

MODEL QUESTION PAPER: 2021-2022

PERIODIC TEST-1

SCIENCE

Class: X

Max. Marks: 40

Duration: 1.5 HRS

General Instructions:

- (i) *The question paper comprises four sections A, B, C and D. There are 16 questions in the question paper. All questions are compulsory.*
- (ii) *Section–A - question no. 1 to 7 - all questions and parts thereof are of one mark each. These questions contain multiple choice questions (MCQs), very short answer questions and assertion - reason type questions. Answers to these should be given in one word or one sentence.*
- (iii) *Section–B - question no. 8 to 10 are short answer type questions, carrying 2 marks each. Answers to these questions should be in the range of 30 to 50 words.*
- (iv) *Section–C - question no. 11 to 13 are short answer type questions, carrying 3 marks each. Answers to these questions should be in the range of 50 to 80 words.*
- (v) *Section–D – question no. 14 to 16 are long answer type questions carrying 5 marks each. Answer to these questions should be in the range of 80 to 120 words.*
- (vi) *There is no overall choice. However, internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.*
- (vii) *Wherever necessary, neat and properly labeled diagrams should be drawn.*

SECTION A

1. Name a mirror that can give an erect and enlarged image of an object. (1)
2. Which gas is evolved when metals react with dilute hydrochloric acid? (1)
3. Oil and fat containing food items are flushed with nitrogen. Why? (1)

For question numbers **4, 5** and **6**, two statements are given- one labeled **Assertion (A)** and the other labeled **Reason (R)**. Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below:

- a) Both A and R are true, and R is correct explanation of the assertion.
- b) Both A and R are true, but R is not the correct explanation of the assertion.
- c) A is true, but R is false.
- d) A is false, but R is true.

4. **Assertion:** Light travels faster in glass than in air. (1)

Reason: Glass is denser than air.

5. **Assertion:** Plane mirror may form real image. (1)

Reason: Plane mirror forms virtual image, if objects is real.

6. **Assertion:** carbonic acid is a weak acids

Reason: it ionises completely in aqueous solution (1)

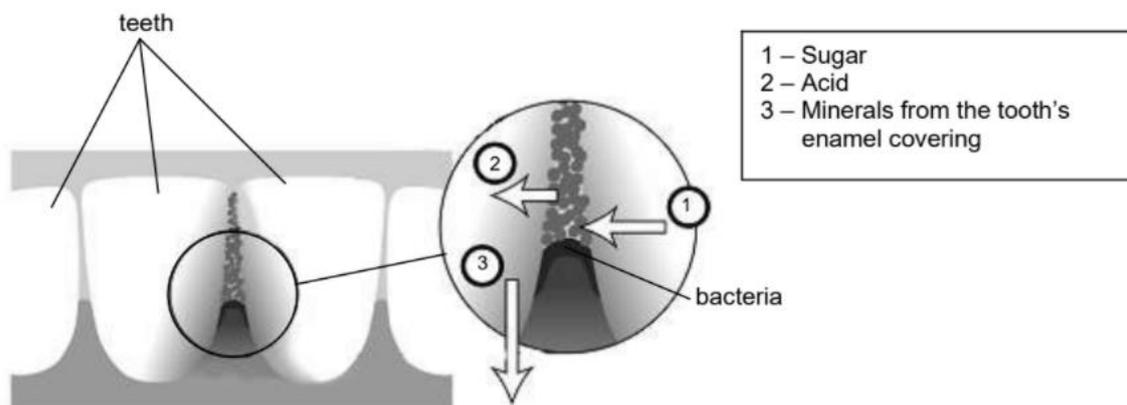
Q. No 7 contain five sub-parts each. You are expected to answer any four sub-parts in this question.

7. Read the following and answer any **four** questions from 7 (i) to 7 (v) (1x4=4)

Bacteria that live in our mouths cause dental caries (tooth decay). Caries has been a problem since the 1700s when sugar became available from the expanding sugar cane industry.

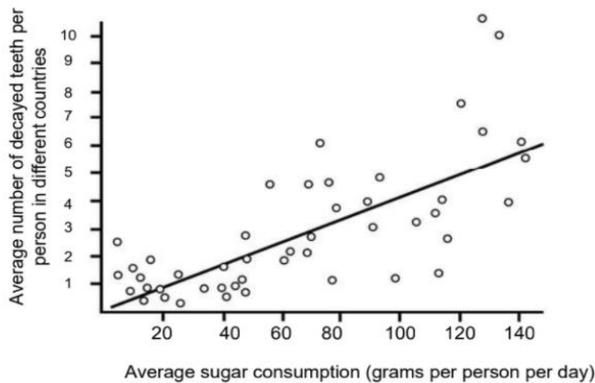
Today, we know a lot about caries. For example:

- Bacteria that cause caries feed on sugar.
- The sugar is transformed to acid.
- Acid damages the surface of teeth.
- Brushing teeth helps to prevent caries.



- i) What is the role of bacteria in dental caries?
- a) Bacteria produce enamel b) Bacteria produce acids
 c) Bacteria produce minerals d) Bacteria produce sugar
- ii)

The following graph shows the consumption of sugar and the amount of caries in different countries. Each country is represented by a dot in the graph.



Which one of the following statements is supported **by the data given in the graph**?

- A In some countries, people brush their teeth more frequently than in other countries.
 B The more sugar people eat, the more likely they are to get caries.
 C In recent years, the rate of caries has increased in many countries.
 D In recent years, the consumption of sugar has increased in many countries.
- iii) Masses of bacterial cells together with food particles stick to the teeth to form:
- a) Dental Plaque b) Acids c) Pulp d) Enamel
- iv) If untreated microorganisms may invade the pulp causing:
- a) Vomiting b) Infection c) Nausea d) Tooth loss
- v) Tooth decay causes gradual softening of:
- a) Roots b) Tongue c) Enamel and Dentine d) Pulp.

SECTION B

8. With the help of a ray diagram, show that the formation of the image of an object by a concave mirror when it is placed at the centre of curvature. (2)
9. What is a neutralization reaction? Give two examples (2)
10. (a) What is hypertension?
 (b) How is it caused? (2)

OR

How do leaves of plants help in excretion?

SECTION C

11. a) State the laws of reflection of light. (3)
- b) The refractive index of diamond is 2.42. What is the meaning of this statement?
- 12.(a) A shining metal 'M' on burning gives a dazzling white flame and changes to a white powder 'N'. (3)
- (i) Identify M and N
- (ii) Represent the above reaction in the form of a balanced chemical reaction
- (iii) Does M undergo oxidation or reduction in this reaction? Justify.

(OR)

In the electrolysis of water;

- (i) Name the gases liberated at cathode and anode
- (ii) Why is that the volume of gas collected at one electrode is double than that of the other electrode?
- (iii) What would happen if dilute H_2SO_4 is not added to water?
13. List the role of each of the following in our digestive system: (3)
- (i) Mucus (ii) Hydrochloric acid (iii) Bile juice

SECTION D

14. a) What happens to a ray of light when it travels from one medium to another having equal refractive indices? (5)
- b) State the cause of refraction of light.
- c) Write any three differences between a real and virtual image.

OR

- a) Define the term magnification. Write its formula also.
- b) A 4.5cm needle is placed 12cm away from a convex mirror of focal length 15cm. Give the location of image and magnification. Describe what happens to the image as the needle is moved farther from the mirror.

15. i. Write a balanced chemical equations for the following reactions: (5)

(a) Iron reacts with steam.

(b) Magnesium reacts with dil. HCl

(c) Copper is heated in air.

(ii) Why is respiration considered as an exothermic reaction? Explain.

16. Account for the following: (5)

(i) Oxygenated and deoxygenated bloods are separate in the heart of mammals.

(ii) Arteries are thick walled.

(iii) Herbivores have longer small intestine as compared to carnivores.

(iv) Valves are present in between atria and ventricles.

(v) The walls of trachea do not collapse when there is less air in it.