

**SAMPLE PAPER (TERM-I) , 2019-20**

**CLASS-X  
SCIENCE**

**Time : 3 hours**

**Maximum Marks : 80**

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**General Instructions :**

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1. *The question paper comprises of four sections, A, B, C and D. You are to attempt all the sections.*
  2. *All questions are compulsory*
  3. *Question numbers 1 to 4 in section A are **Objective Type Questions including Multiple Choice Questions, Assertion-Reason Questions, Fill in the blanks and Very Short Answer Questions.** These are to be answered in one word or one sentence.*
  4. *Question numbers 5 to 14 in section B are **three- marks** questions to be answered in about 50 words each .*
  5. *Question numbers 15 to 18 in section A are **five marks** questions to be answered in 70 words each.*
  6. *Question numbers 19 to 24 in section D are based on practical skills. Question numbers 19 to 22 are of **one mark** each and to be answered in one word. Question numbers 23 and 24 are of **three-marks** each and to be answered in brief.*
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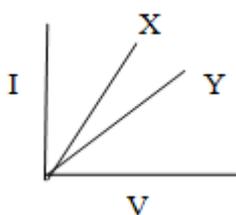
**Section A**

- 1. Choose and write the correct answer for each of the following. (6 x 1=6)**
- i) An example of neutral salt is:  
a)  $\text{NH}_4\text{Cl}$                       b)  $\text{Na}_2\text{CO}_3$                       c)  $\text{KCl}$                       d)  $\text{CaCO}_3$
  - ii) A concave mirror gives virtual, refract and enlarged image of the object but image of smaller size than the size of the object is  
(a) At infinity                      (b) Between F and C  
(c) Between P and F                      (d) At E
  - iii) When one unit electric charge moves from one point to another point in an electric circuit, then the amount of work done in joules is known as?  
(a) Electric current                      (b) electric resistance  
(c) electric conductance                      (d) potential difference
  - iv) The autotrophic mode of nutrition requires:  
a) Carbon dioxide and water                      b) Chlorophyll  
c)Sunlight                      d) All of the above
  - v) Which of the following can undergo a chemical reaction?  
a)  $\text{MgSO}_4 + \text{Fe}$                       b)  $\text{ZnSO}_4 + \text{Fe}$   
c)  $\text{Al}_2(\text{SO}_4)_3 + \text{Fe}$                       d)  $\text{CuSO}_4 + \text{Fe}$
  - vi) Which of the following is a plant hormone?  
a) Insulin                      b) Thyroxine                      c) Oestrogen                      d) Cytokinin

2. Answer the following in one word or a sentence.

(6 x 1=6)

- i) The sky appear dark instead of blue to an astronaut. State its reason
- ii) Mention one limitation of electrical impulse.
- iii) The speed of light in a transparent medium is 0.6 times that of its speed in vacuum. What is the refractive index of the medium?
- iv) What will happen if DNA copying mechanisms were less accurate? (1)
- v) Define corrosion. (1)
- vi) V-I graph for the metallic wires X and Y at constant temperature are as shown in figure:



Assume that the two wires have same length and same diameter, explain as to which of the two wires has higher resistivity and why? (1)

3. Fill in the blanks.

(2 x 1=2)

- i) \_\_\_\_\_ arranged the known elements in order of their increasing atomic weight in the form of a table called Periodic table. (1)
- ii) When calcium carbonate is heated, it decomposes into \_\_\_\_\_ and \_\_\_\_\_ gas. (1)

4. The following questions consist of two statements- Assertion (A) and Reason (R).

Answer these selecting the appropriate option given below:

(6x1=6)

- a) Both A and R are true and R is correct explanation of A.
  - b) Both A and R are true but R is not the correct explanation of A.
  - c) A is true but R is false.
  - d) A is false but R is true.
- i) **Assertion (A)** : Fluorine has greater atomic radius than that of nitrogen.  
**Reason (R)** : Atomic radius decreases along a period.
  - ii) **Assertion (A)** : In a reaction of copper with oxygen, copper serves as a reducing agent.  
**Reason (R)** : The substance which gains oxygen in a chemical reaction is a reducing agent.
  - iii) **Assertion (A)** : Energy is required to carry out different life processes.  
**Reason (R)** : Energy is obtained in the form of ATP in the mitochondria.

- iv) **Assertion (A)** : Brain is the part of the central nervous system.  
**Reason (R)** : Central nervous system controls and regulates the voluntary actions.
- v) **Assertion (A)** : Longer wire have greater resistance and the smaller wires have lesser resistance.  
**Reason (R)** : Resistance is inversely proportional to the length of the wire.
- vi) **Assertion (A)** : It is not possible to see a virtual image by eye.  
**Reason (R)** : The rays which seem to emanate from a virtual image do not in fact emanates from the image.

**Section B**

5. The following table shows the positions of few elements in periodic table.

Groups-Periods	1	2	13	14	15	16	17	18
2	A				B			C
3		D		E				

- i) Out of A and B, which is more electronegative and why? (3)
- ii) Out of D and E, which has bigger atomic radius and why?
- iii) Which element is a non metal with valency 3? Write its electronic configuration.

6. A solid metal compound A reacts with dilute HCl to produce effervescence of gas (B). The gas evolved extinguishes a burning candle.

- i) Identify A and B
- ii) Write a balanced chemical equation for the reaction if one of the compounds formed is calcium chloride.

OR

A brown substance X on heating in air forms a substance Y, When hydrogen gas is passed over heated Y, it again changes back to X.

- i) Name the substance X and Y
- ii) Name the type of chemical reaction occurring during both the reactions.
- iii) Write the balanced chemical equation for the reactions. (3)

7. a) The pH of soil A is 7.5 while that of soil B is 4.5. Which of the soils A or B should be treated with powdered chalk to adjust its pH and why?

b) Compounds such as alcohol and glucose also contain hydrogen but are not categorised as acids. Explain. (3)

8. Three identical bulbs are connected in parallel with a battery of 4.5 V. When all the bulbs glow, the current of 3A is drawn from the battery.

- (i) What is the amount of current flowing through each bulb?
- (ii) When one of the bulb gets fused, what happens to the current flowing through other two bulbs?
- (iii) How much power is dissipated in the circuit when all the three bulbs glow together? (3)

9. (i) The image of an object formed by a mirror having a focal length of 20cm has a magnification of  $-1/3$ . At what distance the object has been placed from the mirror? What is the nature of image and the mirror?  
(ii) Where would be the image be if the object is moved  
(a) 60 cm towards the mirror (b) 40 cm towards the mirror.

OR

You have two lenses A and B of focal lengths +10cm and -10cm respectively. State the nature and power of each lens. Which of the two lenses will form a virtual and magnified image of an object placed 8 cm from the lens? Draw a ray diagram to justify your answer. (3)

10. (i) For the same angle of incidence in media A, B and C, the angles of refraction are  $40^\circ$ ,  $50^\circ$  and  $60^\circ$  respectively. In which medium will the velocity of light be maximum? Give reason in support of your answer.  
(ii) The absolute refractive indices of two media 'A' and 'B' are 2.0 and 1.5 respectively. If the speed of light in medium 'B' is  $2 \times 10^8$  m/s, calculate the speed of light in:  
(i) vacuum (ii) medium 'A'. (3)

11. i) What is regeneration? Why complex organisms cannot multiply by simple process of regeneration?  
ii) What is the role of cotyledon in a seed? (3)
12. i) Mention two secondary sexual characters each in human male and female.  
ii) Name two unisexual flowers. (3)
13. i) Why is blood circulation in human heart called as double circulation?  
ii) Explain the process of inhalation in humans.

OR

- i) How are the lungs designed in human beings to maximize the area for exchange of gases?  
ii) Mention two points of difference between transport of materials in xylem and phloem. (3)
14. Draw a diagram of human alimentary canal and label the following parts:  
a) largest gland  
b) gland that secretes digestive enzymes and hormones  
c) part where HCl is produced  
d) part where digested food is absorbed (3)

Section C

15. a) A dry palletete of common base 'X' when kept in open air absorbs moisture and turn sticky. The compound is also a by-product of chlor-alkali process. Identify 'X'.  
What type of reaction occurs when 'X' is treated with strong acid? Write balanced chemical equation for such reaction.
- b) Can we store the base 'X' in an aluminium container? Give reason in support of your answer.

OR

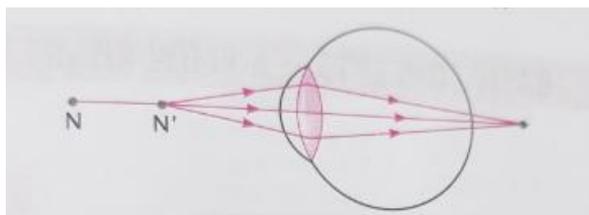
- a) Give reasons for the following:
- i) Rain water conducts electricity but distilled water does not.
  - ii) We feel burning sensation in the stomach when we overeat.
  - iii) A tarnished copper vessel regains its shine when rubbed with lemon.
- b) Translate the following statements into chemical equations and then balance the equations.
- i) Phosphorous burns in oxygen to give phosphorous pentoxide.
  - ii) Aluminium metal replaces iron from ferric oxide, giving aluminium oxide and iron. (5)

16. i) How is endocrine system able to maintain hormonal concentration in the body?
- ii) List in tabular form three distinguishing features between cerebrum and cerebellum.

OR

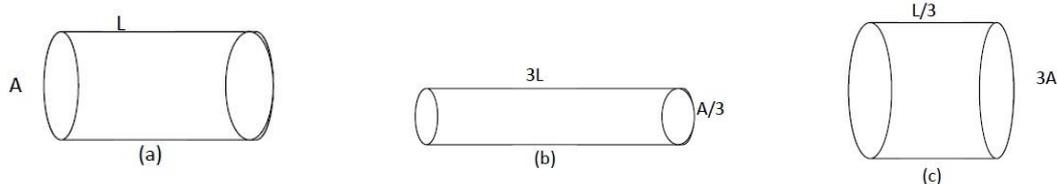
- i) What is reflex action? Explain with the help of an example.
- ii) How does our body respond when adrenaline is secreted into the blood?
- iii) Give an example of a plant hormone that promotes growth. (5)

17. (a) Study the given diagram and answer the questions that follow:



- i) Which the defect of vision is represented in this case? Give reason for your answer.
  - ii) What could be the two causes of this defect?
  - iii) With the help of a diagram show how this defect can be corrected by the use of a suitable lens. (5)
- (b) How are we able to see nearby as well as distant objects. (5)

18. (i) The figure below shows three cylindrical copper conductors along with their face areas and lengths. Compare the resistance and the resistivity of the three conductors. Justify your answer



- (ii) What are the advantages of connecting electrical devices in parallel with the battery instead of connecting them in series?

OR

- (i) A 6 V, 12 W lamp is connected in series with a resistor R and a source of voltage 12V.
- What is the purpose of the resistor R?
  - Calculate the value of the resistor R, for the proper working of the lamp.
  - (c) What is the current flowing through the circuit?

- (ii) Two coils of resistances  $3\ \Omega$  and  $6\ \Omega$  are connected in series across a battery of p.d. 12 V. Draw the circuit diagram. Find:

- the electrical energy consumed in 1 minute in each resistance, and
- the total electrical energy consumed by the battery in 1 minute. (5)

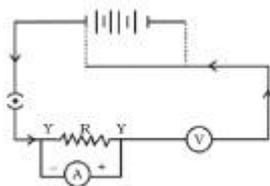
### Section D

19. The pH values of four solutions A, B, C, D as determined by a student are 4, 7, 12 and 8 respectively. Arrange the four solutions in the decreasing order of their hydrogen ion concentration.

- C, B, D, A
- C, D, B, A (1)

20. When a few drops of phenolphthalein are added to a dilute solution of sodium hydroxide, a pink colour is produced. What will be the colour of the final mixture when excess of HCl is added to it? (1)

21. A Child has drawn the electric circuit to study Ohm's law as shown in Figure.



- Is the circuit correct? If not then draw the correct circuit diagram. (1)

22. Role of stomata in plants is

- Gas exchange
- Protection
- Photosynthesis
- Both (a) and (c) (1)

**23.** While studying types of reactions Rohan mixed the two substances, solid sodium sulphate and solid barium chloride.

- i) What were his observations?
- ii) Give reason for his observations.
- iii) What kind of reaction he wanted to study? (3)

**24.** A student observed the leaf peel under the microscope to study the structure of stomata. List any three correct observations which could have been made by him. (3)

OR

Write any three precautions which should be taken while performing an experiment to show respiration in germinating seeds.