

**Paper = Environmental
Management**

Semester = 6th

ID = 13928

EXAM = Mid spring

ANS 2 =

SOL :-

Population of the area = 8000

Each generating solid waste = 0.12 kg/day

Houses = 500

Each generating 50kg/day

Waste generating from dispensary

= 2 tons/month = $2 * 1000/30 = 66.66$

Waste generated from restaurants = 4 tons/month

= $4 * 1000/30 = 133.33$

Total waste = 26126.66 kg/day

Assume density = 135 kg/m³

Volume = mass/density

= $26126.66 \text{ kg/day} / 135 \text{ kg/m}^3$

Vol = 193.5

Area for dumping

Area = vol / h

= $193.5 / 0.5$

AREA = 387m²

ANS 1 :- TYPES of waste generated :-

There are 4 types of waste generated by different places are given below

1 :- Solid Waste Generation in Residential Areas :-

Qatar currently has one of the highest per capita municipal waste generation in the world. The continuous increase in household wastes, and overfilled landfills threaten available spaces for urban development programmes in the country. Consequently, this study examined the lifestyle factors that have led to high municipal solid waste generation in the country. Data were gathered from both primary and secondary sources. Considering the socio-cultural factors in the country, the convenience sampling technique was adopted. Thus, questionnaires were administered via online survey. At the end of the survey, 68 responses were received, and utilized for the study. The analysis of data used the descriptive and inferential statistical tools via the SPSS 24 software. Descriptive tools used are frequency tables, bar-diagrams, line graphs, pie charts, averages, and relative importance index while Pearson Correlation was used to make inferences. The study observed a direct relationship between the increasing population in Qatar and the high municipal solid waste generation; and that 50% of the respondents have household sizes of between 4-7 persons. Over 90% of the respondents have university education. The RII result of 3.514 out of 5 showed that kitchen waste accounts for over 70% of the household wastes in Qatar. This is followed in rank by nylon wastes while plastic wastes ranked third. Other waste components are paper and cardboard, glass, and wood and furniture. The calculated average daily waste generated per capita is 1.135 kg.

2 :- Domestic waste :-

Over the years, solid waste management system in Pakistan has evolved from being archaic to a modern and mechanised one.

For decades, solid waste was collected manually and disposed off in an unsafe manner. People resorted to burning it in open plots or even on roadsides.

Scavengers also had a major role in this context as they would sift through the deposits of solid waste in different areas and pick objects of their choice.

A major change came after the formation of the Lahore Waste Management Company (LWMC) and awarding solid waste collection and disposal contracts to Turkish companies. There might be a disagreement among critics on the processes involved and terms of the contracts but there is a consensus on the fact that the level of cleanliness in the city has increased. Barring days when workers go on strike for any reason or there is suspension of work due to financial issues, things at LWMC are fine.

3:- chemical :-

Chemical waste is a waste that is made from harmful chemicals (mostly produced by large factories). Chemical waste may fall under regulations such as COSHH in the United Kingdom, or the Clean Water Act and Resource Conservation and Recovery Act in the United States. In the U.S., the Environmental Protection Agency (EPA) and the Occupational Safety and Health Administration (OSHA), as well as state and local regulations also regulate chemical use and disposal.^[1] Chemical waste may or may not be classed as hazardous waste. A **chemical hazardous waste** is a solid, liquid, or gaseous material that displays either a “Hazardous Characteristic” or is specifically “listed” by name as a hazardous waste. There are four characteristics chemical wastes may have to be considered as hazardous. These are Ignitability, Corrosivity, Reactivity, and Toxicity. This type of hazardous waste must be categorized as to its identity, constituents, and hazards so that it may be safely handled and managed.^[2] Chemical waste is a broad term and encompasses many types of materials. Consult the Material Safety Data Sheet (MSDS), Product Data Sheet or Label for a list of constituents. These sources should state whether this chemical waste is a waste that needs special disposal.

Effect of west:-

In an industrial society that produces millions of tons of waste every year, disposal becomes a major issue. Recycling, landfills and incineration all play a part in the solution. The effects of toxins in garbage, and the sheer physical mass of its presence, cause concern for municipalities and waste disposal agencies in many places.

Land Use

The size of some landfills is nearly inconceivable. The Fresh Kills landfill, on Staten Island outside of New York City, takes up 2,200 acres. In a society that generates this amount of garbage, land use for landfills becomes an issue. Particularly in densely populated, high-consumption places such as Japan, the amount of space being dedicated to storing trash is disturbing to residents. Solutions include recycling, reduction of packaging, and lowering consumption rates

WEST treatment Method :-

When people think about [solid waste management](#), they likely associate it with garbage being dumped in landfills or incinerated. While such activities comprise an important part of the process, a variety of elements is involved in the creation of an optimal [integrated solid waste management](#) (ISWM) system. For example, treatment techniques act to reduce the volume and toxicity of solid waste. These steps can transform it into a more convenient form for disposal. Waste treatment and disposal methods are selected and used based on the form, composition, and quantity of waste materials.

Here are major waste treatment and disposal methods:

Thermal Treatment

Thermal waste treatment refers to the processes that use heat to treat waste materials. Following are some of the most commonly used thermal waste treatment techniques:

Advantages :-

- 1 Practice is highly lucrative
- 2 Keeps the environment clean and fresh
- 3 Saves the Earth and conserves energy
- 4 Reduces environmental pollution
- 5 Waste management will help you earn money

Disadvantages :-

Keeps the environment clean
Saves the Earth and conserves energy
Reduces environmental pollution
Waste management will help you earn money
Creates employment

Suggest suitable treatment method for the area:-

The MWFA has taken current site treatment plans² and assembled block treatment diagrams that illustrate the treatment possibilities for each treatment group. [Figure 5](#) provides an example block diagram of the three treatment options that MWFA has identified for the waste water treatment group. In addition to the block diagrams, basic flowsheets and processing technologies have been proposed for the treatment of about 90% of the waste inventory. Flowsheets for the remainder are yet to be proposed. Much of this remainder is in the debris group, a major fraction of which is expected to be treated through privatization. Most of the treatments described in the Baseline Report (DOE, 1996a, 1997a) are derived from processes developed for sanitary wastes or for hazardous wastes under the Resource Conservation and Recovery Act (RCRA) or Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).³ A large number of treatment processes and a considerable number of possible waste forms resulting from these processes are applicable to mixed wastes. [Table 5](#) summarizes the treatment and waste form options that MWFA has identified for its five mixed waste groups.

An important part of the treatment strategy is to remove, stabilize, or destroy hazardous components of each waste stream, especially removal of heavy metals and destruction of organic materials (DOE, 1996a, 1997a). The treatment strategy must lead to a waste form that satisfies the requirements discussed in [Chapter 3](#). Volume reduction is also desired for most wastes. In an initial or pre-treatment step, solid materials may undergo size reduction and aqueous streams may be filtered to remove solids. After pre-treatment, the waste can be converted to its final form directly with such techniques as grouting and polymer encapsulation, to be described in the following section. Alternatively, the waste can be treated by thermal, physical, chemical, or biological

Site treatment plans are required by the Federal Facility Compliance Act (FFCA) to be prepared by each DOE site. Each plan lists the wastes at the site and the treatment or disposal methods planned to bring the site into compliance with regulations.