Sample Question Paper 2020 – 2
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. Energy is maximum in ..... trophic level and minimum in the ..... trophic level.
(a) producer, consumer (b) consumer, decomposer
(c) top, bottom (d) bottom, top

2. Which of the following statements describes total internal reflection?
(a) Returning back of the light, coming from denser medium and incident at an angle greater than the critical angle, in the same medium.
(b) Returning back of the light coming from denser medium and incident at an angle less than the critical angle, in the same medium.
(c) Returning back of the light coming from denser medium and incident at critical angle in the same medium.
(d) Bending of light at the edge of the obstacles.

3. Which of the following reaction is endothermic?
(a) $C + O_2 \longrightarrow CO_2$
(b) $CaCO_3 \longrightarrow CaO + CO_2$
(c) $CH_4 + 2O_2 \longrightarrow CO_2 + 2H_2O$
(d) $CaO + H_2O \longrightarrow Ca(OH)_2$

4. The largest artery in the human body is:
(a) Systemic artery (b) Lingual artery
(c) Pulmonary artery (d) Aorta

5. In the human eye, the opaque diaphragm behind the cornea is known as:
(a) Choroids (b) Iris (c) Retina (d) Lens

6. A student test the pH of distilled water and found that the pH paper changed to green. Now he added some common salt to distilled water and pH paper is tested in this solution. The colour of pH paper in this case is likely to be:

(a) Green (b) Yellow (c) Red (d) Blue

7. Involuntary actions like blood pressure, vomiting and salivation are controlled by:

(a) Cerebral cortex (b) Spinal cord

(c) Central nervous system (d) Medulla in the hind brain

8. Match column-I with column-II and select the correct answer using the codes.

	Column-I		Column-II
A.	Electric potential	P.	$E = E_1 + E_2$
B.	Commercial unit of electrical energy	Q.	$Q = i^2Rt$
C.	Superconductor	R.	$V = W/Q$
D.	Cells connected in series	S.	kWh
E.	Heat produced in a conductor	T.	Zero resistance

(a) A – R; B – S; C – T; D – P; E – Q (b) A – S; B – R; C – T; D – P; E – Q

(c) A – R; B – T; C – S; D – P; E – Q (d) A – R; B – S; C – T; D – Q; E – P

9. On a cold morning, a metal surface will feel colder to touch than a wooden surface, because

(a) metal has high specific heat.

(b) metal has high thermal conductivity.

(c) metal has low specific heat.

(d) metal has low thermal conductivity.

10. Which of the following gas is responsible for green house effect?

(a) SO_2 (b) N_2

(c) O_2 (d) CO_2

11. What is the resistance of an air gap?

12. Complete the following reaction:

(a) $Zn + 2HCl \longrightarrow$ .....

(b) $2Na + 2H_2O \longrightarrow$ .....

13. Which part of the brain is involved in auditory reception?

OR

Name the part of the brain which is involved in touch, smell, temperature and consciousness.

14. Does magnetic monopole exit?

OR

Name the device which is used to reverse the direction of current in the coil of motor.

15. In the following food chain, 5 J of energy is available to man. How much energy was available at producer level?

Plants → Animals → Man

16. Why are unsaturated hydrocarbons more reactive than saturated hydrocarbons?

OR

Why are carbon compounds not able to conduct electricity through them?

17. Magnification of a mirror is always less than 1, which mirror is this?

DIRECTIONS: Each of these questions contains an Assertion followed by Reason. Read them carefully and 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 and 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.

18. **Assertion:** Bending a wire does not affect the electrical resistance.
Reason: Resistance of a wire is proportional to resistivity of the material.

19. **Assertion:** Froth floatation process is based on the different wetting nature of ore and gangue particles.
Reason: Pine oil is used in froath floatation process.

20. **Assertion:** The birds have large, light spongy bones with air sacs.
Reason: These adaptations help them during flight.

SECTION - B

21. (a) State one difference between:
(i) Combination and decomposition reaction.
(ii) Displacement and double displacement reaction.
(b) Balance the following chemical equation:

$$Pb(NO_3)_2(s) \xrightarrow{Heat} PbO(s) + NO_2(g) + O_2(g)$$

OR

(a) Who proposed Modern Periodic Law?
(b) What was the basis of arranging the elements in modern periodic table?
(c) State the Modern Periodic Law.

22. (a) Ethane, Ethene, Ethanoic acid, Ethyne, Ethanol
From the list of compound given above, name:
(i) The compound with – OH as a part of its structure.
(ii) The compound with – COOH as a part of its structure.
(iii) Homologues and Homologous series with general formula C_nH_{2n}.
(b) Write the IUPAC names of the following:

(i) $CH_3 - \underset{\displaystyle OH}{\underset{|}{CH}} - COOH$

(ii) $CH_3COOCH_2CH_3$

(iii) $CH_3CH_2 - \underset{\displaystyle OH}{\underset{|}{CH}} - CH_2OH$

23. People use a variety of methods to wash clothes. Usually after adding the soap, they 'beat' the clothes on a stone, or beat it with a paddle, scrub with a brush or the mixture is agitated in a washing machine. Why is agitation necessary to get clean clothes?

24. (a) The magnification of a body of size 1m is 2, then find the height of image.
(b) Focal length of 2 lenses are 40cm and – 20 cm respectively. Find the power and nature of combined lens.

25. The waste materials collected from a market complex are scrap paper, thermocol, vegetable wastes, tin cans and glass bottles. Which of these can be used for producing biogas? Mention three advantages of converting these into biogas rather than burning them?

26. Why photosynthesis is considered the most important process in the biosphere?

OR

Mention the pathway of urine starting from the organ of its formation. Name four substances which are reabsorbed from the initial filtrate in the tubular part of the nephron.

27. Who are stakeholders in respect of forests?

28. Draw a labelled diagram to show the action of dilute sulphuric acid on zinc granules and answer the following:

(a) Name the gas evolved in this experiment.

(b) How will you test for the gas?

OR

A sanitary worker uses a white chemical having strong smell of chlorine gas to disinfect the water tank.

(a) Identify the chemical compound, write its chemical formula.

(b) Give chemical equation for its preparation.

(c) Write its two uses other than disinfection.

29. A man with blood group A marries a woman with blood group O and their daughter has blood group O. Is this information enough to tell you which of the traits—blood group A or O, is dominant ? Why or why not ?

30. What is meant by dispersion of light? Explain how the ray of white light is dispersed. Which colour deviates more?

OR

Mention the rules for obtaining images by convex and concave lens.

SECTION - C

31. Give two reasons for avoiding frequent pregnancies of women. Explain the following methods of contraception giving one example of each:

(a) Barrier method (b) Chemical method (c) Surgical method

32. (a) What is meant by breathing? What happens to rate of breathing during vigorous exercise?

(b) Define translocation with respect to transport in plants. Why is it essential for plants?

33. (a) Name the properties of baking powder responsible for the following uses:

(i) Baking industry (ii) As an antacid (iii) As soda-acid fire extinguisher

(b) Acid when react with metals release hydrogen gas but there is one acid which when reacts with metals does not release hydrogen except for two metals. Prove this statement.

OR

(a) What do you mean by the family of salts?

(b) Why do HCl, HNO_3, etc., show acidic characters in aqueous solutions while solutions of compounds like alcohol and glucose do not show acidic character ?

(c) A weak acid is added to a concentrated solution of hydrochloric acid. Does the solution become more or less acidic ?

34. Write advantages of artificial vegetative reproduction and also mention any two methods of vegetative propagation.

35. (a) Use the mirror formula to show that for an object lying between the pole and focus of a concave mirror, the image formed is always virtual in nature.

(b) A concave mirror of focal length 15 cm forms an image at a distance 10 cm from the mirror. How far is the object placed from the mirror?

36. (a) What is an electromagnet? List any two of its uses.

(b) What is the purpose of the soft iron core used in making an electromagnet?

OR

(a) What are 'magnetic field lines'? How is the direction of a magnetic field at a point determined?

(b) List any four properties of magnetic field lines.