Sample Question Paper 2020 – 3
Science - Class – X

Time allowed: 03 Hours **Maximum Marks: 80**

General Instructions:

I. The Question paper comprises of three Sections A, B and C. You have to attempt all the sections.
II. All Questions are compulsory but some questions have internal choice.
III. Question number 1 to 20 in Section - A are one - mark questions. Question number 1 to 10 are multiple choice questions. Each has four choices (a), (b), (c) and (d) out of which only one is correct. Question number 11 to 20 are very short answers (VSA) and Assertion-Reasoning. These are to be answered in brief.
IV. Question number 21 to 30 in Section - B are three marks questions. These are to be answered in about 50 words each.

SECTION - A

1. Pick out the mismatched pair in the following pairs:
A. Sperms → testes
B. Eggs → ovaries
C. Pollen → anther
D. Ovule → somatic cell
(a) A (b) B (c) C (d) D

2. Variation can be brought about by:
(a) Sexual reproduction
(b) Copying of DNA
(c) Adjusting with environment
(d) All of the above

3. The equation

$$Cu + xHNO_3 \rightarrow Cu(NO_3)_2 + yNO_2 + 2H_2O$$

The values of x and y are:
(a) 3 and 5 (b) 8 and 6 (c) 4 and 2 (d) 7 and 1

4. In order to study the reaction between barium chloride and sodium sulphate, the two compounds are mixed in the form of:
(a) Aqueous solutions (b) Dry powders
(c) Molten liquids (d) Gases

5. Snell's law is defined as:

(a) $\frac{\sin i}{\sin r} = {}^1\mu_2$ (b) $\frac{\sin r}{\sin i} = {}^1\mu_2$

(c) $\frac{\sin i}{\sin r} = {}^2\mu_1$ (d) $\frac{1}{\sin i} = \mu$

6. Which of the following phenomena of light are involved in the formation of a rainbow?
(a) Reflection, refraction and dispersion
(b) Refraction, dispersion and total internal reflection
(c) Refraction, dispersion and internal reflection
(d) Dispersion, scattering and total internal reflection

7. In chipko movement, the trees were saved from cutting:
(a) By the men of the village
(b) By the women of the village
(c) By both (a) & (b)
(d) By social activists

8. The cautiousness in the use of resources is by:
(a) Recycling
(b) Reusing
(c) Reducing
(d) All of these

9. On the basis of the experiment 'to trace the path of a ray of light passing through a rectangular glass slab' four students arrived at the following interpretations. Which of the following interpretation is correct?
A. Angle of incidence is greater than the angle of emergence.
B. Angle of emergence is less than the angle of refraction.
C. Emergent ray is parallel to the incident ray.
D. Emergent ray is parallel to the refracted ray.
(a) A (b) B (c) C (d) D

10. Light is incident on an air-water interface at an angle of 25° to the normal. What angle does the refracted ray make with the normal ?
(a) 19° (b) 34° (c) 25° (d) 90°

11. Why do we prefer a convex mirror as a rear-view mirror in vehicles?

12. A concave mirror produces three times magnified real image of an object placed at 10 cm in front of it. Where is the image located?

13. A shiny brown coloured element 'X' on heating in air becomes black in colour. Name the element 'X' and the black coloured compound formed.

OR

Oil and fat containing food items are flushed with nitrogen. Why?

14. What processes would you consider essential for maintaining life?

OR

In the refining of silver, the recovery of silver from silver nitrate solution involved displacement by copper metal. Write down the reaction involved.

15. What criteria do we use to decide whether something is alive?

16. What do you mean by a precipitation reaction? Explain by giving examples.

OR

Write the balanced equation for the following chemical reactions:

(a) Hydrogen + Chlorine $\longrightarrow$ Hydrogen chloride

(b) Barium chloride + Aluminium sulphate $\longrightarrow$ Barium sulphate + Aluminium chloride

17. Which part of the brain maintains posture and equilibrium of the body?

Directions Qs. 18 - 20: Each of the following questions contains an assertion followed by reason. Read them carefully & answer the question on the basis of following options you have to select the one that best describes the two statements.

(a) If both Assertion and Reason are correct & Reason is the correct explanation of Assertion.

(b) If both Assertion and Reason are correct, but Reason is not the correct explanation of Assertion.

(c) If Assertion is correct but Reason is incorrect.

(d) If Assertion is incorrect but Reason is correct.

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18. **Assertion:** Bulbs are usually filled with chemically active gases.
Reason: Nitrogen and argon gases are filled in order to prolong the life of the filament.

19. **Assertion:** A person has lost most of its intelligence memory and judgement.
Reason: A person has operated a tumour located in the cerebrum.

20. **Assertion:** Silver is the best metallic conductor of electricity.
Reason: Resistivity of the silver is the lowest among all metals.

SECTION - B

21. State the factors on which resistance of a conductor depends.

22. "A biogas plant solves the fuel as well as the environmental problem". Discuss.

23. Write the name of acid and base that formed the following salt.

(a) KCl

(b) $Al_2(SO_4)_3$

(c) K_2SO_4

OR

For making cake, baking powder is taken. If at home your mother uses baking soda instead of baking powder in cake,

(a) How will it affect the taste of the cake and why?

(b) How can baking soda be converted into baking powder?

(c) What is the role of tartaric acid added to baking soda?

24. Why are anions bigger than their parent atoms?

25. How the aquatic animals carry out the process of respiration?

OR

What is the role of liver in the digestion process?

26. What is the role of seminal vesicles and the prostate gland?

27. Explain a stick partly immersed in water appears to be bent at the surface of water.

OR

Explain a pool of water appears to be less deep than it actually is.

28. Why does distilled water not conduct electricity, whereas rainwater does ?

29. What is an ECG? What is its function?

30. Rahul was diagnosed suffering from AIDS. His employer asked him to leave the job and his housing society asked him to change his house. Mr. Kumar who was his close friend tried to explain his society members that the disease is not infectious and that he needs support.
(a) How is AIDS diagnosed?
(b) What are the causes of this disease?

SECTION - C

31. On what factors the strength of magnetic field depends around
(a) a straight current carrying conductor.
(b) a circular wire carrying current.

32. What are the advantages and disadvantages of using carbon as a reducing agent in the metallurgy?

OR

In what forms are metal found in nature ? With the help of examples explain how metals react with oxygen and dilute acids. Also write chemical equations for the reaction.

33. What are hormones? What are their characteristics? Give some examples.

34. (a) The power of a concave lens used for correcting a myopic eye is – 0.6 D. Find the far point of the eye.
(b) The power of a convex lens used to correct a hypermetropic eye is + 0.8 D. Find the near point of the eye. Assume the least distance of distinct vision to be 25 cm.

OR

(a) Draw a ray diagram to explain the term angle of deviation.
(b) Why do the component colours of incident white light split into a spectrum while passing through a glass prism, explain.
(c) Draw a labelled ray diagram to show the formation of a rainbow.

35. Explain the following reactions with examples.
(a) Saponification reaction
(b) Esterification

36. Explain the meaning of food web and illustrate with a ray diagram.

OR

What are the fundamental trophic levels? Explain them.