



Visvesvaraya Technological University

Belagavi, Karnataka - 590 018



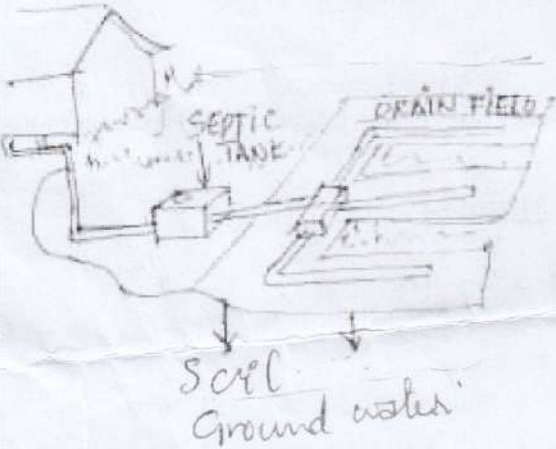
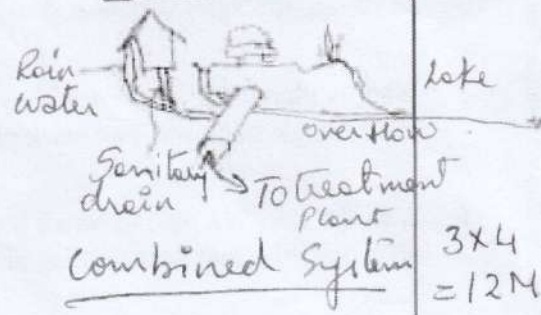
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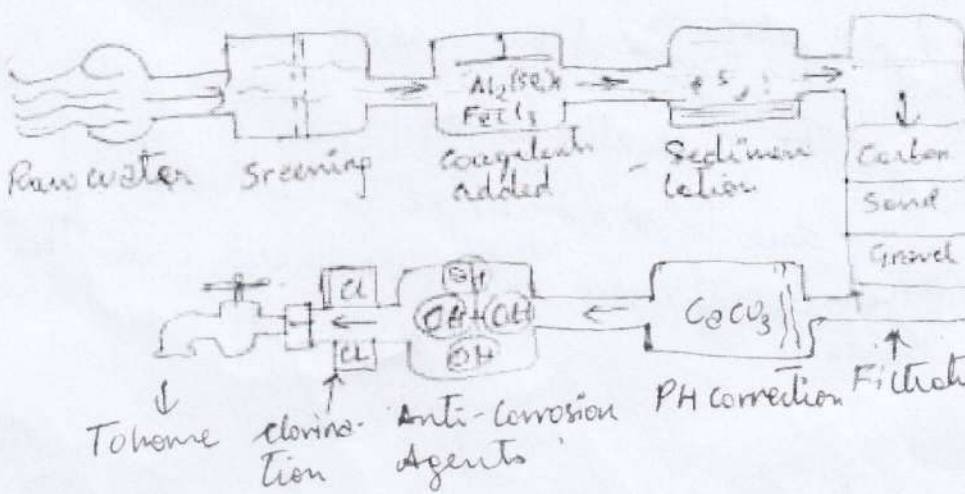
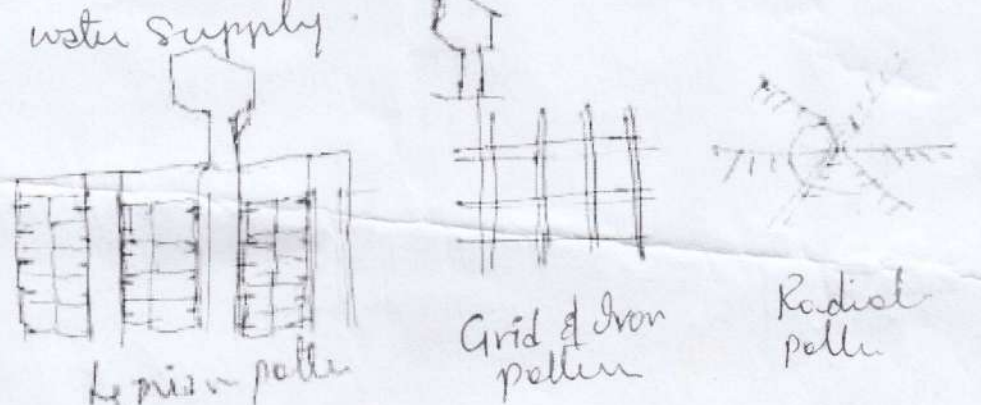
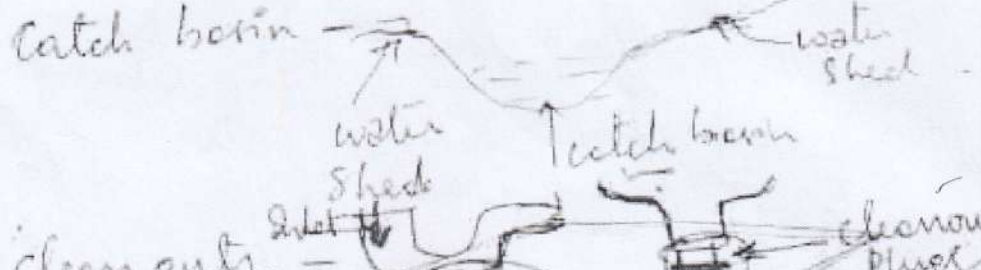
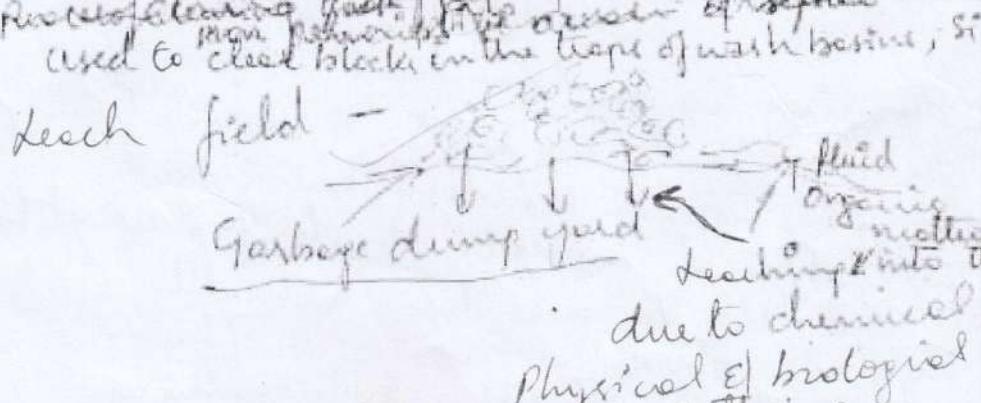
Scheme & Solutions

Signature of Scrutinizer

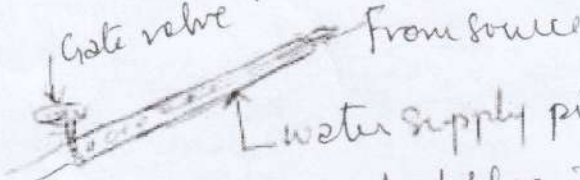
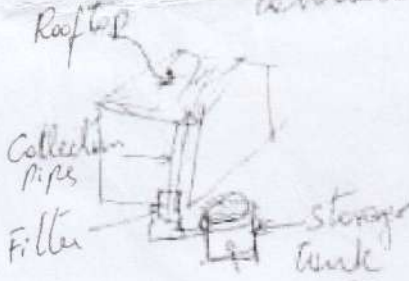
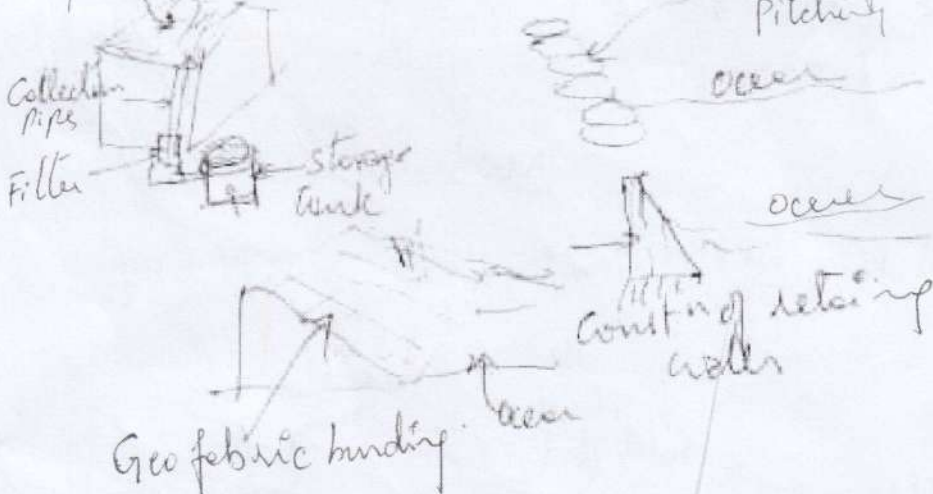
Subject Title : Building Services 1

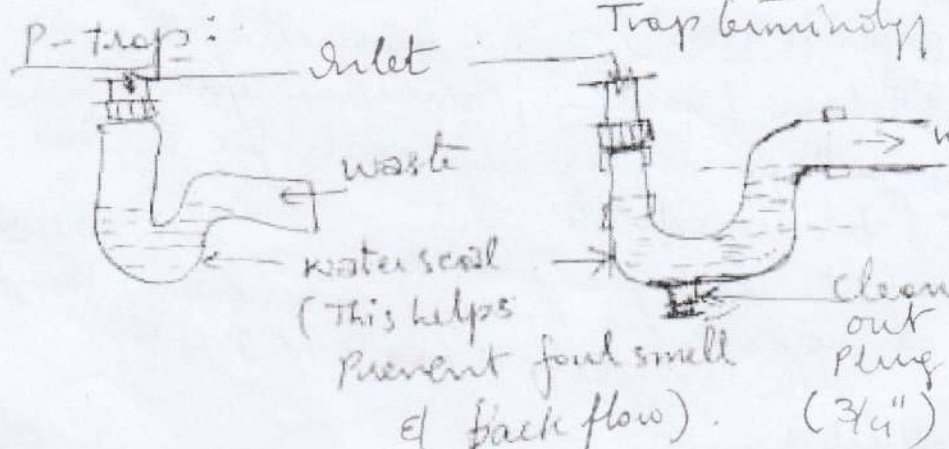
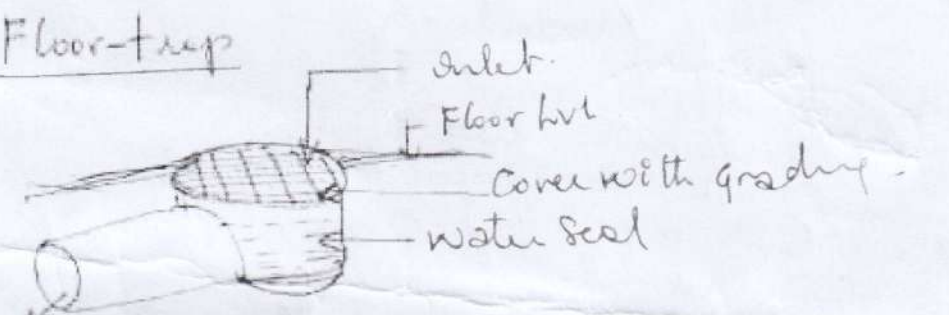
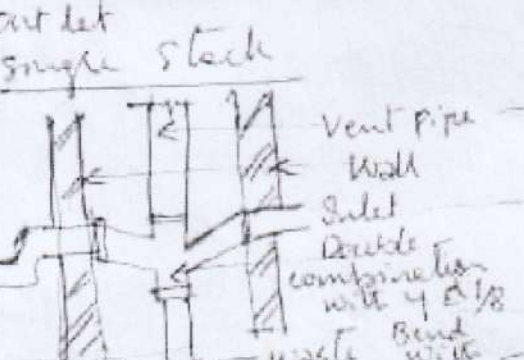
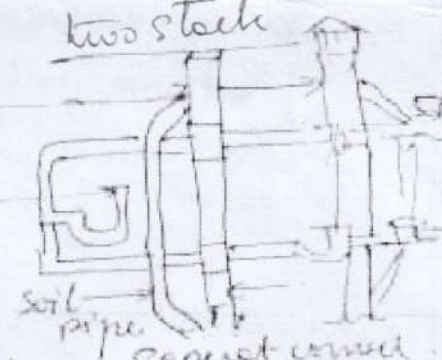
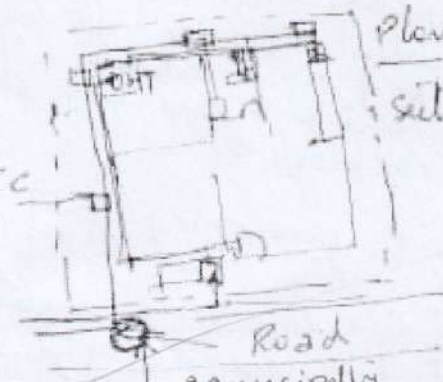
Subject Code : 18AR04-3

Question Number	Solution	Marks Allocated
1. a	<p>Conservancy System</p>  <p>SEPTIC TANK DRAIN FIELD Soil Ground water</p> <p>Carriage System</p> <p>Rain water Household Waste Water Pipe Storm Drain Lake Michigan overflow Sanitary sewer To lake treatment plant Separated system</p>  <p>Rain water Sanitary drain To treatment plant Combined System Lake overflow</p>	<p>3x4 = 12M</p>
b.	<p>Water Sources.</p> <ul style="list-style-type: none"> <li>• surface water — rivers, ponds, lakes etc. 2</li> <li>• Ground water — wells, tube wells. 2</li> <li>• Rain water — Rain water storage, Harvesting 2</li> <li>• desalinated water — Ocean water processing Armedly to portable water. 2</li> </ul> <p>Water supply — (Renewable Capacity &amp; Demand) → available ground water → Ground water recharge</p>	<p>= 8M.</p>

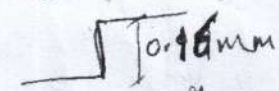
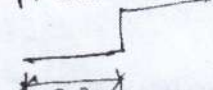

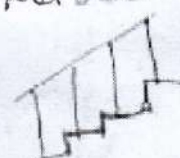
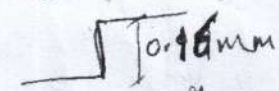
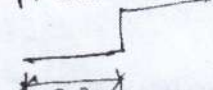

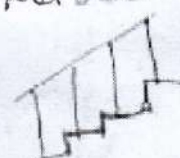
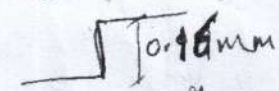
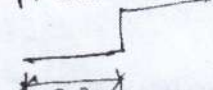

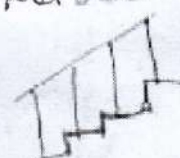
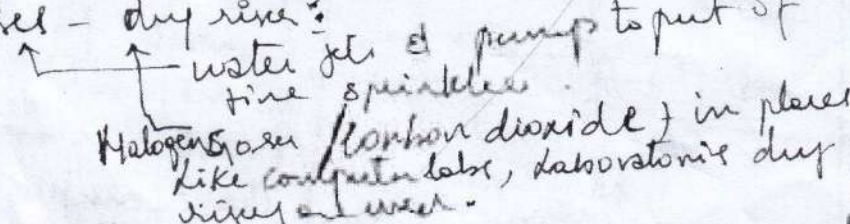
Question Number	Solution	Marks Allocated
2001	 <p>Raw water screening → Al<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub> FeCl<sub>3</sub> (Coagulants added) → Sedimentation → Filtration (Carbon, Sand, Gravel) → PH correction (CaCO<sub>3</sub>) → Anti-corrosion Agents (Cl<sub>2</sub>) → To home chlorination</p>	12m
b.	 <p>Water supply → Levee pattern → Grid of Iron pattern → Radial pattern</p>	8m
<u>Module - 2</u>		
3.	 <p>Catch basin, water shed, clean outs, inlet, outlet, cleanout plug</p>	5m
	<p>used to clear blocks in the traps of wash basins, sinks, laundry, etc.</p>  <p>Leach field, Garbage dump yard, Fluid, Organic matter, Leaching into the ground</p> <p>due to chemical Physical &amp; biological weathering</p>	5m



Question Number	Solution	Marks Allocated
d.	 <p>due to air bubbles in the there are chances of water getting reversed into the source.</p>	5m.
4.	 <p>Asphalted roads with out permeability which cannot be collected / can be connected to water source.</p>	5m
5.	 <p><u>Module - 3</u></p> <p>Plumbing is the term used to provide services such as water &amp; sanitation for any type of building based on the technical aspects of its functionality. This help to maintain a health &amp; hygienic conditions in a building.</p> <p>(Sewage - Stormwater - water supply)</p>	15m
		3M

Question Number	Solution	Marks Allocated
5.	<p><u>P-trap:</u></p>  <p><u>Floor-trap</u></p>  <p><u>out let single stack</u></p>  <p><u>two stack</u></p> 	<p>4m</p> <p>4m</p> <p>4.5m + 4.5m</p>
6.	<p><u>Plan Section</u></p> 	<p><u>Module 4</u></p> <p>7. The process of collection &amp; disposal (save) of dry waste / wet waste &amp; E-waste from the source to the disposal points is waste management - (5)</p> <p>The classification &amp; disposal should be narrated with examples (10)</p>



Question Number	Solution	Marks Allocated								
8.	<p>organic waste - Is generated through kitchen / garden / agriculture lands this is categorised as wet waste too &amp; this is biodegradable - 0</p> <p>This can be converted to compost &amp; used as manure for garden &amp; agriculture land (with sketches it has to be explained in detail) -</p>	<p>(10)</p> <p>(10)</p>								
<p><u>Module - 5</u></p>										
92.	<p>Hazards of fire accidents which can be fatal has to be handled with precautionary measures. The equipment to <del>cease</del> <sup>prevent</sup> fire in case of accidents have to be handy - (This has to be explained in detail with sketches).</p>	<p>10m</p>								
b.	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; width: 25%;">Risee</td> <td style="text-align: center; width: 25%;">Tread</td> <td style="text-align: center; width: 25%;">Landig</td> <td style="text-align: center; width: 25%;">Raiise</td> </tr> <tr> <td style="text-align: center;">                       not more than 0.16m - 0.09m -                 </td> <td style="text-align: center;">                       * 230mm not less than 0.15m                 </td> <td style="text-align: center;">                       not less than 0.75m                 </td> <td style="text-align: center;">                       not less than 1m                 </td> </tr> </table>	Risee	Tread	Landig	Raiise	 not more than 0.16m - 0.09m -	 * 230mm not less than 0.15m	 not less than 0.75m	 not less than 1m	<p>2x4</p> <p>8m</p>
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 not more than 0.16m - 0.09m -	 * 230mm not less than 0.15m	 not less than 0.75m	 not less than 1m							
10-i.	<p>Fire alarm - has smoke detector it is installed in every building which <del>more</del> <sup>is</sup> more than 4+3 storey and building which are prone to fire accidents. These alarm with help of smoke detector will start ringing giving alert of a fire outbreak.</p>	<p>5</p>								
ii.	<p>wet riser - dry riser:</p> <p style="margin-left: 40px;">  </p>	<p>5+5</p>								
iii.	<p>zones. should be clearly demarked from smoke zone to non-smoke zone - the fire proof zone should lead to Fire escape stairs Emergency exit etc -</p>	<p>5m</p>								