containers?

- a) Because it creates contamination
- b) Because it creates a lot of spaces

- c) Because paper can be used only one time
- d) Because paper is very thick and can't cover the food containers

Answer: a

Explanation: Recycled paper is banned for use in food containers to prevent the possibility of contamination. It very often costs less to transport raw-paper pulp than scrap paper. Collection, sorting and transport account for about 90% of the cost of paper recycling.

29. Landfilling is an economic alternative for solid waste disposal and it can be implemented easily.

- a) True
- b) False

Answer: a

Explanation: Although land filling is an economic alternative for solid waste disposal, it becomes increasingly difficult to find suitable landfilling sites within economic hauling distance. There will be a danger of some environmental damage in the form of leakage of leachate.

30. Which of the following undesirable and waste material is neither gas nor liquid?

- a) Water waste
- b) Oxygen
- c) Liquid waste
- d) Solid waste

Answer: d

Explanation: Solid waste like meal scraps, waste food, raked leaves, sewage, animal manure etc. are referred as unwanted waste material that is not in gas or liquid state. Molecular oxygen, liquid waste and water waste are not found in solid state.

31. Which of the following are not categorized as hazardous wastes?

- a) Garbage
- b) Industry wastes
- c) Hospital wastes
- d) Laboratory wastes

Answer: a

Explanation: Garbage usually produced during cooking, storage of other food items is not categorized as hazardous wastes whereas, industry wastes, hospital wastes and laboratory wastes contains biohazards, harmful chemicals which is very harmful for the

environment and hence categorized as hazardous waste.

32. Disposal is the initial stage during solid waste management.

- a) True
- b) False

Answer: b

Explanation: Disposal is usually done in the end and hence, is not done in the initial stage during the solid waste management, may it be from residential area or commercial area or any other source.

33. Which of the following is both inorganic and organic?

- a) Sewage Sludge
- b) Liquid crystalline
- c) Natural gas
- d) Semicrystalline

Answer: a

Explanation: Sewage Sludge is produced during primary and secondary treatment phases and are usually sticky and has pathogens, so, it is both inorganic and organic, whereas, Liquid crystalline and Semi crystalline are optically active polymer that can activate in response to heat, light, electrical field etc. and hence, is not is inorganic or organic and natural gas is usually a hydrocarbon which is non-renewable.

34. Which of the following is not a result of mishandling of solid waste?

- a) Odor
- b) Hydrolysis of sugar
- c) Fire
- d) Dysentery

Answer: b

Explanation: Mishandling of solid waste can lead to fire from ashes when added to combustible refuse, dysentery like bacillary dysentery, amoebic dysentery from human fecal matter spread by flies to food and water, odor due to rotting of garbage but hydrolysis of sugar is not a result of mismanagement of solid waste.

35. Which of the following is a visual pollution?

- a) Insightfulness of piles of garbage
- b) Mashing with Adhesives
- c) Mashing with Fibers
- d) Flowers

Answer: a

Explanation: Insightfulness of piles of garbage which offends the aesthetic feeling is referred to as visual pollution, whereas, mashing with Adhesives or fibers is not related to visual pollution and flowers are fine-looking to watch.

36. Which of the following methods cannot be used for waste disposal?

- a) Dumping
- b) Gasification
- c) Incineration
- d) Open sea disposal

Answer: d

Explanation: If open sea disposal method is used for disposing waste, a lot of aquatic organisms would be affected and in long run it might affect other land organisms as well, whereas, dumping is done in low lying areas, gasification is the degradation of organic matter in anaerobic conditions and incineration involves chemical reaction, all these methods doesn't cause much damage to the environment.

37. Which of the following is an important part of the natural release of biogas in the environment?

- a) Biogeochemical cycle
- b) Environment pollution
- c) Afforestation
- d) Deforestation

Answer: a

Explanation: The natural release of biogas in the environment due to the activity of methanogens leads is crucial for biogeochemical cycle, whereas, biogas does not lead to a considerable amount of environment pollution, afforestation and deforestation are caused by human intervention.

38. Which of the following organism degrade the organic matter thereby, transfer the matter to the environment?

- a) Methanogens
- b) Manganese
- c) Carbon dioxide
- d) Methane

Answer: a

Explanation: Methanogens degrade the organic matter under

anaerobic conditions producing natural biogas, whereas, manganese, carbon dioxide and methane are not microorganisms that degrade the organic matter.

40. Which of the following temperature is optimum for incinerators?

- a) 900-1100°C
- b) 100-110°C
- c) 90-110°C
- d) 100-11000°C

Answer: a

Explanation: 900-1100°C is the optimum temperature for incinerators which operates in the combustion zone which results in good combustion and also protects the inside walls of the incinerator. Temperature above and lower this range wouldn't result in good combustion and might harm the incinerator as well.

41. The chemical reaction between the carbon, hydrogen present in the solid waste combines with the oxygen.

- a) True
- b) False

Answer: a

Explanation: The chemical reaction between the carbon, hydrogen present in the solid waste combines with the oxygen and when it enters the combustion zone, this reaction generates heat.

42. Which of the following resembles the rich topsoil in context to solid waste composting?

- a) Humus
- b) Bed rock
- c) Sub soil
- d) Weathered rock

Answer: a

Explanation: The dark substance in the top layer of the soil which looks like peat and has a powdery texture is humus, sub soil, weathered rock bed rock are the subsequent layers after the top layer.

43. Why mismanagement of battery waste can be harmful?

- a) Texture
- b) Heavy metals
- c) Plastics
- d) Odor

Answer: b

Explanation: Battery recycling is very vital as it contains heavy metals like cadmium, lead and mercury which if comes in contact with the environment is very harmful. Hence, should be handled properly. Odor and texture is not hazardous; plastics is a major concern but is not related to the batteries waste.

44. Why recycling of metal is more cost-effective?

- a) Extraction of metal increases
- b) Increases operating cost
- c) Reduces operating cost
- d) Reduces odor

Answer: c

Explanation: Recycling of metal highly reduces the operating cost and the industrial cost as extraction cost is reduced and energy consumption is also reduced, extraction of metal decreases and odor is not relative.

45. Unrecycled plastic leads to emission of greenhouse gases.

- a) True
- b) False

Answer: a

Explanation: Unrecycled plastic leads to emission of greenhouse gases because of their non-renewable property and is potential pollutant in the environment and can also lead to emission of carcinogenic gases.

46. Which of the following area has the lowest chance of producing a biomedical waste?

- a) Hospitals
- b) Clinics
- c) Laboratories
- d) Agricultural lands

Answer: d

Explanation: Hospitals, clinics, laboratories and various research centers generate a lot of biomedical wastes from diagnosis, treatment and disease on various diseases generate wastes that are termed as biomedical waste. But agricultural lands generally produce wastes that are biodegradable in nature, so they are not called as biomedical waste.

47. Which of the following is not a Biomedical waste?

- a) Animal waste

- b) Microbiological waste
- c) Chemical waste
- d) Domestic waste

Answer: d

Explanation: Domestic waste doesn't contain any infectious agents and is totally degradable in nature but animal waste contains animal tissue and organs, microbiological waste contains microbiological specimen wastes, chemical waste contains disinfectant chemicals. So, all of these wastes are treated as Biomedical wastes.

48. Biomedical wastes are not infectious.

- a) True
- b) False

Answer: b

Explanation: Biomedical wastes are infectious, they are pathological, pharmaceutical waste that are infectious to living organisms thereby spreading diseases. So, it is really required to dispose of the Biomedical wastes properly to avoid any further contamination.

49. Which of the following is categorized as an incineration waste?

- a) Incineration ash
- b) Animal waste
- c) Solid waste
- d) Cytotoxic drugs

Answer: a

Explanation: Incineration ash comes from any biomedical wastes that is being incinerated and ignited and burnt to dispose of the biomedical wastes. This prevents further contamination but this also creates Incineration ash, which has the potential of causing a disease and hence, its treatment is very necessary for the public health, whereas, animal waste contains animal tissue and organs, Solid waste can be any wastes from the hospitals or labs like cotton, blood tubing, catheters etc. and cytotoxic drugs are used and old expired medicines.

50. Which of the following should not be mixed with other wastes to avoid contamination?

- a) Tarry residue
- b) Oily sludge
- c) Animal waste
- d) Vegetable oil

Answer: c

Explanation: Animal waste is a type of biomedical waste that contains animal tissue and organs and it is not safe for contamination with other wastes as they are infectious. Tarry residue, oily sludge, are hazardous waste of petrochemical processes which should be handled correctly and disposed of carefully without causing any damage to the environment, but it certainly is not infectious. Vegetable oil doesn't pose any threat as it's a kitchen waste and domestic wastes are biodegradable.

51. Which of the following is not a waste treatment method for biomedical wastes?

- a) Incineration
- b) Chemical disinfecting
- c) Autoclaving
- d) Sieving

Answer: d

Explanation: Sieving is a physical method of separation of bigger molecules and it cannot be used in a waste treatment method, whereas, incineration, chemical disinfecting, autoclaving, encapsulation are the methods used for waste treatment of biomedical wastes.

52. Which of the following requires special treatment of bacteria?

- a) Packaging of waste
- b) Labelling of waste
- c) Transport of waste
- d) Degradation of waste

Answer: d

Explanation: Degradation of waste especially biomedical wastes requires some special treatment of bacteria or other microorganisms, whereas, Packaging, labelling and transport of biomedical wastes should be done properly in order to avoid any hazardous contamination of the wastes with the environment and with humans that can be infectious.

53. Which of the following can be used to produce marketable compost from dry solid wastes?

- a) Aerobic composting
- b) Vermicomposting
- c) Anaerobic digestion

d) Anaerobic composting

Answer: a

Explanation: Aerobic composting is used to treat dry solid wastes which can thereby produce compost which can be readily marketed, vermicomposting is usually used to treat lignocellulosic waste, anaerobic composting and Anaerobic digestion are the same thing which is used to treat simple organic wastes, hence, Aerobic composting. Is most suitable for dry solid wastes.

54. Which of the following can be used to treat wastes with simple organic matter with high water content?

- a) Vermicomposting
- b) Aerobic composting
- c) Incineration
- d) Anaerobic digestion

Answer: d

Explanation: Vermicomposting is usually used to treat lignocellulosic waste which are also dry in nature, Aerobic composting is used to treat dry solid waste, Incineration is method to treat wastes by burning i.e. heat, Anaerobic digestion is used to treat wastes with simple organic matter and with high water content which thereby, degrades it and produces better marketable compost.

55. Genetically engineered microorganisms can treat biomedical wastes.

- a) True
- b) False

Answer: a

Explanation: Genetically engineered microorganisms can be used to treat biomedical wastes as it gives a new biological approach to treat the wastes which poses a great threat to the human health. Moreover, it is more environment friendly than any other methods. It can be used to convert the toxic wastes to non-hazardous and non-toxic form.

56. Which of the following characteristics is not important to hazardous wastes?

- a) Quantity
- b) Concentration
- c) Color
- d) Physical or chemical properties

Answer: c

Explanation: Quantity, concentration, physical or chemical properties or infectious characteristics are important to hazardous wastes as they define their properties and categories them into solid wastes that are hazardous to the next environment or humans. But color is not a very important property to define the characteristics of hazardous wastes as it doesn't interfere with the property.

57. Which of the following is not an ill-effect of improper handling of hazardous waste?

- a) Increase in mortality rate
- b) Irreversible illness
- c) Threat to the environment
- d) Decrease in mortality rate

Answer: d

Explanation: Increase in mortality rate, irreversible illness, threat to the environment and humans when not disposed of properly are several ill-effects of improper handling of hazardous waste. But this definitely doesn't decrease the mortality rate as it poses serious threats and potential hazard to human health.

58. It is the responsibility of the civilians to take care of the disposed of hazardous wastes.

- a) True
- b) False

Answer: b

Explanation: It is the prime responsibility of the operators or the occupier or the dweller to take care of the hazardous wastes, its disposal and handle it properly to avoid its adverse effect on the environment and human health under the law set by the Indian government.

59. Which of the following is not a serious hazardous characteristic of the waste?

- a) Toxicity
- b) Ignitability
- c) Corrosiveness
- d) Degradability

Answer: d

Explanation: Degradability is not a hazardous characteristic of the waste; it is always a good approach if the waste can be degraded safely without causing any major damage to the environment. But toxicity,

ignitability, corrosiveness and reactivity are a few serious hazardous characteristics of the waste, which if not treated poses serious health hazards and environmental damage.

60. Which of the following is not a hazardous waste of petrochemical processes?

- a) Tarry residue
- b) Oily sludge
- c) Slop oil
- d) Vegetable oil

Answer: d

Explanation: Tarry residue, oily sludge, slop oil, spent catalyst, organic residues, etc. are the hazardous waste of petrochemical processes which should be handled correctly and disposed of carefully without causing any damage to the environment. Vegetable oil doesn't pose any threat as it's a kitchen waste and not waste of petrochemical processes.

61. Which of the following is not generated in waste treatment processes?

- a) Sludge
- b) Ash
- c) Organic solvents
- d) Noise

Answer: d

Explanation: Noise is not a waste that is generated in the waste treatment processes as it is a sound which affects the environment but physically doesn't. And it is not generated in waste treatment processes. Whereas, sludge, ash, organic solvents are generated during various processes like incineration, wet scrubbers, distillation etc. These are generated in waste treatment processes and can be a serious threat to the environment if not disposed of properly.

62. In provision of the rules, which of the following is not appropriate with respect to the hazardous wastes?

- a) Packaging
- b) Labelling
- c) Transport
- d) Very expensive

Answer: d

Explanation: Packaging, labelling and transport of hazardous

wastes should be done properly in order to avoid any hazardous contamination of the wastes with the environment and with humans. But the cost price of the waste is irrelevant here as these factors deal with the handling of the wastes.

63. Spent hardening salt is a potentially hazardous waste in which of the following processes?

- a) Hardening of steel
- b) Hardening of rock salt
- c) Hardening of gold
- d) Hardening of coal

Answer: a

Explanation: Hardening of steel generates a hazardous waste i.e. Spent hardening salt, cyanide, nitrate and nitrate sludge which is very much hazardous to the environment and human health, so, it should be disposed of properly. But Hardening of rock salt, hardening of gold, hardening of coal doesn't produce the wastes listed above because of different processing.

64. Which of the following combination methods can be used to process hazardous wastes?

- a) Landfill
- b) Solidification
- c) Incineration
- d) Chemical oxidation

Answer: a

Explanation: Solidification, incineration, chemical oxidation, aerobic oxidation or anaerobic fermentation are the combination methods that can be used to process the hazardous wastes, designed to treat or dispose of the hazardous wastes safely. But landfill is also a method used to dispose of the hazardous waste but it is not a combination method.

65. What can be hazardous waste in the purification processes for organic solvents?

- a) Spent carbon
- b) Methane
- c) High water content
- d) Less water contents

Answer: a

Explanation: Hazardous waste in the purification processes for

organic solvents usually generate wastes like spent carbon, spent catalyst and filters with organic liquids in them. Methane, high water content, less water content, are the wastes generated in other treatment methods and not in the purification processes for organic solvents.

66. Flue gas dust is a hazardous waste of zinc production.

- a) True
- b) False

Answer: a

Explanation: Flue gas dust is a hazardous waste of the secondary zinc production specifically as, the hazardous waste in the production processes usually generate wastes like zinc fines, dust, ash and sludge and filter press cake out of zinc sulphate. Other wastes from zinc ash/gliding are also generated.

67. Which of the following is most suitable for dry wastes?

- a) Aerobic composting
- b) Anaerobic composting
- c) Closed vessel
- d) Anaerobic digestion

Answer: a

Explanation: Aerobic composting is usually used to treat the solid wastes which are generally dry in nature and not moist or wet wastes, whereas, anaerobic composting is used to degrade moist solid wastes which are very easy to degrade, and anaerobic digestion and Anaerobic composting is the same thing, and it is carried out under controlled temperature and high moisture control conditions, which takes place inside the vessel, a closed vessel.

68. Which of the following is an end product of anaerobic composting which is a source of energy?

- a) Biogas
- b) Alcohol
- c) Toxic products
- d) Amino acid

Answer: a

Explanation: Biogas can be used as a source of energy which is produced at the end of anaerobic fermentation, Alcohol and Amino acid are produced earlier in the fermentation process. Toxic products are eliminated from the process pre-composting to avoid

accumulation in the later processes.

69. The degradation rate of anaerobic digestion is higher than that of aerobic digestion.

- a) True
- b) False

Answer: a

Explanation: The degradation rate of anaerobic digestion is about 80% whereas that of aerobic digestion is 50%. So, in a way anaerobic digestion is more efficient but the amount of time consumption for the degradation depends on the substrate used and the process used.

70. Which of the following is a characteristic of anaerobic digestion?

- a) Low degradation rate
- b) Low odor emission
- c) Narrow suitability of wastes
- d) Gas phase

Answer: b

Explanation: Low degradation rate, high odor emission, narrow suitability of waste, Gas phase, these are the characteristic of aerobic digestion whereas in anaerobic digestion, the degradation rate is comparatively high, odor emission is low, it doesn't have Gas phase, only solid and liquid phase and wide suitability of wastes.

71. Which of the following is not a characteristic of aerobic digestion?

- a) Low degradation rate
- b) High odor emission
- c) Narrow suitability of wastes
- d) Post-treatment

Answer: d

Explanation: Post-treatment is usually not done in aerobic digestion whereas, in anaerobic digestion Post-treatment is most necessary and is done for about 2-8 weeks, but low degradation rate, high odor emission, narrow suitability of wastes, these are some of the characteristic of aerobic digestion including sanitation, costs etc.

72. Which of the following factor doesn't affect the growth of the technical expenditure?

- a) Odor
- b) Germs
- c) Methane formation
- d) Noise

Answer: c

Explanation: Methane formation or methanogenesis is a process in anaerobic fermentation. Hydrolysis converts organic matter, Acidification forms acetic acid and methanogenesis leads to methane. Since, this is an end product, it doesn't raise the technical expenditure. Whereas, Noise, germs, odor and dust can elevate the growth of technical expenditure if their emissions are not controlled.

73. Which of the following is not an advantage of aerobic composting?

- a) Simple process
- b) Low-cost
- c) Easy method
- d) Very expensive

Answer: d

Explanation: Aerobic composting is a very simple process which doesn't have any high technical expenditure and hence, its low cost. The regular maintenance cost is also low. The method is quite simple and easy to acclimatize. The whole Aerobic composting procedure is simple. So, this process is not so expensive.

74. In the arena of waste treatment, no process is the best.

- a) True
- b) False

Answer: a

Explanation: Waste treatment can be done by various processes, and a lot of different processes and inculcated for the treatment of solid or liquid wastes. Every process has some major advantage or disadvantage but this cannot be a deciding factor for the best process. So, it depends very much on the operational area, so, there is no best treatment, every treatment has its pros and cons.

75. Which of the following process is not used for waste treatment?

- a) Aerobic composting
- b) Anaerobic fermentation
- c) Nuclear imaging
- d) Vermicomposting

Answer: c

Explanation: Nuclear imaging is used in medical field to find answers to the medical problems like various diseases. Anaerobic fermentation, Aerobic composting and Vermicomposting are the processes used for waste treatment by using various methods and

techniques to degrade the waste from the environment.

76. What is a major advantage of anaerobic fermentation over aerobic composting?

- a) Human control
- b) Production of methane
- c) High water content
- d) Less water contents

Answer: a

Explanation: Human control is one of the major advantages of anaerobic fermentation over aerobic composting which can control the liquid and gaseous emissions, which is not the case for aerobic composting. High water content or low water content is irrelevant to this advantage. Also, the ability of re-use of methane by the engineers, in the process is a major advantage. So, in this case production of methane is not very relevant.

77. Which of the following condition is not suited for anaerobic treatment of solid wastes?

- a) Controlled temperature
- b) Controlled moisture
- c) Closed vessel
- d) Open vessel

Answer: d

Explanation: The anaerobic digestion of solid wastes is usually carried out under anaerobic conditions where the temperature is controlled and mainly high moisture control. This is usually carried out in a closed vessel to maintain temperature and particular conditions inside the vessel. Therefore, this digestion cannot be carried out in an open vessel.

78. Which of the following type of waste is best suited for anaerobic treatment of solid wastes?

- a) Readily biodegradable compounds
- b) Less moisture content
- c) Less degradable
- d) High temperature content

Answer: a

Explanation: Readily biodegradable compounds and wastes with high moisture content are best suited for anaerobic treatment as the anaerobic digestion of wastes is carried out under anaerobic

conditions where the temperature and moisture is controlled. So, moisture content is high and is highly degradable and temperature need not be very high.

79. The technological potential of the biological wastes has been fully exhausted.

- a) True
- b) False

Answer: b

Explanation: The technological potential of the degradation of biological wastes by fermentation has not been fully exhausted yet as a huge amount of energy and scientific techniques have been implemented in this process with wider developmental and optimization. This makes the process quite new and young.

80. Which of the following is the most important product of anaerobic digestion?

- a) Biogas
- b) Acetic acid
- c) Amino acid
- d) Calcium

Answer: a

Explanation: Biogas is the most important product of anaerobic digestion where organic matter is converted into simpler components by fermentation process. The entire process is divided into three steps i.e. hydrolysis, acidification and methane formation. This last steps generates biogas which is one of the most important product. In the acidification process acetic acid is produces and Amino acid is also produced during the process but in much earlier step and is not the most important product of anaerobic digestion. Calcium is not produced in any of the steps.

81. Which of the following has less organic matter load?

- a) Marshlands
- b) Marine sediments
- c) Landfill sites
- d) Fresh water

Answer: d

Explanation: Fresh water has the lowest organic matter load, and Marshlands, Marine sediments, Landfill sites, rice fields are the areas with the highest organic matter load. So, organic matter loading is an

important parameter of anaerobic digestion. Anaerobic digestion is carried out by various bacteria involved in three major steps of anaerobic digestion.

82. Which of the following is not an important step of anaerobic digestion?

- a) Hydrolysis
- b) Acidification
- c) Methane formation
- d) De-acidification

Answer: d

Explanation: De-acidification is not carried out in anaerobic digestion. Anaerobic digestion is carried out by various bacteria involved in three major steps of anaerobic digestion. The entire process is divided into three steps that is hydrolysis, acidification and methane formation or methanogenesis. Hydrolysis converts organic matter; Acidification forms acetic acid and methanogenesis leads to methane.

83. Which of the following causes decomposition of water-insoluble biopolymers?

- a) Hydrolysis
- b) Acidification
- c) Esterification
- d) Methanogenesis

Answer: a

Explanation: Hydrolysis using various extracellular enzymes can breakdown water-insoluble biopolymers like monosaccharides, glycerin, fatty acid etc. Acidification can begin with the product of previous reaction and hence, is depended on Hydrolysis, methanogenesis leads to methane formation. And Esterification combines organic acid with alcohol.

84. Continuous fermentation necessitates continuous loading and discharge.

- a) True
- b) False

Answer: a

Explanation: High amount of substrate or organic matter is fed into the fermenter for Continuous fermentation. A fully mixed and plug flow system is available in the fermenters which helps in the process.

The waste should be able to flow and uniform, this enables continuous biogas formation and stable operation of continuous fermentation. Therefore, continuous loading and discharge of waste is a necessity.

85. What is the third step for the anaerobic processing of organic wastes?

- a) Homogenization
- b) Active feeding
- c) Drying under adequate light
- d) Anaerobic fermentation

Answer: d

Explanation: Anaerobic fermentation is the third step for anaerobic processing of organic wastes where the wastes are shredded into the fermenter for anaerobic digestion which is degraded in the process. Homogenization is the break it down of wastes into simpler molecules, whereas, active feeding or Drying under adequate light is not carried out as it's a closed vessel in anaerobic processing.

86. What is the dry fermentation process?

- a) Water content between 55%-75%
- b) Water content between 85%-95%
- c) Water content between 80%-85%
- d) Water content between 0%-15%

Answer: a

Explanation: Water content between 55%-75% is the most suitable for dry fermentation process with different moisture content for fermentation in the fermenters under anaerobic processing, whereas, Water content between 0%-15% is very dry and the solid wastes cannot be processed by dry fermentation process of anaerobic digestion, water content between 85%-95% and water content between 80%-85% is usually categorized as wet fermentation.

87. Which was the first city to an established system of waste removal?

- a) Lahore
- b) Athens
- c) Paris
- d) London

Answer: b

Explanation: In ancient cities, food scraps and other waste were simply thrown onto the unpaved streets where they accumulated and

cause various diseases. Around 320 BC in Athens, the first known law forbidding this practice was established.

88. Why burning waste is not an acceptable practice of solid waste management?

- a) Because it is very costly
- b) Because it requires modern technologies
- c) Because it cause several environmental issues
- d) Because it requires lot of space

Answer: c

Explanation: Burning waste is not an acceptable practice, because if we look into environmental or health prospective burning waste creates lots of pollution and it is harmful to both environment and as well as organisms.

89. What plan should we make to the disposal of solid waste?

- a) Integrated waste management plan
- b) Recycling of waste management plan
- c) Reducing of waste management plan
- d) Use of waste management plan

Answer: a

Explanation: The disposal of solid waste should be part of an integrated waste management plan. This integrated solid waste management is the method of collection, processing, resource recovery and final disposal of solid waste.

90. The term 'Municipal Solid Waste' is used to describe which kind of solid waste?

- a) Hazardous
- b) Toxic
- c) Non hazardous
- d) Non toxic

Answer: a

Explanation: The term 'municipal Solid Waste' is generally used to describe most of the non-hazardous solid waste from a city, town or village that requires routine collection and transport to a processing or disposal site.

91. How many main components are there in integrated waste management?

- a) One
- b) Two

- c) Three
- d) Four

Answer: c

Explanation: An integrated waste management strategy includes three main components they are source reduction, recycling and disposal. All these three types plays an important role in the solid waste management.

92. Municipal Solid Waste (MSW) contains a wide variety of materials.

- a) True
- b) False

Answer: a

Explanation: MSW contains a wide variety of materials. It can contain food waste which is classified as wet garbage and paper, plastic, tetra packs, plastic cans, glass bottles, metal items, wood pieces, aluminum foil and many more items.

93. Which of the integrated waste management is reduced on an individual level?

- a) Source reduction
- b) Recycling
- c) Disposal
- d) Burning

Answer: a

Explanation: Source reduction is one of the fundamental ways to reduce waste. On an individual level, we can reduce the use of unnecessary items while shopping, avoid buying disposable items and avoid using plastic carry bags.

94. Which of the following can be recycled many times?

- a) Plastic
- b) Wood
- c) Organic materials
- d) Aluminum

Answer: d

Explanation: Recycling is reusing some components of the waste that has some economic value. Aluminum can be recycled many times. Mining of new aluminum is expensive hence recycling of aluminum plays a significant role in aluminum industry.

95. Why plastics are difficult to recycle?

- a) Because it is a very hard material
- b) Because it is very adhesive in its nature
- c) Because of different types of polymer resins
- d) Because of different sizes of plastic

Answer: c

Explanation: Plastic are difficult to recycle because of the different types of polymer resins in their production. Since each type has a distinct chemical composition, different plastics cannot be recycled together.

96. How many key characteristics of a municipal sanitary landfill are there?

- a) One
- b) Two
- c) Three
- d) Four

Answer: c

Explanation: The three key characteristics of a municipal sanitary landfill that distinguish it from an open dump are: Solid waste is placed in a suitably selected and prepared landfill site, the waste material is spread out and compacted with appropriate heavy machinery, the waste is covered each day with a layer of compacted soil.

96. How does organic material in the buried solid waste will decompose?

- a) By the action of oxidation
- b) By the action of microorganisms
- c) By the flow of water
- d) By the soil particles

Answer: b

Explanation: The organic material in the buried solid waste will decompose due to the action of microorganisms. At first the waste decomposes aerobically until the oxygen that was present in the freshly placed fill is used up by the aerobic microorganisms.

97. What is called for the process of burning municipal solid waste in a properly designed furnace under suitable temperature and operating conditions?

- a) Landfill
- b) Recycling

- c) Vermicomposting
- d) Incineration

Answer: d

Explanation: Incineration is a chemical process in which the combustible portion of the waste is combined with oxygen forming carbon dioxide and water, which are released into the atmosphere. Suitable temperature and operating conditions are required to achieve for incineration.

98. Why the recycled paper is banned for use in food containers?

- a) Because it creates contamination
- b) Because it creates a lot of spaces
- c) Because paper can be used only one time
- d) Because paper is very thick and can't cover the food containers

Answer: a

Explanation: Recycled paper is banned for use in food containers to prevent the possibility of contamination. It very often costs less to transport raw-paper pulp than scrap paper. Collection, sorting and transport account for about 90% of the cost of paper recycling.

99. Landfilling is an economic alternative for solid waste disposal and it can be implemented easily.

- a) True
- b) False

Answer: a

Explanation: Although land filling is an economic alternative for solid waste disposal, it becomes increasingly difficult to find suitable landfilling sites within economic hauling distance. There will be a danger of some environmental damage in the form of leakage of leachate. Sanfoundry Global Education & Learning Series – Energy & Environment Management.

100. Identify a Sort of Plan That We Should Make to the Disposal of Solid Waste from the Given Ones?

- The integrated waste management plan
- Recycling of waste management plan
- Reducing the waste management plan
- Use of waste management plan

Answer: (a)

Explanation

Solid waste disposal should be part of an integrated waste

management plan. This integrated solid waste management method is a plan of collection, processing, resource recovery, and final disposal of solid waste.

101. The 'Municipal Solid Waste' Is the Term Used to Describe Which Kind of Solid Waste?

Hazardous

Toxic

Non-hazardous

Non-toxic

Answer: (a)

Explanation

Generally, the 'Municipal Solid Waste' term is used to describe most of the non-hazardous solid waste from a Village, Town, or City that requires a daily collection and transport to a disposal site or to processing.

102. Identify the Following Ones Which Can Be Recycled Many Times?

Plastic

Wood

Organic materials

Aluminum

Answer: (d)

Explanation

Recycling means, reusing some of the components of the waste that has some economic value. Aluminum can be recycled as many times as we want. The mining of new aluminum is quite expensive, and hence recycling of aluminum plays a vital role in the aluminum industry.

103. Why Do Plastics Fall Under a Difficult Material to Recycle?

Because it is a very hard material

Because plastic is very adhesive in its nature

Because of different types of polymer resins

Because of the different sizes of plastic

Answer: c

Explanation

Plastic is a very difficult material to recycle due to various or mixed types of polymer resins in their production. Since each plastic type has a distinct chemical composition, different plastic materials cannot be

recycled together.

104. How Does an Organic Material Decompose in the Buried Solid Waste?

By the action of microorganisms

By the action of oxidation

By the soil particles

By the flow of water

Answer: (a)

Explanation

The organic material will decompose in the buried solid waste due to the action of microorganisms. At first, the waste aerobically decomposes until the oxygen present in the freshly placed fill is used up by the aerobic microorganisms.

105. What is Called for the Method of Burning Municipal Solid Waste in a Properly Designed Furnace Under Operating Conditions and Suitable Temperature?

Landfill

Recycling

Vermicomposting

Incineration

Answer: (d)

106. Why is Recycled Paper Banned for Usage in Food Containers?

Because paper is used only one time

Because it creates contamination

Because the paper is very thick and it cannot cover the food containers

Because it creates a lot of spaces

Answer: (b)

107. Identify the Wastes That Are Known as the Municipal Solid Waste (MSW) from the Following?

Wood pieces

Plastic cans

Food wastes

All of the above

Answer: (d)

108. The Wastes Burning Is Not an Acceptable Practice of Solid Waste Management Because _____?

It requires a lot of space

It requires modern technologies

It causes several environmental issues

It is very costly

Answer: (c)

109. Which of the Following Ones Is the Simplest and Most Common Method Used in the Cities to Dump the Wastes That Are Collected?

River

Ocean

Landfill

None of the above

Sol:(c)

110. When the Matter Present Inside the Sanitary Landfill Breaks Down, Which of the Following Gas Generates?

Methane

Nitrogen

Hydrogen

All of the above

Answer: (a)

111. Identify the Correct One from the Given List About Wastes?

There is no real waste in nature

The apparent wastes collected from one process becomes the input to another

All processes of consumption and production produce waste

All of the above

Sol:(d)

112. Which of the Following Methods is a Good One in Dealing With the Solid Waste Problem?

Landfilling

Recycling

Both a and b

None of the above

Sol: (b)

113. _____ is the separation of biodegradable waste from non-biodegradable waste for proper disposal and recycling.

a) Separation

b) Segregation

c) Removal

d) Composting

Answer: b

Explanation: Segregation is the separation of biodegradable waste from non-biodegradable waste for proper disposal and recycling.

Improper segregation may cause mixing in landfills.

114. What is the amount of waste generated in urban India per day?

- a) 155500
- b) 188500
- c) 175800
- d) 168500

Answer: b

Explanation: Urban India produces up to 188,500 tonnes of waste per day. Segregation and disposal is a major part of disposing of this waste.

115. Proper segregation can lead to mixing in landfills.

- a) True
- b) False

Answer: b

Explanation: Improper segregation may cause mixing in landfills. Methane gas is likely to be released in such circumstances, which is one of the most harmful greenhouse gases.

116. Methane gas is released due to _____

- a) Proper segregation
- b) Improper segregation
- c) Disposal
- d) Dumping

Answer: b

Explanation: Methane gas is likely to be released in such circumstances where improper mixing takes place, which is one of the most harmful greenhouse gases.

117. Garbage is liquid waste.

- a) True
- b) False

Answer: b

Explanation: Garbage is not a liquid waste. It is a solid or semi-solid waste from preparing, cooking food and serving, etc. It does not include rubbish.

118. _____ is the solid or semi-solid waste incidental to preparing, cooking, and serving food and cleaning of food service items.

- a) Rubbish
- b) Waste
- c) Garbage
- d) Dirt

Answer: c

Explanation: Garbage is classified into two types. They are edible and non-edible. Edible garbage can be fed to animals, like scrap meat and vegetables.

119. _____ consists of wastes originating from various food facilities.

- a) Compost
- b) Manure
- c) Rubbish
- d) Garbage

Answer: c

Explanation: Rubbish consists of wastes which originate in food service facilities, barracks, wards, quarters and offices. Rubbish may be classified as combustible or non-combustible depending upon whether or not it can be burned.

119. How many types of rubbish waste are present?

- a) 1
- b) 2
- c) 3
- d) 4

Answer: b

Explanation: Rubbish may be classified as combustible or non-combustible depending upon whether or not it can be burned.

120. How many types of garbage wastes are present?

- a) 2
- b) 3
- c) 4
- d) 5

Answer: a

Explanation: Garbage is classified into two types. They are edible and non-edible. Edible garbage can be fed to animals, like scrap meat and vegetables. Non-edible garbage cannot be fed to animals, like tea leaves, bones, etc.

121. What is the minimum depth of the landfill required?

- a) 1.5 m
- b) 1.6 m
- c) 1.7 m
- d) 1.8 m

Answer: d

Explanation: Sites should be selected where the soil can be excavated to a minimum depth of 1.8 m. Clay-like soils or any soil that can form a seal over the compacted refuse can be acceptable.

122. What is the area of land required for 4000 people for disposal of waste?

- a) 1.25 hectares
- b) 1.5 hectares
- c) 1.75 hectares
- d) 2.0 hectares

Answer: a

Explanation: There should be at least 1.25 hectares per year for each 4000 personnel when the fill is to be 1.8 meters (m) deep.

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