Practice Question Paper 5
2020-21
Class X
Science (086)

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

General Instructions:

(i) The question paper comprises four sections A, B, C and D. There are 36 questions in the question paper. All questions are compulsory.

(ii) Section–A - question no. 1 to 20 - all questions and parts thereof are of one mark each. These questions contain multiple choice questions (MCQs), very short answer questions and assertion - reason type questions. Answers to these should be given in one word or one sentence.

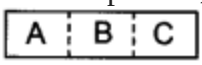
(iii) Section–B - question no. 21 to 26 are short answer type questions, carrying 2 marks each. Answers to these questions should in the range of 30 to 50 words.

(iv) Section–C - question no. 27 to 33 are short answer type questions, carrying 3 marks each. Answers to these questions should in the range of 50 to 80 words.

(v) Section–D – question no. - 34 to 36 are long answer type questions carrying 5 marks each. Answer to these questions should be in the range of 80 to 120 words.

(vi) There is no overall choice. However, internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.

(vii) Wherever necessary, neat and properly labeled diagrams should be drawn.

SECTION A		
No.	Questions	Marks
1	What is emulsification of fats?	1
2	The given magnet is divided into three parts A, B, and C.  Name the parts where the strength of the magnetic field is: (i) maximum (ii) minimum. **OR** State the rule to determine the direction of a magnetic field produced around a straight conductor carrying current.	1
3	What do you understand by reflection of light?	1
4	What is the effect of DNA copying which is not perfectly accurate on the reproduction process? **OR** State the method used for growing rose plants.	1

5	What happens to the temperature of water when few drops of concentrated sulphuric acid is added to it?	1
6	Name two excretory products other than 0_2 and CO_2 in plants. **OR** Mention how organisms like bread moulds and mushrooms obtain their food.	1
7	Is burning of a candle, a physical change or a chemical change ?	1
8	What is the nature of the image formed by a concave mirror if the magnification produced by the mirror is +3? **OR** Between which two points related to a concave mirror should an object be placed to obtain on a screen an image twice the size of the object?	1
9	How does carbon attain noble gas configuration?	1
10	Why do different components of white light deviate through different angles when passing through a triangular glass prism?	1
11	Which of the following reactions is incorrect - (a) $Zn + CuSO_4 \rightarrow ZnSO_4 + Cu$ (b) $2Ag + Cu(NO_3)_2 \rightarrow 2AgNO_3 + Cu$ **OR** In which type of chemical reaction heat is evolved?	1
12	What is a gene? **OR** Write the scientific name of garden pea and human.	1
13.	An element reacts with oxygen to give a compound with a high melting point. This compound is also soluble in water. What is this element likely to be?	1

For question numbers **14, 15** and **16**, two statements are given- one labelled **Assertion (A)** and the other labelled **Reason (R)**. Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below:

a) Both A and R are true, and R is correct explanation of the assertion.

b) Both A and R are true, but R is not the correct explanation of the assertion.

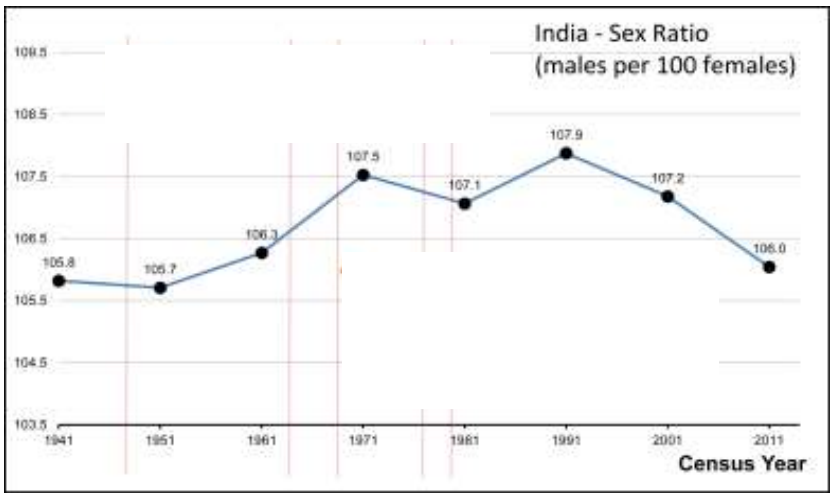
c) A is true, but R is false.

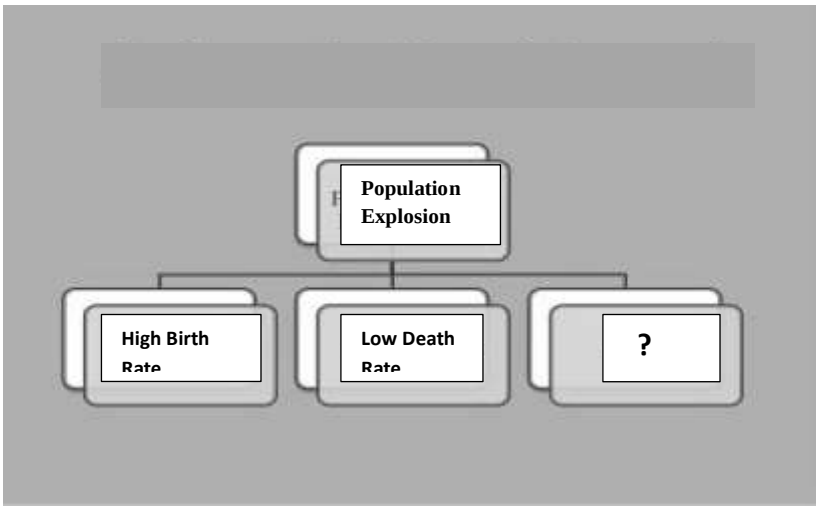
d) A is false, but R is true.

14	**Assertion**: Aqua regia is able to dissolve gold and Platinum **Reason**: Aqua regia is the least reactive, fuming reagent.	1
15	**Assertion:** We should brush our teeth after eating. **Reason:** Brushing removes the dental plaque before the bacteria produce acids.	1
16	**(I)Assertion:** The food chains generally consist of only three or four steps. **Reason:** Our food grains such as wheat and rice, vegetables and fruits and even meat contain varying amounts of pesticides. **OR** **(II)Assertion:** The amount of ozone in the atmosphere began to increase sharply in the 1980s. **Reason:** The United Nations environment programme (UNEP) succeeded in forging an agreement to freeze CFC production in 1987.	1

Answer Q. No 17 - 20 contain five sub-parts each. You are expected to answer <u>any four</u> sub parts in these questions.

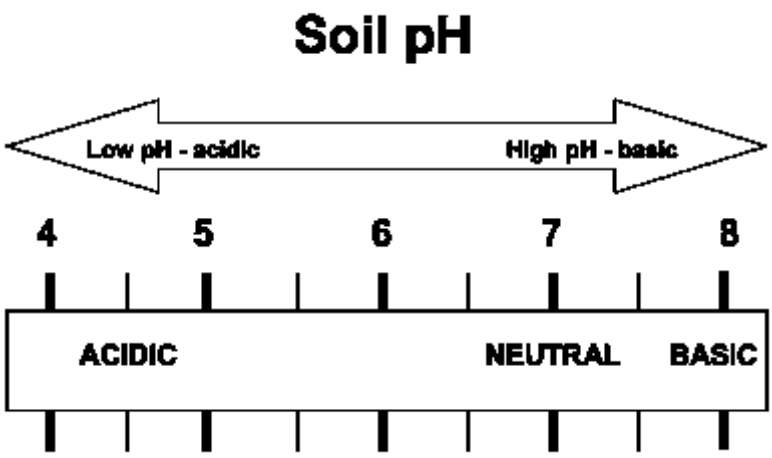
17	<u>Read the following and answer any **four** questions from 17 (i) to 17 (v)</u> Female foeticide is is the process of abortion to terminate a female fetus from the mother's womb. It happens before taking birth. It is an unethical & illegal practice in India by the families who are despairing for a baby boy. There are various reasons for female foeticide like social, religion, financial, and emotional. Although the practice of any sex determination is prohibited or illegal in India, female foeticide has become a disgraceful and shocking truth of our nation.	1x4
17(i)	The sex chromosomes in a girl child are- a) XX b) XY c) YY d) YX	

17(ii)	The graph below represents the crude birth rate trends in India (per 1000 people, national average)-  What would be the probable cause of declining Birth Rate in India? a) Sex selective abortions b) Adopting contraceptive methods c) Less reproduction rate d) Improved living standards	
17(iii)	The graph below represents the sex ratio in India:  For a healthy society- a) female-male sex ratio must be maintained. b) Prenatal sex determination has been prohibited by law. c) both (a) and (b) d) neither (a) nor (b)	

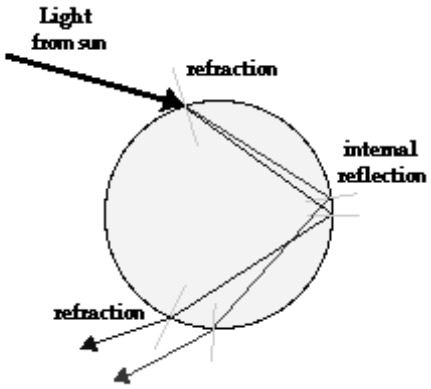
17(iv)	 The third probable reason of population explosion may be- a) Migration b) Sexually Transmitted diseases c) Female Reproductive Health d) Inequality in societies	
(v)	Which of the following is not a Sexually Transmitted Disease- a) Wart b) Syphilis c) Gonorrhoea d) Covid -19	

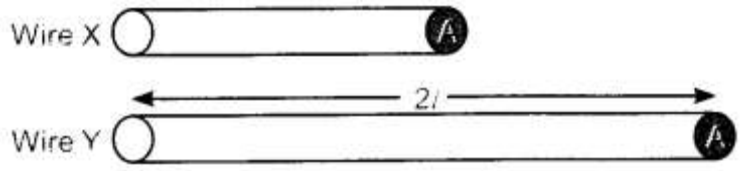
18	Read the following and answer any **four** questions from 18 (i) to 18 (v). Visit any town or city and we are sure to find heaps of garbage all over the place. Visit any place of tourist interest and we are sure to find out the place littered with empty wrappers. For the waste generated at home, it's advisable to follow a four bin system. This means simply segregate your house waste. Put kitchen waste or organic waste in a green bin, Inert waste (waste which is neither chemically or biologically reactive and will not decompose like diapers etc.) in a black bag, a white bin for waste that is recyclable like milk packets, oil, plastics and a black bin for all the hazardous waste materials.  	1x4
18 (i)	Some non-biodegradable substances in the give picture are- a) fruit peels, milk bags, paints, cans b) Disposable plates ,batteries, diapers, paints c) Cans, sanitary napkins, diapers, banana peels d) all kitchen waste, disposable cups, paints	
18 (ii)	Non- biodegradable substances may be- a) inert b) persist in the environment for a long time c) harm the various members of the ecosystem d) All of these	

18 (iii)	The action of bacteria or other saprophytes on many human made materials like plastics can be compared with the action of enzymes in our body on the food eaten. This statement indicates- a) why we get energy from food b) how enzymes are specific in action c) Why we will not get any energy if we try to eat coal ! d) All of these	
18 (iv)	The harmful effects of biodegradable substances on environment are- i) They produce smell during decomposition process ii) They may produce some harmful gases such as Ammonia, Methane and carbon dioxide etc. iii) They may further cause global warming The statements which are correct are- a) only (i) and (ii) c) (i) , (ii) and (iii) b) only (i) and (iii) d) only (ii)and (iii)	
18 (v)	Chemicals like _____have harm the ozone layer. This chemical is- a) CFC b) HCl c) CO_2 d) H_2	

19	Read the following and answer any **four** questions from 19 (i) to 19 (v)  In general, heavy metal (like Cu, Mg, Zn etc.)availability is highest at low pH. At low pH, these heavy metals could become toxic. But, liming of soil can decrease heavy metal availability. That's why Biosolids are used for liming of the soil. It can contain heavy metals, while some biosolids might also be lime-stabilized, resulting in a pH increase upon application.	1x4

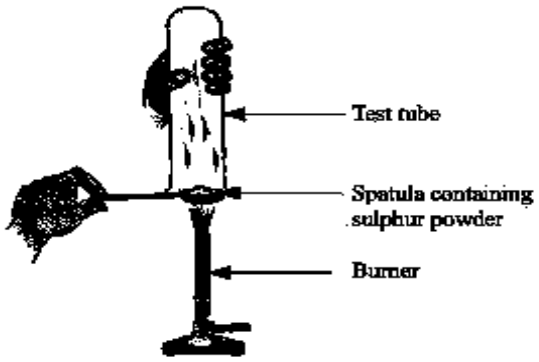
19 (i)	Based on the diagram shown, plants survive only in a) acidic range b) basic range c) in a narrow range of pH change d) neutral soil	
19 (ii)	<table><tr><th>CROP</th><th>Recommended pH Range</th></tr><tr><td>Barley</td><td>6.3-6.5</td></tr><tr><td>Corn</td><td>5.8-6.2</td></tr><tr><td>Oats</td><td>5.8-6.2</td></tr><tr><td>Soybeans</td><td>6.6-7.0</td></tr><tr><td>Wheat</td><td>6.3-6.5</td></tr></table> The recommended pH range for wheat is- a) Highly acidic b) Slightly acidic c) Highly basic d) Slightly basic	
19 (iii)	Nutrients like Iron, copper, zinc, magnesium are maximum available to soil at a) High pH b) Low pH c) Neutral pH d) Moderate pH	
19 (iv)	Biosolids- i) are the nutrient-rich organic materials ii) are recycled as a fertilizer and stimulate plant growth by soil amendment iii) also enhance the likelihood of groundwater pollution of nitrogen and phosphorus. What is true about Biosolids- a) only (i) b) both (i) and (ii) c) only (iii) d) (i) ,(ii) and (iii)	
19 (v)	The soil becomes_____ when its pH is more acidic than the desired value. Use an appropriate word to complete this statement. a) fertile b) useful c) neutral d) toxic	

20	Read the following and answer any 4 questions from 20 (i) to 20 (v).  	1x4
20 (i)	Which natural phenomena is being shown here? a)Twinkling of stars b)Rainbow formation c) reddish appearance of the sun early in the morning d) blue colour of sky	
20(ii)	Which of the following conditions are necessary for this phenomenon? a) The Sun should be behind us. b) It should have rained and the Sun should be present. c) None of A and B d) Both A and B	
20 (iii)	 What colour will be at no.1 and 2- a) blue, red b) blue, black c) violet, red d) blue, violet	
20 (iv)	Dispersion of white light by the glass prism shows- a) Spectrum b) Tyndall effect c) Twinkling of stars d) Delayed sunset	

20 (v)	The phenomena which is/are responsible for such kind of formation are- a) atmospheric refraction and internal reflection b) dispersion c) refraction internal reflection and dispersion d) atmospheric refraction and reflection	
	SECTION B	
21	Why are carbon and its compounds used as fuels in most cases?	2
22	(i) Write the electron-dot structures for sodium. (ii) Show the formation of Na_2O by the transfer of electrons.	2
23	The elements of the third period of the Periodic Table are given below: <table><tr><td>Group</td><td>I</td><td>II</td><td>III</td><td>IV</td><td>V</td><td>VI</td><td>VII</td></tr><tr><td>Period 3</td><td>Na</td><td>Mg</td><td>Al</td><td>Si</td><td>P</td><td>S</td><td>Cl</td></tr></table> (a) Which atom is bigger, Na or Mg? Why? (6) Identify the most (i) metallic and (ii) non-metallic element in Period 3. **OR** (a) Why do we classify elements? (b) What were the two criteria used by Mendeleev in creating his Periodic Table?	2
24	Out of the two wires X and Y shown below, which one has greater resistance? Justify your answer.  **OR** The charge possessed by an electron is 1.6 X 10^{-19} coulombs. Find the number of electrons that will flow per second to constitute a current of 1 ampere.	2
25	When Hydrogen gas is passed over heated copper (II) oxide, copper and steam are formed. Write the balanced chemical equation with physical states for this reaction. State what kind of chemical reaction is this?	2
26	(a) Draw a diagram to represent a uniform magnetic field in a given region. (b) List two properties of magnetic field lines.	2

Section C

27 Rani took sulphur powder on a spatula and heated it. She collected the gas evolved by inverting a test tube over it, as shown in figure below. 3



(a) What will be the action of gas on

(i) Dry litmus paper?

(ii) Moist litmus paper?

(b) Write a balanced chemical equation for the reaction taking place.

OR

Metallic oxides of zinc, magnesium and copper were heated with the following metals-

Metal	**Zinc**	**Magnesium**	**Copper**
Zinc oxide			
Magnesium oxide			
Copper oxide			

In which cases will you find displacement reactions taking place?

28	List three characteristics of lungs which make it an efficient respiratory surface.	3
29	Define 1 volt. Express it in terms of SI unit of work and charge calculate the amount of energy consumed in carrying a charge of 1 coulomb through a battery of 3 V.	3
30	The human beings who look so different from each other in terms of colour, size and looks are said to belong to the same species. Why? Justify your answer.	3
31	(a) Draw a labelled diagram of the respiratory system of human beings with diaphragm at the end of expiration.	3
32	How will the magnetic field produced at a point due to a current-carrying circular coil change if we: (i) increase the current flowing through the coil? (ii) reverse direction of current through the coil? (iii) increase the number of turns in the coil?	3
33	What is meant by electrical resistivity of a material? Derive its S.I.unit.	3
	Section D	
34	Draw the ray diagram in each case to show the position and nature of the image formed when the object is placed: (i) at the centre of curvature of a concave mirror (ii) between the pole P and focus F of a concave mirror (iii) in front of a convex mirror (iv) at 2F of a convex lens (v) in front of a concave lens **OR** (a) What is dispersion of white light? What is the cause of such dispersion? Draw a diagram to show the dispersion of white light by a glass prism. (b) A glass prism is able to produce a spectrum when white light passes through it but a glass slab does not produce any spectrum. Explain why is it so?	5
35	**(**a) Draw a diagram to show open stomatal pore and label on it: (i) guard cells (ii) chloroplast (b) State two functions of stomata. (c) How do guard cells regulate the opening and closing of stomatal pore? **OR** (a) Draw a diagram depicting Human Alimentary Canal and label on it: Gall bladder, Liver and Pancreas. (b) State the roles of Liver and Pancreas. (c) Name the organ which performs the following functions in humans: (i) Absorption of digested food (ii) Absorption of water.	5

36	In the following table, are given eight elements A, B, C, D, E, F, G and H (here letters are not the usual symbols of the elements) of the Modern Periodic Table with the atomic numbers of the elements in parenthesis.	5

Period	Group 1	Group 2
2	A (3)	E (4)
3	B (11)	F (12)
4	C (19)	G (20)
5	D (37)	H (38)

1. What is the electronic configuration of F?
2. What is the number of valence electrons in the atom of F?
3. Write the size of the atoms of E, F, G and H in decreasing order,
4. State whether F is a metal or a non-metal.
5. Out of the three elements B, E and F, which one has the biggest atomic size?