

Q Define term water pollution. what indicators are used to measure the quality of water? write down drinking water quality standards.

water pollution:

“water pollution is defined as any physical, chemical and biological change in composition of water which have detrimental consequences for living beings.”

Indicators ^{used} to measure Quality of water:

Following indicators are used to measure quality of water.

- Dissolved oxygen
- PH
- Amount of nutrients
- Toxic substances
- Turbidity and bacteria

Drinking water Quality Standards:

(WHO) world Health Organization has gave drinking water quality standards in 1993. Pakistan environment protection

Agency also finalised national
standards for quality drinking
water in June 2008.

Parameters

Pakistan

WHO

Standards

Standards

Bacterial :

E-coli or

Must not be

Must not be

Thermo-tolerant

detected in

detected in

coliform bacteria

any 100 ml

any 100 ml

sample

sample

Physical :

Color

≤ 15 True color

≤ 15 True color

units

units

Odour

Non-objectionable

Non-objectionable

Taste

Non objectionable

Non-objectionable

Turbidity

≤ 5 NTU (units)

≤ 5 NTU (units)

TDS

≤ 600

≤ 600

pH

6.5-8.5

6.5-8.5

Chemicals

- Essential organic

sulphate

400 mg/L

500 mg/L

calcium

200 mg/L

No Guidelines

sodium

200 mg/L

200 mg/L

Nitrate

50 mg/L

50 mg/L

Magnesium

100 mg/L

No Guidelines

(b) what is polio? Discuss its symptoms, cause of spreading, prevention and vaccine.

Polio myelitis:

"It is an acute viral infection. Primarily affect alimentary canal but sometimes spread to central nervous system resulting in paralysis and sometimes cause death."

Syptoms:

Polio myelitis has varying degree of symptoms depending on the severity of infection.

1- Asymptomatic infection:

- occurs in 90-95% cases
- only involve draining lymph nodes

2- Abortive Polio myelitis:

- occurs in 4-8% of cases
- Flu like symptoms
- Fever seldom exceeds 103°F
- Patient recovers quickly
- Recognized by rise in antibody titer.

3- Non-Paralytic poliomyelitis

17. cases

- Fever, malaise, sore throat,
- headache, vomiting
- Neck and spinal rigidity
- Recovery is rapid

4- Paralytic poliomyelitis:

20-51. cases

- weakness of one or more muscle group
- Asymmetrical flaccid paralysis
- Fever at the time of onset
- Tendon reflexes are diminished or absent

⇒ Causes of Spreading:

polio virus present in human feces and oropharyngeal secretions.

Mode of Transmission:

→ Faeco-oral Route

- Directly by contaminated fingers
- Indirectly by food, water, fomites, flies, milk etc.

Portal of Entry:

Enters in body through ingestion. Multiplies in stomach, small intestine sometimes affect central nervous system. Shed in feces causes further contamination.

⇒ Prevention:

There is symptomatic treatment for polio virus. It can be prevented by "vaccination". Vaccination enhance the immune response of body against infection.

⇒ Vaccination:

There are two types of polio vaccine

- Injectable Polio vaccine
- Oral polio vaccine

children are vaccinated at different ages to prevent disease.

→ At birth

→ At the age of 6, 10, 14 weeks

→ A booster dose at the age of 2 yrs.