



# University Institute of Technology

(Rajiv Gandhi Pradyogiki Vishwavidyalaya)  
Airport By Pass Road, Gandhi Nagar, Bhopal-462033  
Mid-Semester / Practical Exam Answer Book

48397

Standard Club

Roll No.																					Sub Code																				
Paper Name																	Date																								

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R-S-T

Prima

17-05-2024

Mks. Obtd. \_\_\_\_\_ Max. Mks. \_\_\_\_\_

Signature of examiner \_\_\_\_\_  
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Topic ⇒ BIS Standards for

PACKAGED DRINKING WATER

(Other than Natural Mineralized water)  
Specifications.

8. Health Effects.  
9. Conclusion.

1. Introduction
2. Objective
3. Source
4. Bacteria Present in drinking water
5. Physical Parameters.
6. Packaging.
7. Conclusion.

Introduction  $\Rightarrow$  Water is necessary for the life of earth. we all know that on earth about 71% of water is present which indicates that the life can not exist without water. Human body is made up of 70% of water. But.

Water Water Every Where. . . . . but  
No Water for Drinking!!

The above mentioned thought signifies that in earth 71% of water exists but very less amount is available for drinking.

Now a days we have many source of drinking water like tap water, packed water, ground water etc.

But the major disadvantage of this water is that it is not always pollutant free.

For this, we have B.I.S.I  $\Rightarrow$  (Bureau of Indian Standards) which takes care about the purity of the substance & ensure safety of Human Beings as well as animal & environment.

Objective → Standards of packed drinking water (other than Natural mineral water)

BIS: ~~stands for Bureau~~ Bureau of Indian Standards the National standards body of India.

It is the institute

which gives information about the substance available for our daily use. Like Plastic masks, Electrical appliances, Packed drinking water, food etc.

It ensures the standards which are necessary for the quality of the product, which signifies the safety of the product as well as human beings.

It generally describe the maximum & minimum amount of content present in the product according to the conditions available in India.

Similarly BIS is also responsible for deciding the standards of packed drinking water.



7. Now a days, there is a huge amount of water providing companies available which provides water. In the today's world, people does not much take care about the essential minerals and toxic & harmful substances present in the water. For this BIS signifies the standards and prescribed the requirement & method of sampling test for Package drinking water.

● According to the BIS a packed drinking water, must comply with the requirements as

1. Coliform Sulphide
2. Sulphide reducing & aerobics
3. Aerobic microbial count
4. Salmonella and Shigella, etc.

In the Packed Drinking water shall be available without all mentioned bacterias.

Packed Drinking water should be clear without any sediments, suspended particles and extraneous materials.

(2F) unit

• ⇒ In the packaged drinking water maximum limit of the pesticides are.

No.	Parameter	Limit.
1.	Pesticides Residue	$< 0.0001$ mg/L.
2.	Total Pesticides	not $> 0.5005$ mg/L.

\* Analyzed by a recognized laboratory using internationally stabilized best method.

## Physical Parameters $\Rightarrow$

S. No	Characteristics	Requirement	Methods of Test (IS)
<u>1</u>	Colour	2 un	IS 3025 [4]
<u>2</u>	Odour	—	IS 3025 [5]
<u>3</u>	Test	Agreeable	IS 3025 [8]
4.	Turbidity	2 unit	IS 3025 [10]
5.	TDS (Total dissolved solid)	500.	IS 3025 [16]
6.	pH.	6.5-8.5	IS 3025 [11]

## \* Health Effect due to <sup>Packaged</sup> drinking water =>

1. Harmful substance => Fluorides, Arsenic, Aluminium present in plastic bottle.
2. Dioxin Production => Plastic does melt in Hot environment & Hence release toxin called dioxins.
3. Liver Cancer & reduce sperm count
4. Impact on ~~immune~~ system.
5. BPA (Bisphenyl A) generation => It is a chemical which can lead to a lot of problem like.
  - (I) Diabetes
  - (II) obesity
  - (III) Fertility Problem.
  - (IV) Early puberty in girls.



Under IS standard IS 14543 all packaged drinking water formed from packaged natural water is now required to be certified by the ISI. Packaged drinking water needs to meet standards specified in the document.

\* Document required for ISI - BIS certifications →

1. Main application form
2. Address proof of manufacturing unit.
3. Details of manufacturing process.
4. Test report of product.

\* General Parameters of substance which are undesirably present in Packed Drinking water in excessive amount →



<u>S.No.</u>	<u>Characteristics</u>	<u>Requirement</u>	<u>Method of test.</u>
1.	Zinc.	5 mg/l. (max.)	IS 3025.
2.	Copper	0.05 mg/l. (max.)	IS 3025
3.	Nitrite	45 mg/l.	IS 3025.
4.	Calcium	75 mg/l.	IS 3025
5.	Magnesium	30 mg/l.	IS 3025
6.	Sulphate (SO <sub>4</sub> )	200 mg/l.	IS 3025
7.	Sodium. (Na)	200 mg/l.	IS 3025.
8.	Iron (Fe)	0.1 mg/l.	IS 3025.
9.	Silver (Ag)	0.01 mg/l.	IS 3025

## Toxic Chemicals.

1.	Mercury	0.0001 mg/l.	IS-3025
2.	Arsenic	0.01 mg/l	—
3.	Nickel	0.02 mg/l	—
4.	Cinide	absent mg/l.	IS-3025.

## Packing.

Packing must play an important role in storing the water.

The water should be packed in clean, hygienic, colourless, tamperproof bottles & pouches, made of polyethylene, PVC conforming to IS-1057, polystyrene IS 10142.

polypropylene IS 10910.

Conclusion ⇒

So the standards plays a very important role in human life. & For the Indians the BIS standards plays crucial role in determining the quality of the product.

For the particular packaged drinking water, the BIS stands play the rock of mill for the health of Indian people.

Only by due this standards the people of India find the healthy & mineralized water.  
so we can say:

“ Water is life ”.

R.S.T

17.05.2024