

**NADAR SARASWATHI COLLEGE OF ENGINEERING AND TECHNOLOGY, THENI.**

<b>Course/Branch</b> : B.E/Civil	<b>Year / Semester</b> :IV/VII	Format No.	NAC/TLP-07a.13
<b>Subject Code</b> :EN8591	<b>Subject Name</b> : Municipal Solid Waste Management	Rev. No.	02
<b>Unit No</b> : V	<b>Unit Name</b> : Waste Disposal	Date	30.09.2020

**OBJECTIVE TYPE QUESTION BANK**

S.No.	Objective Questions (MCQ /True or False / Fill up with Choices )	BTL
<b>Unit-V / Waste Disposal</b>		
Land disposal of solid waste- Sanitary landfills – site selection, design and operation of sanitary landfills – Landfill liners – Management of leachate and landfill gas- Landfill bioreactor – Dumpsite Rehabilitation		
1.	What is a Geo-net a) <b>A synthetic material used for drainage of liquids</b> b) A synthetic material used for drainage of Gases c) A ceramic material used for drainage of liquids d) A fibrous material used for drainage of liquids	L1
2.	Which of the following gas is produced from landfill wastes? a) Natural gas b) <b>bio-gas</b> c) Liquified petroleum gas d) All of the above	L1
3.	How many types of landfills are there? a) <b>3</b> b) 2 c) 5 d) 4	L2
4.	Which gas produced in open dumps from the decomposition of biodegradable waste? a) Ethane b) <b>Methane</b> c) Propene d) Ethene	L1
5.	What plan should we make to the disposal of solid waste? a) <b>Integrated waste management plan</b> b) Recycling of waste management plan c) Reducing of waste management plan d) Use of waste management plan	L2
6.	How many key characteristics of a municipal sanitary landfill are there? a) One b) Two c) <b>Three</b> d) Four	L2
7.	How does organic material in the buried solid waste will decompose? a) By the action of oxidation b) <b>By the action of microorganisms</b> c) By the flow of water d) By the soil particles	L2
8.	Land filling is an economic alternative for solid waste disposal and it can be implemented easily. a) <b>True</b>	L3

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	b) False	
<b>9.</b>	In which method of disposal of municipal solid waste, the waste is dumped in the soil? a) Incineration b) Composting <b>c) Land filing</b> d) Shredding.	L1
<b>10.</b>	Which of the following is correct regarding disposal of waste by land filling? a) Economical method b) Preferred in low lying areas <b>c) Foul gases are not produced</b> d) Separation of different types of waste not required	L1
<b>11.</b>	The process of decomposition of biodegradable solid waste by earthworms is called _____ a) Land fills b) Shredding <b>c) Vermi-composting</b> d) Composting	L4
<b>12.</b>	Which of the following is not the land filling method? <b>a) Bangalore method</b> b) Area method c) Depression method d) Trench method.	L1
<b>13.</b>	. _____ is a liquid that passes through solid waste and extracts suspended impurities from it. <b>a) Leachate</b> b) Sludge c) Distilled water d) Municipal waste	L1
<b>14.</b>	Which of the following waste can be decomposed by bacteria? a) Radioactive substance b) Ashes <b>c) Food waste</b> d) Rubbish	L1
<b>15.</b>	what is the PH value of normal rain? (a) 1 <b>(b) 5.6</b> (c) 8 (d) 7	L1
<b>16.</b>	<b>What is true about Aerobic bacteria?</b> (a) Flourish in the presence of free oxygen (b) Consume organic matter as their food (c) Oxidise organic matter in sewage <b>(d) All</b>	L2

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<b>17.</b>	<p><b>How are electronic items dangerous?</b>                  A. They degrade over time, releasing cancer-causing chemicals into the air.                  B. Lead and mercury in components can cause metabolic changes in users.  <b>C. They leach toxic metals in landfills and into ground water.</b>                  D. They create electromagnetic fields that interfere with animal reproduction.</p>	L2
<b>18.</b>	<p>For a selected landfill site, if water table is within 2.0 m to 6.0 m, which of the following liner is opted?                  a) Single  <b>b) Double</b>                  c) Triple                  d) Multi-liner</p>	L5
<b>19.</b>	<p>Single composite liner system has a leachate collection layer of thickness _____ cm.                  a) 10                  b) 20  <b>c) 30</b>                  d) 40</p>	L1
<b>20.</b>	<p>Single composite liner comprise compacted clay layer of thickness _____ cm.                  a) 100  <b>b) 150</b>                  c) 200                  d) 250</p>	L1
<b>21.</b>	<p>What is the coefficient of permeability in double composite liner system?  <b>a) <math>10^{-2}</math></b>                  b) <math>10^{-3}</math>                  c) <math>10^{-4}</math>                  d) <math>10^{-5}</math></p>	L1
<b>22.</b>	<p>Double composite liner comprise compacted clay layer of thickness _____ cm.                  a) 100  <b>b) 45</b>                  c) 20                  d) 25</p>	L1
<b>23.</b>	<p>A layer of local top solid which provisions self-sustaining vegetation should have thickness of ____ cm.                  a) 50  <b>b) 60</b>                  c) 70                  d) 80</p>	L1
<b>24.</b>	<p>Which of the following is the most important variable in the construction of soil liners?  <b>a) Type of compaction</b>                  b) Permeability                  c) Flammability                  d) Ignitability</p>	L1
<b>25.</b>	<p>Excavation of soil in a location for liner is known as _____ pit.</p>	L1

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	a) Dig b) <b>Borrow</b> c) Barrow d) Excavated	
<b>26.</b>	Bentonite is mixed when there is not enough clay available at a site to construct a soil liner. a) <b>True</b> b) False	L1
<b>27.</b>	Which among the following is used as clay material for clay liner? a) <b>Kaolinite</b> b) Lead c) Sulphur d) Bromide.	L1
<b>28.</b>	What is the design permeability of the clay liner? a) <b><math>10^{-8}</math></b> b) $10^{-9}$ c) $10^{-10}$ d) $10^{-11}$	L2
<b>29.</b>	PVC liners are suitable for landfills. a) <b>True</b> b) False	L1
<b>30.</b>	Drainage pipes of leachate collection system is filled with _____ a) <b>Gravel</b> b) Dust c) Clay d) Grass	L1
<b>31.</b>	What should be the slope percent between primary and secondary liners? a) 1 b) <b>2</b> c) 3 d) 4	L2
<b>32.</b>	What is the formula for quantification of leachate generation from landfill? a) <b><math>I = P - P (CR/O) - AET +/- S</math></b> b) $P = I - P (CR/O) - AET +/- S$ c) $I = S - P (CR/O) - AET +/- P$ d) $I = P - S (CR/O) - AET +/- Y$	L2
<b>33.</b>	The lateral leachate collection pipes shall slope towards _____ pipe. a) Sump b) Drain c) <b>Main</b> d) Longitude	L1
<b>34.</b>	Facilities with landfills and land treatment units are required to notify the EPA _____ days prior to the date they intend to begin partial or final closure. a) 20	L1

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	b) 40 c) <b>60</b> d) 80	
35.	What is the standard post-closure care period? a) 10 b) 20 c) <b>30</b> d) 40	L2
36.	What is the purpose of risk based clean closure memo? a) Analysis b) Storage rules c) <b>Guidance on risk based closure</b> d) Adopt risk based closure	L2
37.	A prohibited waste should not be disposed on _____ according to LDR. a) <b>Land</b> b) Air c) Water d) Facility	L1
38.	Landfills are engineered for liquid waste. a) True b) <b>False</b>	L1
39.	How many types of landfills are there? a) <b>3</b> b) 2 c) 5 d) 4	L1
40.	In a leachate collection system, what is the slope of linear? a. 2-5% b. <b>2-8%</b> c. 2-9% d. 2-10%	L1
41.	How do you remove leachate from the landfill? a. By Gravity b. By pumping from low points c. <b>Both (a) and (b)</b> d. None of the above	L2
42.	In a double liner system, what is the depth and coefficient of permeability for compacted soil? a. 2ft and $K \leq 10^{-6}$ cm/sec b. <b>3ft and <math>K \leq 10^{-7}</math> cm/sec</b> c. 2ft and $K \leq 10^{-7}$ cm/sec d. 3ft and $K \leq 10^{-6}$ cm/sec	L5
43.	Landfills are de-facto choice for waste management and they cause lots of	L1

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	problem for the environment <b>a. True</b> b. False	
<b>44.</b>	What are the phases of landfill stabilization? a. Preliminary aerobic-Methane forming-Acid forming-Final aerobic b. Preliminary aerobic-Acid forming-Methane forming-Final aerobic c. Preliminary aerobic-Acid forming-Methane forming-Final aerobic <b>d. Preliminary aerobic-Acid forming-Methane forming-Final aerobic</b>	L
<b>45.</b>	Expand TCLP a. Toxic characteristic leaching process b. Toxicity characteristic leachate procedure c. Toxic characteristic leachate process <b>d. Toxicity characteristic leaching procedure</b>	L1
<b>46.</b>	What is the sample particle size, time and rpm of rotation for conducting TCLP test? a. < 1mm, 18 hrs, 30 rpm b. > 1cm, 180 min, 300 rpm c. > 1mm, 180 min, 300 rpm <b>d. &lt; 1cm, 18 hrs, 30 rpm</b>	L2
<b>47.</b>	What should be the pH of TCLP Fluid#1(acetic acid+NaOH) a. $4.93 \pm 0.01$ b. $4.93 \pm 0.5$ <b>c. <math>4.93 \pm 0.05</math></b> d. $4.93 \pm 0.1$	L2
<b>48.</b>	What conditions does TCLP simulate? a. Acid Rain <b>b. Worst case acid forming condition of MSW Landfill</b> c. Green house d. Eutrophication	L2
<b>49.</b>	What does landfill gas contain? <b>a. Methane</b> b. Carbon monoxide <b>c. Water vapor</b> <b>d. Hydrogen sulfide</b>	L
<b>50.</b>	Why do we bother with landfill gas? <b>a. Toxics</b> <b>b. Potential energy source</b> <b>c. Green house gases</b> d. Inflammability	L2
<b>51.</b>	Which of the following relates to mechanism for Gas to leave the Landfill? <b>a. Pressure gradient</b> <b>b. Wells provide path to escape</b> c. Clay Liners	L1

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	d. Perforated Drains	
52.	Which of the following are the physical characteristic of solid waste <b>a. Bulk density</b> <b>b. Specific Gravity</b> <b>c. Moisture content</b> <b>d. Solids Content</b>	L1
53.	For site investigations at contaminated sites; we adopt a coarse grid of sampling locations in first stage, followed by a finer grid in a subsequent stage, when: (a) area of site is small <b>(b) area of site is large</b> (c) concentration of contaminant is low (d) concentration of contaminant is high.	L1
54.	Most important property of geonet for its use in a landfill that helps is collection of leachate is a) Strength <b>b) Transmissivity in horizontal direction</b> c) Permeability d) None	L1
55.	In the design of a landfill system “what is the purpose of a cap system” a) Keep landfill gas out b) To keep leachate in <b>c) To keep rainwater out</b> d) To compress daily waste	L1

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