Daffodil International School (EV)
Class: IX
Subject: Science (2021)
Chapter 02: Water for Life

Teacher: Md. Abu Nayeem

1. Read the chapter from Text Book
2. Solve MCQs and CQs from Text Book

Multiple Choice Question:

1. Which of the following plant grows both in water and land?
   a. Algae
   b. Bindweed
   c. Water nut
   d. Duckweed
2. Extreme decrease in pH of water results in aquatic fauna
   i improper growth of different organs
   ii. lacking of minerals in bodies
   iii. attacked with various diseases

Which one is correct?

a. i and ii b. i and iii c. ii and iii d. i, ii and iii

Read the following paragraph and answer questions 3 and 4:

Onik and Tushar culture fish in two separate ponds. The fish growth in Onik's pond is satisfactory whereas in Tushar's pond, the fishes are weak and their organs are not grown properly.

3. What is the type of water of Onik's pond?
   a. acidic
   b. alkaline
   c. neutral
   d. enriched with calcium
4. Which of the followings should be used in Tushar's pond?
   a. acid
   b. alkali
   c. calcium
   d. phosphorus

Sample Multiple Choice Question:

5. Boiling point of water is-
   a. 0°C
   b. 99.98°C
   c. 100.25°C

d. 104°C

6. What's the neutral level of pH?

a. 4
b. 5
c. 6
d. 7

Read the following stem and answer the question 7 and 8:
Sumi and Rimi cultivate fish in two separate ponds. Sumi's performance is satisfactory while fish of Rimi's pond are weak and organs are not well developed.

7. The water of first pond is—

a. acidic
b. alkaline
c. neutral
d. rich with calcium

8. Which one has to be reduced from Rim's pond water?

a. Acid
b. base
c. calcium
d. Phosphorous

9. Which of the following plant grows both in water and land?

a. Algae
b. Bindweed
c. Water on
d. Duckweed

10. Pure water is –

i. colourless
ii. odourless
iii. tasteless

Which one is correct?

a. i & ii b, iii c. ii **d. i, ii & iii**

Answer the question no. 11 from the following passage.
The fishes of Shihab's pond are weak, growth is not up to the mark and organs are immatured.

11. Which one of the following should be applied in Shihab's pond?

a. Acid
b. Base
c. Phosphorus
d. Calcium

Read the following stem and answer to questions No. 12 and 13 :

Radioactive substances mixed with water which create diseases in aquatic biota, again the presence of unwanted substances in water decreases the navigability of river.

12. What diseases occur in aquatic biota according to the stem?
    a. Cholera
    b. Typhoid
    c. Jaundice
    d. Cancer

13. The substances decreases the navigability of rivers –
    i. hinder photosynthesis
    ii. hinder the movement of ships
    iii. turbid the water

Which one is correct?

a. i and ii b. ii and iii c. ii **d. i, ii and iii**

14. Which is the minimum level of dissolved oxygen required for sustaining life in water bodies
    a. 5 mg/Litre
    b. 7 mg/Litre
    c. 6 mg/Litre
    d. 8 mg/Litre

15. Which of the following plants grows both in water and land?
    a. Water nut
    b. Algae
    c. Duckweed
    d. Bindweed

16. What is the percentage of protein obtained from fish?
    a. 90%
    b. 80%
    c. 70%
    d. 50%

17. Which disease occurs due to drinking arsenic contaminated water?
    a. Skin cancer
    b. Brain damage
    c. Anaemia
    d. Respiratory disease

18. When was the Ramsar convention made amended?
    a. 1973
    b. 1983
    c. 1982
    d. 1772

19. In which year did Ramsar convention taken place?
    a. 1775
    b. 1971

c. 1972
d. 1975

20. When the amount of acid is increased the value of pH?
    a. Increases
    b. Remains as it
    c. Lessens
    d. Sometimes increases and sometimes lessens
21. Which one is the chemical formula of bleaching powder?
    a. H_2SO_4
    b. HCI
    c. [Ca(OCI)Cl]
    d. CH_3COOH
22. What is the pH of pure water?
    a. 6
    b. 7
    c. 8
    d. 9
23. Which is the harmful effect of mercury in human body?
    a. Diability
    b. Anemia
    c. Stomach affected
    d. Burning pain in body
24. What percentage of water have in the content of human body?
    a. 60 - 65%
    b. 65–75%
    c. 75-80%
    d. 85-95%

Creative Questions:

CQ 1:

a. Which dissolved gas undergoes chemical reaction with glucose?
b. What do you mean by recycling of water? 2
c. To what kind the river will be converted? Explain.
d. Do you think that it is possible to spring back the river to sustain aquatic animals? Justify your answer.

Answer to the question no. 1

a) Oxygen dissolved in water, with gas makes a glucose reaction.

b) At daytime due to the heat of sun, surface water from seas, rivers, canals enters atmosphere as water vapour and at one stage condense, then creates cloud and finally comes back to surface as rain water. A large amount of this rain water reach seas through rivers, canals then again as water vapour enters atmosphere and finally comes back to surface as rain water. This cyclic process of water entering atmosphere and coming back to surface is known as water cycle.

c) In the stem above we can see that wastes are being thrown into river from industries and water-carriages. If these wastes are thrown for a long time, these problems will appear –
i. Industrial wastes, as they mix with river water, changes the colour of water.
ii. Chemicals of industrial waste such as- phosphorus, lead, uranium, thorium, caesium etc. cause death of aquatic animals and plants.
iii. Phosphate of industrial waste, helps growth of algae in water. These algae, when they die reacts with the dissolved oxygen. And for this reason, the amount of oxygen in water drops. Due to lack of oxygen, fishes and other aquatic animals die.
iv. Oil and wastes from water carriages float on river water which hampers the oxygen dissolving process in water. Thus it creates oxygen deficiency in river water.
So, due to the industrial and water carriages wastes thrown into the river, number of living creatures of gradually decrease and at some point it can turn into a dead river.

d) I think the mentioned river can be turned into a habitable river for aquatic creatures. For these, those things that cause river pollution should be controlled. The liquid wastes of industries should be purified first and then it can be thrown into river. For this purification Effluent Treatment Plant or ETP is necessary. The method of producing ETP depends on the type of waste. As different types of wastes are released from different types of industries, thus one general type of ETP cannot purify all type of wastes. So, by building similar types of industry at same location, a specific type of industrial area can be build and then all the wastes of similar type can be gathered together to purify in one single ETP. For the stem, if an ETP is build and the wastes are thrown only after purified in the ETP, pH of water would not change and also aquatic environment will not be destroyed. Also if necessary laws are made for oil leaking and waste throwing from water carriages and also if public opinion is created than the pollution can be reduced.
So, from the discussion above, it is clear that by building public opinions and public awareness regarding pollution the river can be made habitable for aquatic animals.

CQ 2: Mrs. Jamila makes turbid water of pond suitable for cooking by a special process. O other hand, Mr. Ratan uses his water both in h water manufacturing plant and pharmaceutical industry after disinfecting

a. What is meant by the term "boiling point of water"?

b. Why do the aquatic plants not break down water current?

c. How does Mrs. Jamila make pond water suitable for cooking? Explain.

d. Does Mr. Ratan disinfect water for both plants in the same method? Justify your answer.

Answer to the question no. 2

a) At specific atmospheric pressure, the temperature at which water change its form into water vapour is boiling point.

b) Aquatic flora collect water and necessary elements especially minerals through the whole parts of their body. So, stems and other parts of the aquatic plants are soft which is suitable to adapt with water current and movement of aquatic fauna. And that is why they do not breakdown with waves.

c) Jamila Khatun, for cooking, purifies pond water in filtration and boiling method. Filtration is a process to separate solid substances from a mixture of solid and liquid substances. Usually water contains insoluble dust or soil particles or waste materials which are removed by filtration. For that she passes water through a layer of sand or finely woven clothes which traps the solid particles present in water. Than for further purification, she boils that water for 15-20 minutes and disinfects the water completely. This is hoe Jamil Khatun makes the pond water suitable for cooking.

d) Mr. Ratan will not purify water of his two industries in same way. As the used and required quality for bottled water industry and medicine industry are not same, two industries needs different quality water. So, he used chlorination method to purify water in his bottled water industry. In this process, chlorine gas used to make water germ free and pure. Other than chlorine, germs can also be destroyed by ozone gas or ultraviolet radiation. Again, more pure water is necessary for medicine industry. So, he uses distillation method in this case. In this method, basically water taken in a containe is heated to vapour which is condensed and collected in another container. The possibility of having other substances in water purified by this method is very low. From this discussion, it is clear that. Mr. Ratan did no use same method of purification in both industries.

Sample Creative Questions for practice:

CQ 3: Surot Ali is a local union parishad member of a village named 'X'. All the peoples of his village depend on only one river passing beside their village. At present water of that river becomes dirty and smelly. Various types of garbage and germs are floating in that water. For that Surot Ali falls in a crisis of pure water.

a. What is boiling point?
b. What is meant by recycling of water?
c. How can the crisis of Surot Ali be solved? Explain.
d. What type of steps should be taken to rectify the pollution of water in 'X' village? Analyze.

CQ 4: Shoily's house is beside the bank of a river. Since there is no other way to collect water so they have to use the river water. For this her mother filters the floating dirts of the turbid river water through a special process. But they always suffer from diseases of stomach.

a. What is meant by melting point?
b. Why is the Erie Lake declared as dead lake?
c. Which process does Shoily's mother follow to purify water? Explain.
d. Which process of water purification should Shoily's mother follow to prevent the above problem? Give your opinion with justification.

CQ 5: Mr. Rafiq follows special techniques to make pond water prepared for cooking. But Mr. Shafiq prepares germ free water to use in his bottling and medicine production industry.

a. What is the pH of pure water?
b. Why don't aquatic plants get broken by current of the water?
c. Describe the process used by Mr. Rafiq to make pond water prepared for cooking purpose.
d. Does Mr. Shafiq makes the water used in two of his industries germ free using the same technique? Give your logical opinions.

CQ 6: "X" is a tasteless, colourless amphoteric oxide. It is found in solid, liquid and gaseous state naturally. This oxide's boiling point is 100°C and melting point is 0°C and pH level is 7.

a. What is boiling point?
b. Where are distillation used?
c. If the pH level of water is 2 more or less than the usual, explain if the aquatic faunas will survive.
d. Identify the "X" and explain its purity and structure with arguments.

Sample Short Questions for practice:

1. Growth of the fish is hampered in turbid water - Explain.
Ans: Turbid water could be harmful for aquatic flora and fauna because turbid water hinders the penetration of sunlight resulting in reduced photosynthesis that's why fish could not collect food. So, growth of the fish is hampered in turbid water.
2. Hilsha comes to fresh water during spawing - Explain
Ans: Hilsha is a sea fish, it comes in fresh water for spawing because sea water is saline, it contains huge amount of salt which sterilizes fish eggs which cannot produce young fish. So, conforming to the natural law the hilsha comes to fresh water during spawing.
3. Bleaching powder is used for purification of water - Explain.
Ans: For killing disinfectants bleaching powder is used. Bleaching powder gives ionized chlorine in water.
4. In distillation method water is purified at medicine factory - Explain.
Ans: At medicine industry when very pure water is needed, water is purified by distillation method. In this method water collected from produced vapour condensed where the possibility of having other substances in water is very low. For this in medicine industry water is purified by distillation method.
5. Where are distillation used?
Ans: Distillation is necessary to produce medicines and for the experiments done in laboratories.
6. What is Chlorination? Explain.
Ans: Disease causing microorganisms in water are killed by disinfectants. Different types of disinfectants are used for purification of water. One of them is chlorine gas (CL). Bleaching powder [Ca(OCl)Cl] and other chlorine containing compounds are also used for this. This is known as Chlorination.
7. Water is a universal solvent - Explain.
Ans: The solvent which dissolve maximum organic compounds and inorganic substances is called universal solvent. Water dissolves a wide range of substances including both organic and inorganic that's why water is termed as a universal solvent.

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(This handout is only for practice. Students must read the text book for better preparation)