Q No. 1

Waste water engineering :→ also known as Sanitary engineering or public health engineering the application of engineering methods to Improve Sanitation of homen communities primierly by providing the removal and disposal of homen waste treatment and reuse application for various purpose As a condition to the Supply of Safe potable water

Application

directly related to Improve environmental by disposing of treated waste and thus reducing the

risk of ground water contimination and Safe guarding aquatic life protect natures beneficial ecosystem.

Q NO. 2

ANS

Relationship of waste water with water Supply.

There are two main areas in which waste water is generated from water Supply.

(i) domestic area

(ii) Industrial area.

Domestic area are divided into four classes.

(i) Residential area

(ii) Commercial area

(iii) Institutional facilities

(iv) Recreational facilities.

⇒ the water which supply to such type of area 60-80% of that water is waste and 20% is used

⇒ So waste water have deep relation with water supply

⇒ if we want to calculate waste-water the supply of water quantity.

(b) New township

For a proposed new planned township I will suggest Seperate Savage System.

Because of the following reason

(i) So in Seperate Sevage system Sanitary and storm water flows in a Seperate pipe this quality of Sewage to be treated is less and easy is compared to combine Sewerage system.

(ii) And Second also avoide the overflow of Storm water

(iii) less degree of Sanitation is achied in this System.

⇒ For Calculation of water

first we calculate population of area from given below method

(1) Arithematic Increase

(2) Geometric Increase

(1) → Arithematic Increase

$P_n = P + nc$

P_n = population of upcoming

P = present population

C = Rate of change of population of time

n = number of year

Geometric Increase :→

$$P_n = P\left(1 + 1/100\right)^n$$

I_g = geometric mean

P = present population

N = no. of decade

Calculate population then

Calculate fresh water

→ waste water calculated from fresh water

→ waste water totally depend on fresh water

⇒ So waste water is great relation with water

Q No. 4

① physical
② chemical
③ Biological.

a => physical characteristics

(i) Colour
(ii) Taste and odour
(iii) temperature
(iv) Turbidity
(v) Density
(vi) Specific gravity

b => chemical characteristics.

(i) hardness
(ii) pH value
(iii) organic matter
(iv) Nitrogen content
(v) toxics
(vi) chloride content
(vii) Disolved oxygen
(viii) Sulphide Sulphates
(ix) hydrogen gas.

c) ⇒ Biological characteristics

(i) Bactaria

(ii) Fungi

(iii) Algae

(iv) protozoa

(v) virses

(vi) pathogenic, microorganism groups.

Q No. 5

Ans

Combined Sewerage System.

Advantages:→

(i) Convenience " minimale interaction by user

(ii) low health risk

(iii) No nuisance from Smells mosquitos or flies

(iv) Stom water and waste water can be managed at the same time

(v) More Suitable in various Streets

(vi) moderate operation and maintenance cost

Disadvantages:→

(i) Because of large dimensions of sewers initial cost in high density

(ii) need a reliable supply of pipe water

(iii) Difficult to construct in high density areas

(iv) Recycling of nutrients and energy become difficult

(v) problem associated with blockages and break down of pumping equipments

(vi) high treatment cost due to inclusion of storm water

(vii) maintenance cost of sewer is also high.

Q No. 3

Important of wastewater characterization

→ the Scope of Sewage System has evolved throughout history changes in Socioeconomic conelition and the environment today Sewage Infra-structure that is well planed and operated Support Sanitation and related activities effective Sewage managment is essential for nutrient recycling and for mentaining ecosystem Integrety

→ preserving receiving water quality

→ preventing flood and imporing the environment

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