CLASS X (2019-20)
SCIENCE (CODE 086)
SAMPLE PAPER-7

Time : 3 Hours **Maximum Marks : 80**

General Instructions :

(i) The question paper comprises of three sections-A, B and C. Attempt all the sections.
(ii) All questions are compulsory.
(iii) Internal choice is given in each sections.
(iv) All questions in Section A are one-mark questions comprising MCQ, VSA type and assertion-reason type questions. They are to be answered in one word or in one sentence.
(v) All questions in Section B are three-mark, short-answer type questions. These are to be answered in about 50-60 words each.
(vi) All questions in Section C are five-mark, long-answer type questions. These are to be answered in about 80-90 words each.
(vii) This question paper consists of a total of 30 questions.

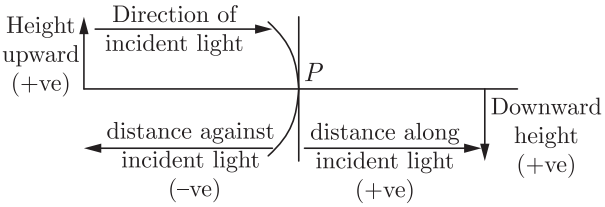
SECTION A

Q1. State your observations when a clean magnesium strip is held in a Bunsen flame for sometime.[1]

Q2. In the modern periodic table which are the metals amongst the first ten metals. [1]

Q3. **Answer question numbers 3.1-3.4 on the basis of your understanding of the following paragraph and the related studied concepts.**

While dealing with the reflection of light by spherical mirrors, we shall follow a set of sign conventions called the New Cartesian Sign Convention. In this convention, the pole (P) of the mirror is taken as the origin. The principal axis of the mirror is take as the x-axis of the coordinate system. In a spherical mirror, the distance of the object from its pole is called the object distance (u). The distance of the image from the pole of the mirror is called the image distance (v). Magnification produced by a spherical mirror gives the relative extent to which the image of an object is magnified with respect to the object size. It is expressed as the ratio of the height of the image to the height of the object. It is usually represented by the letter (m).



3.1 How can you calculate the magnification of a spherical mirror? [1]

3.2 What does a negative sign in the value of magnification indicates? [1]

3.3 Find the focal length of a convex mirror whose radius of curvature is 32 cm. [1]

3.4 Why does the height of the object is taken to be positive? [1]

Q4. **Question number 4.1-4.4 are based on the two tables given below. Study this table and answer the questions that follows.**

Table A : Normal Blood Pressure		
Systolic Pressure (mm Hg)	**Diastolic Pressure (mm Hg)**	**Pressure Range**
130	85	High Normal Blood Pressure
120	80	Normal Blood Pressure
110	75	Low Normal Blood Pressure

Table B : Approx. Ideal BP According to Age Chart		
Age	**Female**	**Male**
10	111/73	112/73
13	117/75	117/76
14	120/75	119/77
15	120/76	120/78
19-24	120/79	120/79
25-29	120/80	121/80
30-35	122/81	123/82
40-45	124/83	125/83
50-55	129/85	128/85
60+	134/84	135/88

4.1 Refer to Table B showing the blood pressure of male and female. Infer the disease which can be diagnosed in a boy of 14 years who have same blood pressure as a 60 year old man. [1]

4.2 Identify the hormone whose level in the blood is responsible for raise in blood pressure in certain situations. [1]

4.3 Which of the following trend in blood pressure range is seen with advancement of age from teenage to old age? [1]

(a) Increase

(b) Remains same

(c) Decrease

(d) Fluctuates

4.4 Which of the following is incorrect in case of high blood pressure? [1]

(a) Increased resistance to blood flow.

(b) Decreased resistance to blood flow

(c) Rupture of an artery

(d) Internal bleeding.

Q5. Your friend is performing an experiment on determining the focal length of the given convex lens by obtaining the image of a distant object on the screen. Out of the following clearly visible objects which one you suggest to use as the object for his experiment to get best results. [1]

(a) A lighted candle kept at the other end of the laboratory table

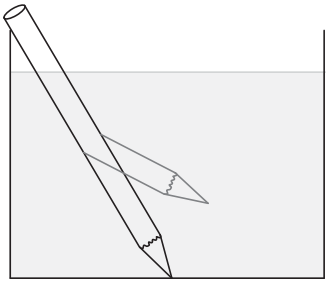
(b) Any distant tree

(c) Window grill in the laboratory

(d) A well illuminated distant tree

OR

Which statement best describes the property of light waves illustrated in the diagram below? [1]



(a) some materials absorb light waves.
(b) Some materials refracted by some materials.
(c) Light waves are refracted by some materials.
(d) Light waves are emitted by some materials.

Q6. A student connects a circuit to study Ohm's law using a resistor of 3 Ohms and a battery eliminator of 6 V. Which of the ammeter should be chosen to read the value of current for this circuit, if the ammeters available in the laboratory have the following ranges? [1]

(a) 0 – 200 mA (b) 0 – 100 mA
(c) 0 – 1A (d) 0 – 2A

Q7. When sodium sulphate solution and barium chloride solution are mixed together, the colour of precipitate formed is : [1]

(a) yellow (b) green
(c) white (d) red

Q8. A colourless solution is kept in a test tube. This solution could be : [1]

(a) ferrous sulphate
(b) copper sulphate
(c) aluminium sulphate
(d) potassium permanganate

OR

The function of KOH in the experimental set-up to show that CO_2 is released during respiration is [1]

(a) to enhance respiration
(b) to release oxygen for respiration
(c) to absorb carbon dioxide released by germinating seeds
(d) to remove water vapour from the flask

Q9. A student observed that when he applied to soap to cloth made wet with a given sample of water, scum's were formed. He discusses his observation with his four friends. Their opinion is that soap forms a scum in : [1]

(A) hard water
(B) soft water
(C) distilled water
(D) potable water

Correct opinion is of :

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

Q10. In the binary fission method of multiplication : [1]
(a) only one parent is involved
(b) no gametes are formed
(c) fertilisation does not take place
(d) all the above statements are true

Q11. To prepare a good temporary mount of leaf peel showing many stomata, a student should take the peel from the [1]
(a) petiole
(b) midrib
(c) lower surface of the leaf
(d) upper surface of the leaf

Q12. Which is the first enzyme to mix with food in the digestive tract? [1]
(a) Pepsin (b) Cellulose
(c) Amylase (d) Trypsin

OR

Choose the incorrect statement about insulin [1]
(a) It is produced from pancreas
(b) It regulates growth and development of the body.
(c) It regulates blood sugar level
(d) Insufficient secretion of insulin will cause diabetes.

(Q.no 13 to 14) In each of the following questions, a statement of Assertion is given by the corresponding statement of Reason. Of the statements, mark the correct answer as.
(a) If assertion is true and reason is correct explanation of assertion.
(b) If assertion is true but reason is false.
(c) If assertion is false but reason is true.
(d) If both are false.

Q13. **Assertion :** Carbon and its compound are used as fuels for most applications.
Reason : Carbon and its compounds can easily burn in air at a moderate rate, produce large amount of heat energy and pollute the atmosphere marginally [1]

Q14. **Assertion :** Offspring formed by asexual reproduction exhibit remarkable similarity.
Reason : In asexual reproduction, the younger ones are genetically identical to the parents and another young ones as they possess exact copies of DNA. [1]

SECTION B

Q15. Given below are some elements of the modern periodic table: $_{4}Be$, $_{9}F$, $_{14}Si$, $_{19}K$, $_{20}Ca$
i. Select the element that has one electron in the outermost shell and write its electronic configuration.
ii. Select two elements that belong to the same group. Give reason for your answer.
iii. Select two elements that belong to the same period. Which one of the two has bigger atomic size ? [3]

Q16. Write ionic equations to show the presence of ions in aqueous solutions of :
(i) Sodium hydroxide,

(ii) Barium hydroxide,
(iii)Ammonium hydroxide. [3]

OR

Arrange the following salts as acidic, basic and neutral.
$NaCl, K_2CO_3, Na_2SO_3, Cu(NO_3)_2, MgCl_2$ and K_2SO_4

Q17. i. Differentiate between alkanes and alkenes. Name and draw the structure of one member of each.
ii. Alkanes generally burn with clean flame. Why ? [3]

Q18. Tabulate two distinguishing features between acquired traits and inherited traits with one example of each. [3]

OR

Write two examples each of sexually transmitted diseases caused by virus, (ii) bacteria. Explain how the transmission of such diseases be prevented ? [3]

Q19. During Tsunami (a kind of natural disaster) at Japan, the nuclear reactors were damaged and the hazardous radiations affected the large area.
Answer the following questions based on above information
i. What would be the reason for this damage? [1]
ii. How did it affect the people and environment? [2]

Q20. What is 'phototropism'? How does it occur in plants ? Describe an activity to demonstrate phototropism. [3]

Q21. Explain the process of break down of glucose in a cell (i) in the presence of oxygen (ii) in the absence of oxygen. [3]

Q22. What is meant by "electrical resistance" of a conductor? State how resistance of a conductor is affected when
i. a low current passes through it for a short duration;
ii. a heavy current passes through it for about 30 seconds. [3]

Q23. An electric iron of resistance 20 Ω takes a current of 5 A. Calculate the heat developed in 30 s.[3]

Q24. An object of height 5 cm is placed perpendicular to the principal axis of a concave lens of focal length 10cm. Use lens formula to determine the position, size and nature of the image if the distance of the object from the lens is 20 cm. [3]

OR

Mention the types of mirrors used as (i) rear view mirrors, (ii) shaving mirrors. List two reasons to justify your answers in each case. [3]

SECTION C

Q25. K; Na; Ca; Mg; Al; Zn; Fe; Sn; Pb; Cu; Hg; Ag; Au constitute the metal reactivity series.
Answer the following questions and write chemical equations :
i. Name the metal which on heating reacts with steam, but the reaction is reversible.
ii. Name a metal which burns with a yellow flame and reacts with cold water
iii. Name a metal which does not react with water or steam, but reacts with hydrochloric acid.
iv. Name a metal which does not react with cold water, but reacts with boiling hot water

v. Name a metal which does not react with water or HC1. [5]

OR

i. What happens chemically when quicklime is added to water ?
ii. Balance the following chemical equation
$MnO_2 + HCl \longrightarrow MnCl_2 + Cl + H_2O$
iii. What is decomposition reaction? Explain it with suitable example. [5]

Q26. i. Define the term 'isomers'.
ii. Draw two possible isomers of the compound with molecular formula C_3H_{60} and write their names.
iii. Give the electron dot structures of the above two compounds. [5]

Q27. What are fossils ? How are they formed? Describe in brief two methods of determining the age of fossils. State any one role of fossils in the study of the process of evolution. [5]

Q28. i. Write the function of placenta in human females.
ii. List four ways of preventing pregnancy. State two advantages of using such preventive methods. [5]

OR

i. Identify A, B and C in the given diagram and write their functions.
ii. Mention the role of gamete and zygote in sexually reproducing organisms. [5]

Q29. How will you infer with the help of an experiment that the same current flows through every part of the circuit containing three resistances in series connected to a battery ? [5]

Q30. State Snell's law of refraction of light. Write an expression to relate refractive index of a medium with speed of light in vacuum.
The refractive index of a medium 'a' with respect to medium 'b' is 2/3 and the refractive index of medium 'b' with respect to medium 'c' is 4/3. Find the refractive index of medium 'c' with respect to medium 'a'. [5]

OR

i. Define real image of an object.
ii. Name the mirror that
(a) can give real as well as virtual image of an object.
(b) will always give virtual image of same size of an object.
(c) will always give virtual and diminished image of an object.
(d) is used by a doctor in examining teeth.
iii. With the help of a ray diagram explain the use of concave mirror as solar concentrators. [5]