

## Syllabus:

### Theory syllabus:

#### 1. Introduction to water quality

Importance of water, sources of water – composition and characteristics of natural water- characteristics imparted by impurities in water- effect of temperature, equilibria in water systems. 5

#### 2. Water quality characteristics

Physical, chemical and biological characteristics of water – standard methods of determination of important physical and chemical parameters of water quality. 8

Eg: PH, turbidity, electrical conductivity, total solids, alkalinity, hardness etc.

Units of measurements and expression of results, Bacteriological indicators, and determination of coliforms. 5

#### 3. Water quality representation and standards.

### Practical syllabus:

#### 1. Water sampling methods. 12

2. Physical characteristics and measurements – odour, colour, temperature etc.

3. Determination of hardness of water

4. Determination of alkalinity of water.

5. Determination of acidity of water

6. Determination of dissolved oxygen in water

7. Determination of PH of water.

# Water quality Analysis Exam

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(A) COD: -

COD is defined as the amount of oxygen required by organic matter in a sample of water for its oxidation by a strong chemical oxidizing agent as  $K_2Cr_2O_7$ .

The method of measurement with a strong chemical oxidizing all organic matter such as potassium.

(10A) Pathogens present in water: -

Water is a potential carrier of various disease causing agents, namely pathogenic microorganism. They cause danger to health and life of human beings and animals. The pathogens spread through water and induce water-borne diseases like cholera, typhoid, dysentery, hepatitis etc.

(11A) Hardness of water: -

Hardness of water is the property of not giving lather with soap. It arises due to some dissolved salts of calcium and magnesium. Pure water is colourless, odourless and tasteless and give water hardness is necessarily a pollution parameter but the removal of hardness is necessary in order to prevent

Some chemical reactions of the salts in the water with soap and corrosion of metals.

5A) Turbidity of water:-

Materials that causes water to be turbid include clay silt very tiny inorganic and organic matter, dissolved coloured organic compounds, planktons and other microscopic organisms.

Turbidity makes water cloudy or opaque due to scattering of light by suspended particles.

9A) Calgon process:-

Water softening by calgon process. Calgon is the trade name given to a complex salt, sodium hexameta phosphate. It is used in softening water for boiler use. Calcium and magnesium salts present in hard water react with calgon to give complex negatively charged ions.