

**Sample Question Paper 2020 – 5**  
**Science - Class – X**

**Time allowed: 03 Hours**

**Maximum Marks: 80**

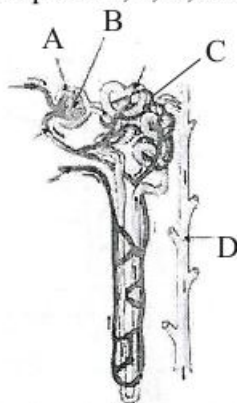
**General Instructions:**

- 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. The increasing order of reactivity with acids of the following metal (Zn, H<sub>2</sub>, Pt, Sn, Cd) is:  
(a) Pt < H<sub>2</sub> < Sn < Cd < Zn                      (b) Pt < H<sub>2</sub> < Cd < Sn < Zn  
(c) Pt < H<sub>2</sub> < Cd < Zn < Sn                      (d) H<sub>2</sub> < Pt < Cd < Sn < Zn
2. In the cardiac cycle, diastole is:  
(a) the number of heart beats per minute.  
(b) the relaxation period after contraction of the heart.  
(c) the forceful pumping action of the heart.  
(d) the contraction period after relaxation of the heart.
3. The power generated in a windmill:  
(a) is more in rainy season since damp air would mean more air mass hitting the blades.  
(b) depends on the height of the tower.  
(c) depends on wind velocity.  
(d) can be increased by planting tall trees close to the tower.
4. Identify the correct representation of reaction occurring during chlor-alkali process.  
(a)  $2\text{NaCl(l)} + 2\text{H}_2\text{O(l)} \rightarrow 2\text{NaOH(l)} + \text{Cl}_2\text{(g)} + \text{H}_2\text{(g)}$   
(b)  $2\text{NaCl(aq)} + 2\text{H}_2\text{O(aq)} \rightarrow 2\text{NaOH(aq)} + \text{Cl}_2\text{(g)} + \text{H}_2\text{(g)}$   
(c)  $2\text{NaCl(aq)} + 2\text{H}_2\text{O(l)} \rightarrow 2\text{NaOH(aq)} + \text{Cl}_2\text{(aq)} + \text{H}_2\text{(aq)}$   
(d)  $2\text{NaCl(aq)} + 2\text{H}_2\text{O(l)} \rightarrow 2\text{NaOH(aq)} + \text{Cl}_2\text{(g)} + \text{H}_2\text{(g)}$

5. In the structure of nephron, identify the parts A, B, C, and D.



	A	B	C	D
(a)	Bowman's capsule	Glomerulus	Tubular part nephron	Collecting duct
(b)	Renal Artery	Bowman's capsule	Tubular part nephron	Collecting duct
(c)	Glomerulus	Bowman's capsule	Tubular part nephron	Collecting duct
(d)	Bowman's capsule	Glomerulus	Tubular part nephron	Renal vein

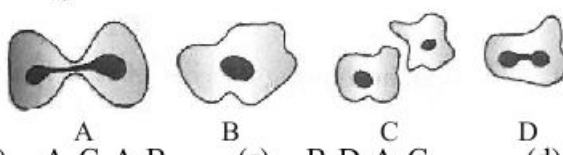
6. Nichrome is an alloy of:

- (a) Ni, Cr (b) Ni, Cr, Fe  
(c) Ni, Cr, Mn (d) Ni, Cr, Mn, Fe

7. Match column-I with column-II and select the correct answer using the codes given below.

Column-I	Column-II
A. Ray passing through centre of curvature	P. Passes through focus after reflection
B. Ray passing through principal focus	Q. Form a pin-sized image at the focus after reflection
C. Rays from an object at infinite distance	R. Becomes parallel to the principal axis after reflection
D. Ray parallel to the principal axis	S. Retraces its path after reflection
(a) A – S; B – R; C – P; D – Q	(b) A – R; B – S; C – P; D – Q
(c) A – S; B – R; C – Q; D – P	(d) A – R; B – S; C – Q; D – P

8. Given below are stages of binary fission in *Amoeba*. Which one out of the following would you select as correct sequence of these stages?



- (a) A, B, C, D (b) A, C, A, B (c) B, D, A, C (d) C, A, D, B

9. Water gas is:

- (a) CO+CO<sub>2</sub> (b) CO+N<sub>2</sub> (c) CO+H<sub>2</sub> (d) CO+N<sub>2</sub>+H<sub>2</sub>

10. A tesla is equivalent to a:

- (a) Newton per coulomb (b) Newton per ampere-meter  
(c) Ampere per newton (d) Newton per ampere-second

11. Why should the alkaline NaOH and KOH be not left exposed to atmosphere?

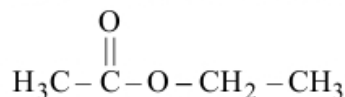
12. How much energy is passed from one trophic level to the next trophic level in an ecosystem?

13. What is the minimum length of a plane mirror required to see the full image of six feet high man?

OR

Which mirror has a wider field of view?

14. The structural formula of an ester is given below.



Write the formula of the alcohol and the acid from which it would have been formed?

**OR**

Write the IUPAC names of the following :

- (a)  $\text{CH}_3\text{OH}$  (b)  $\text{CH}_3\text{COOH}$
15. Mention three advantages of a solar cell.
16. Name the information source for making proteins in the cells.

**OR**

How many pairs of chromosomes are present in human beings?

17. What is the focal length of a plane mirror?

**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:** Zinc is used in the galvanisation of iron.

**Reason:** Its coating on iron articles increases their life by protecting them from rusting.

19. **Assertion:** Whittaker's classification for algae is not acceptable.

**Reason:** Whittaker grouped algae in different kingdoms.

20. **Assertion:** Convex lens of a small focal length is used as a magnifying glass.

**Reason:** Convex lens forms an enlarged image of an object, when the object is placed beyond the focus of the lens.

### **SECTION - B**

21. (a) Why the current makes the heater filament red hot but slightly warm the connecting wires leading to the heater?  
 (b) How much current will an electric heater draw from 220 V, if the resistance of the heater is  $40\Omega$ ?
22. (a) Give two applications of petroleum gas.  
 (b) Why is a solar cooker painted black from outside?
23. Identify the compound of calcium which is used for plastering of fractured bones. With the help of chemical equation describe how this compound is prepared. What special precautions should be taken during the preparation of this compound?

**OR**

State what happens when:

- (a) Gypsum is heated at 373 K.  
 (b) Blue crystals of copper sulphate are heated.  
 (c) Excess of carbon dioxide gas is passed through lime water.
24. How many electrons can be present in the valence shells of metal atoms and non-metal atoms?
25. What is vegetative propagation? List two uses.

**OR**

What is the role of hormones in the process of reproduction?

26. Explain evolution. What are different types of evidences of evolution?  
 27. The sun near the horizon appears flattened at sunset and sunrise. Explain why?

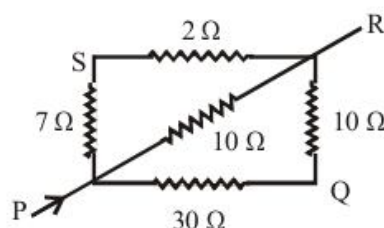
**OR**

Why does the sky appear dark instead of blue to an astronaut?

28. Write balanced reactions that would lead to formation of the following salts:  
 (a)  $\text{CaBr}_2$                       (b)  $\text{CaOCl}_2$                       (c)  $\text{NaHCO}_3$
29. (a) What is cerebellum? What are its functions?  
 (b) What is medulla oblongata? Explain its function.
30. Explain :  
 (a) Magnetic lines of force always start from the north pole and end at the south pole. Why?  
 (b) Magnetic lines of force are very close to each other near the poles and widely separated when away from the poles. Why?

**SECTION - C**

31. (a) Derive a formula for the equivalent resistance for three resistances connected in parallel.  
 (b) Find the equivalent resistance and total current in the circuit, if the point P and R are connected to a 6V battery.



32. Give one example in each of the following case:  
 (a) A base which is not an alkali.  
 (b) A hydrogen containing compound which is not an acid.  
 (c) A hydroxide which is highly soluble in water.  
 (d) An oxide which is a base.  
 (e) A weak mineral acid.

**OR**

Write balanced equation to satisfy each statement.

- (a) Acid + Active metal  $\longrightarrow$  Salt + Hydrogen  
 (b) Acid + Base  $\longrightarrow$  Salt + Water  
 (c) Acid + Carbonate / Bicarbonate  $\longrightarrow$  Salt + Water + Carbon dioxide  
 (d) Acid + Metal oxide  $\longrightarrow$  Salt + Water  
 (e) Base + Metal  $\longrightarrow$  Salt + Hydrogen
33. (a) List three distinguishing features between sexual and asexual reproduction.  
 (b) What are contraceptive methods? Give reasons for adopting contraceptive methods.
34. (a) List four characteristics of the image formed by plane mirror.  
 (b) Concave mirror produces 4 times magnified real image of an object. If the focal length is 40 cm, then find image and the object distance?  
 (c) An object is placed at a distance of 15 cm from a concave mirror of focal length 6cm. If the height of the object is 4cm, find the distance, nature and size of image.
35. Which of the following combinations would result in a displacement reaction? Explain.  
 (a)  $\text{I}_2(\text{s}) + \text{NaBr}(\text{aq}) \longrightarrow$   
 (b)  $\text{Cl}_2(\text{g}) + \text{NaI}(\text{aq}) \longrightarrow$   
 (c)  $\text{Br}_2(\text{l}) + \text{NaCl}(\text{aq}) \longrightarrow$
36. Explain why, despite good rains, we are not able to meet the demand for water of all the people in our country.

**OR**

Why is damage to the ozone layer a cause for concern? What steps are being taken to limit this damage?