Practice Paper -2
2020-21
Class-X
Science (086)

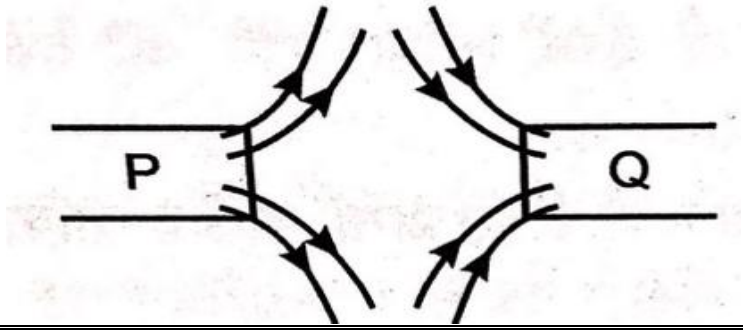
Time: 3 hours **Maximum Marks : 80**

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 number 1 to 20- all questions and parts there of are of one mark each. These questions contain multiple choice questions (MCQs),very short answer questions and assertion-reason type questions. Answers to these questions should be given in one word or one sentence.
iii. Section-B- question number 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 number 27-33- are short answer type questions carrying 3 marks each. Answer to these questions should be in the range of 50 to 80 words.
v. Section-D-question number 34 to 36 –are long answer type questions carrying 5 marks. Answer to this question 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 alternative in such questions.
vii. Wherever necessary, neat and properly labelled diagrams should be drawn.

Section-A

No.	Questions	Marks
1.	Lead nitrate solution is added to a test tube containing potassium iodide solution. Write the name and colour of the compound precipitated. **OR** A small amount of quick lime is added to water in a beaker. Name and define the type of reaction that has taken place.	1
2.	While constructing a house ,a person selects marble flooring and marble slab for kitchen where vinegar, lemon juice and tamarind are more often used for cooking .Will you agree to this selection and why?	1
3.	Ethane with the molecular formula of C_2H_6 has a. 6 covalent bonds b. 7 covalent bonds c. 8 covalent bonds d. 9 covalent bonds	1
4.	List the factors on which scattering of light depends.	1

5.	A spherical mirror and a thin spherical lens each have a focal length of – 15 cm. What would be the type of mirror and lens these are?	1
6.	Give an example of a phenomenon where tyndall effect can be observed. **OR** What will be the colour of the sky when it is observed from a place in the absence of any atmosphere?	1
7.	When is the force experienced by a current carrying conductor placed in a magnetic field largest?	1
8.	In the figure, identify the poles marked P and Q as north or south pole.  	1
9.	Define 1kilowatt hour (kWh). How many joules equals 1kWh? **OR** On what factors does the resistivity of a conductor depend?	1
10.	Name the method by which Spirogyra reproduces under favourable condition. Is this method Sexual or asexual?	1
11.	What happens to a plant if xylem is removed from it? **OR** Why do the walls of trachea do not shrink even though there is less air in it?	1
12.	In a food chain comprising lion, deer and grass ,which will transfer the maximum amount of energy and which will receive minimum amount of energy? **OR** If a harmful chemical enters a food chain comprising snakes, peacocks ,rats and plants . which of the organisms is likely to have maximum concentration of the harmful chemical in the body?	1
13.	Why do the blood coming to right auricle or atrium have less oxygen?	1

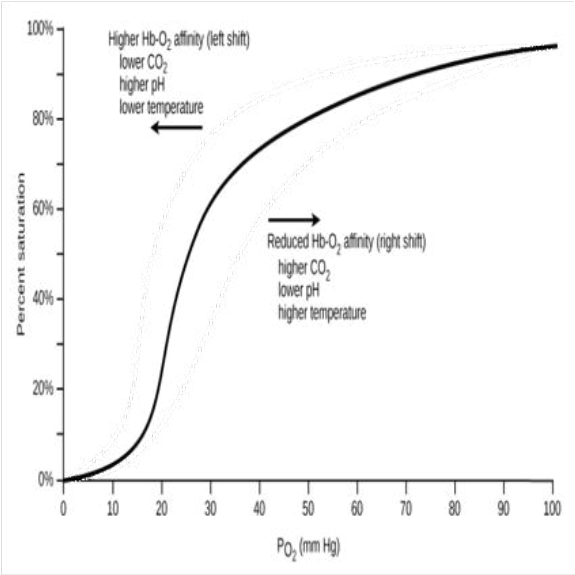
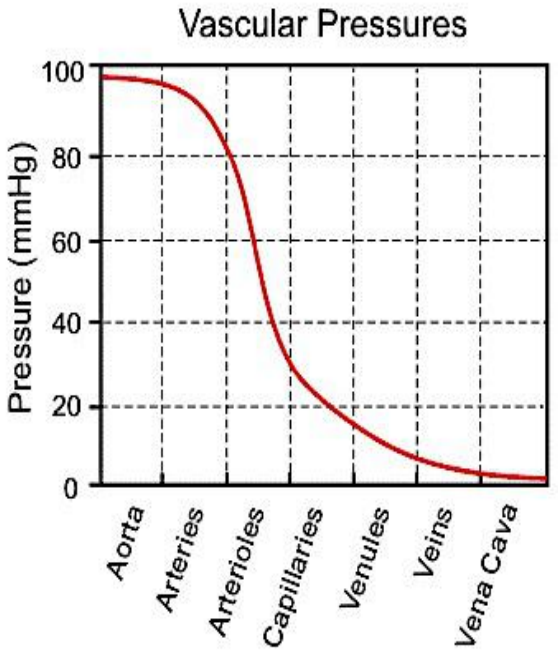
For question number **14, 15** and **16**, two statements are given- one labeled **Assertion (A)** and the other labeled **Reason (R).** Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below:

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.	**Attempt any one from 14 (I) and 14 (II)** **(I) Assertion:** The inner lining of the small intestine does not have numerous finger-like projections called villi. **Reason:** The villi increase the surface area for absorption. **OR** **(II) Assertion:** Oxygenated blood flows in pulmonary arter. **Reason :** Arteries have narrow lumen.	1
15.	**Assertion:** Each step of level of the food chain forms a trophic level. **Reason**: The organisms occupying the first trophic levels are called autotrophs.	1
16.	**Assertion:** Testes are located outside the abdominal cavity. **Reason**: Testes produce sperms at little lower temperature compared to body temperature.	1

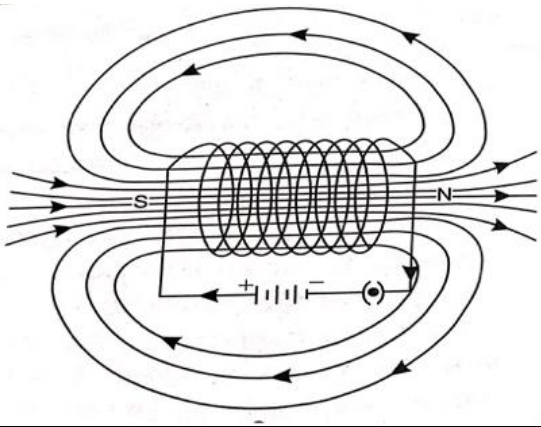
Answer Q.No. 17-20 contain five (5) sub-parts each. You are expected to answer any **FOUR** sub-parts in these questions.

17.	**Read the following and answer any FOUR questions from 17 (i) to 17 (v)** Blood being a fluid connective tissue. Blood consists of a fluid medium called plasma in which the cells are suspended. Plasma transports food, carbon dioxide and nitrogenous wastes in dissolved form. Oxygen is carried by the red blood corpuscles. Many other substances like salts, are also transported by the blood. We thus need a pumping organ to push blood around the body, a network of tubes to reach all the tissues and a system in place to ensure that this network can be repaired if damaged. The force that blood exerts against the wall of a vessel is called blood pressure. This pressure is much greater in arteries than in veins. The pressure of blood inside the artery during ventricular systole (contraction) is called systolic pressure and pressure in artery during ventricular diastole (relaxation) is called diastolic pressure. The normal systolic pressure is about 120 mm of Hg and diastolic pressure is 80 mm of Hg.	1 x4
17-i	Blood consists of a fluid medium called as a. Plasma b. red blood corpuscles c. White blood corpuscles d. Lymph	

17-ii	Oxygen is transported in the body by combining with a. Haemoglobin and iron only b. Haemoglobin only c. Plasma, Haemoglobin and iron d. None of these  	
17-iii	The oxygenated blood is sent to different body parts by a. Arteries b. Veins c. Heart d. Circulatory system	
17-iv	In fish and men the pumping organ to push blood are a. 2 and 3 chambered respectively b. 2 and 4 chambered respectively c. 4 and 2 chambered respectively d. 2 and 2 chambered each	
17-v	The force that blood exerts against the wall of a vessel is a. more in arteries and less in vein b. more in veins and less in arteries. c. more in Blood capillaries d. more in Heart  	

18.	**Read the following and answer any FOUR questions from 18 (i) to 18 (v)** (i) One limitation of Mendeléev's classification is that it could not assign a position to hydrogen. Hydrogen resembles alkali metals in the combination with halogens ,oxygen and sulphur. On the other hand, hydrogen resembles halogens in that it exists as a diatomic molecule and it combines with metals and non-metals to form covalent compounds. (ii) Mendeléev's classification cannot assign position to isotopes. Isotopes are an element having same atomic numbers (similar chemical properties) but different atomic mass. e.g. Isotopes of chlorine Cl-35 and Cl-37 have atomic masses 35 and 37 respectively. As they have the same atomic number 17, they possess same chemical properties. We cannot assign them different position in the periodic table simply because they have different atomic masses. As they show same chemical properties, they are placed in the same position.	1x4
18-i	Hydrogen resembles alkali metals in the combination with halogens. Its compound formed with halogens will be – a. HX b. HX_2 c. H_2X d. H_2X_2	
18-ii	The atomic masses of element P and Q are 6 and 7 and their atomic number are 3 a. Their chemical properties are same. b. Their chemical and physical properties both are same. c. Their physical properties are same. d. Cannot say anything about their chemical properties.	
18-iii	Mendeléev's classification cannot assign position to a. Hydrogen b. Isotopes c. Hydrogen and Isotopes d. Hydrogen, Oxygen and Sulphur	
18-iv	Hydrogen resembles halogens in that it exists as a a. monoatomic molecule b. diatomic molecule c. triatomic molecule d. all the above	
18-v	Hydrogen combines with metals and non-metals to form a. Ionic compounds b. covalent compounds. c. Ionic and covalent compounds both d. Either ionic or covalent compounds	

19.	**Read the following and answer any FOUR questions from 19 (i) to 19 (v)** A mirror whose reflecting surface is a part of a sphere is called spherical mirror. Spherical mirror is of two types: (i) concave mirror in which reflecting surface is curved inward and its centre of curvature and principal focus are situated in front of it. (ii) (ii) convex mirror in which reflecting surface is curved outward and its centre of curvature and principal focus are behind the mirror. A convex mirror always forms a virtual image irrespective of the position of the object. The focal length of a spherical mirror is always half of its radius of curvature.	1x4
19-i	If the image of an object is erect, small and virtual ,the mirror is a. Spherical mirror b. Convex mirror c. Concave mirror d. Plane mirror	
19-ii	Convex mirror has reflecting surface a. Outward and its center of curvature is behind the mirror. b. Inwards and its center of curvature is behind the mirror. c. Outward and its center of curvature is in front of the mirror. d. Inwards and its center of curvature is in front of the mirror .	
19-iii	In the given figures identify Concave mirror a.  b.  c.  d. 	

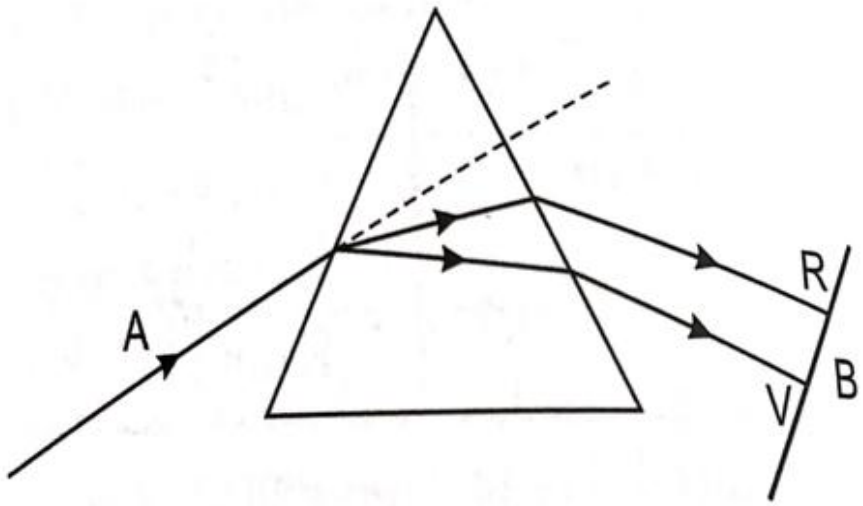
19-iv	Concave mirrors are used in --- a. The headlights of a car b. Solar furnace. c. A and b both d. None of the above	
19-v	The focal length of a spherical mirror is 15 cm ,its radius of curvature will be --- a. 30 cm b. 15 cm c. 10 cm d. 7.5 cm	
20	**Read the following and answer any FOUR questions from 20 (i) to 20 (v)** A solenoid is a coil of large number of circular turns of thick wire wrapped in the shape of a hollow cylinder. On passing electric current , a magnetic field is developed. The field is along the axis of solenoid such that one end of solenoid behaves as a north pole and other as south pole. Thus the field of a solenoid is similar to that of a bar magnet.  	1 x 4
20-i	Solenoid is--- a. A solenoid is a coil of large number of circular turns of thin wire wrapped in the shape of a solid cylinder. b. A solenoid is a coil of large number of circular thin or thick wire turns wrapped in the shape of a solid cylinder. c. a coil of large number of circular turns of wires wrapped loosely in the shape of a solid cylinder d. A solenoid is a coil of large number of circular turns of thick wire wrapped in the shape of a cylinder.	
20-ii	Strength of a solenoid can be increased by a. Increasing electric current through solenoid. b. Increasing the number of turns per unit length of the solenoid coil. c. Increasing electric current through solenoid and the number of turns per unit length of the solenoid coil. d. None of the above.	

20-iii	The magnetic field in a solenoid is a. like a Bar magnet. b. not like a Bar magnet. c. does not exist. d. all the above.	
20-iv	A solenoid has a. only north pole b. only south pole c. both north and south poles d. poles does not exist in a solenoid	
20-v	Mention the region of a current –carrying solenoid where field lines are parallel straight lines. a. along the axis of the solenoid b. along the poles of the solenoid c. All around the solenoid d. None of the above	

Section –B

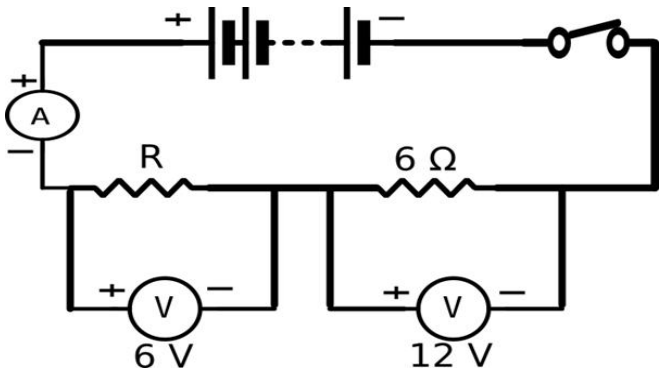
21	How are the lungs designed in human beings to maximise the area for exchange of gases? **OR** What advantage over an aquatic organism does a terrestrial organism have with regard to obtaining oxygen for respiration?	2
22	Explain why pollination may occur without fertilisation but fertilisation will not take place without pollination?	2
23.	What would be the electron dot structure of carbon dioxide which has the formula CO_2? **OR** Write the name and formula of the 2nd member of homologous series having general formula of C_nH_{2n} .	2
24.	Solutions of Zinc sulphate , Aluminium sulphate and Copper sulphate are reacted with the given metals (zinc, Aluminium and copper respectively) In which cases will you find displacement reactions taking place. (any four)	2

Metals	**Zinc**	**Aluminium**	**Copper**
Zinc sulphate	–––––	–––––	–––––––
Aluminium sulphate	–––––––––	––––––––––	–––––––––
Copper sulphate	–––––––––	–––––––	–––––––––

25.	What phenomenon is depicted in the given diagram. Explain the phenomenon and label A and B in the diagram.  	2
26.	Why are coils of electric toasters and electric irons made of an alloy rather than a pure metal?	2
	Section –C	
27.	Write the full name of DNA . write the name of that part of the cell where it is siyuated. Write its role in the process of cell reproduction. **OR** In fruit flies the sex chromosomes in male are XY and in females are are XX. a) does a male fly inherit X chromosome from his mother or father? b) How many types of gametes can a female fly produce? c) How many types of gametes can male fly produce?	3
28.	What is ozone and how does it affect the ecosystem?	3
29.	What is the functional unit of kidney? Draw its diagram .	3
30.	Write the balanced chemical equation for the following reactions : Zinc + Silver nitrate ————> ……. + …….. Lead oxide + Carbon ————> ……. + …….. Ferrous sulphate crystal ——heat ——> ……. + …….. + ……..	3

31.	a) Name the element which has twice as many electrons in its second shell as in the first shell. Write its electronic configuration also. b) Calcium, Magnesium and Strontium are kept in the same group of periodic table on the basis of its chemical properties, Write those characteristics and also write which element has the biggest size and why?	3
32.	In the formation of a compound XY_2 , atom X donates one electron to each Y atom. Show the electron dot structure of X and Y and the formation of XY_2. What is the nature of bond in XY_2 ?Write any three properties of compound XY_2.	3
33.	State the nature , position and relative size of the image formed by a convex mirror when object is (i) at infinity and (ii) between infinity and pole of the mirror .	3
	Section-D	
34.	a) The pH of a salt used to make tasty and crispy pakoras is 9.Identify the salt and write a chemical equation for its formation. List its two uses also. b) Define olfactory indicators. Name two substances which can be used as olfactory indicators. c) Choose weak acids from the following: CH_3COOH , H_2SO_4 , HNO_3 , H_2CO_3	5
35.	a) If a women is using a copper-T, will it help in protecting her from sexually transmitted diseases? b) Can you think of reasons why more complex organisms cannot give rise to new individuals through regeneration? **OR** Give reason: a) Why is vegetative propagation practiced for growing some types of plants? b) What is the advantage of sexual reproduction over asexual reproduction? c) What is the role of seminal vesicle and prostrate gland?.	5

36. A circuit is shown in the diagram given below –



a) Find the value of R.
b) Find the reading of the ammeter
c) Find the potential difference across the terminals of the battery.

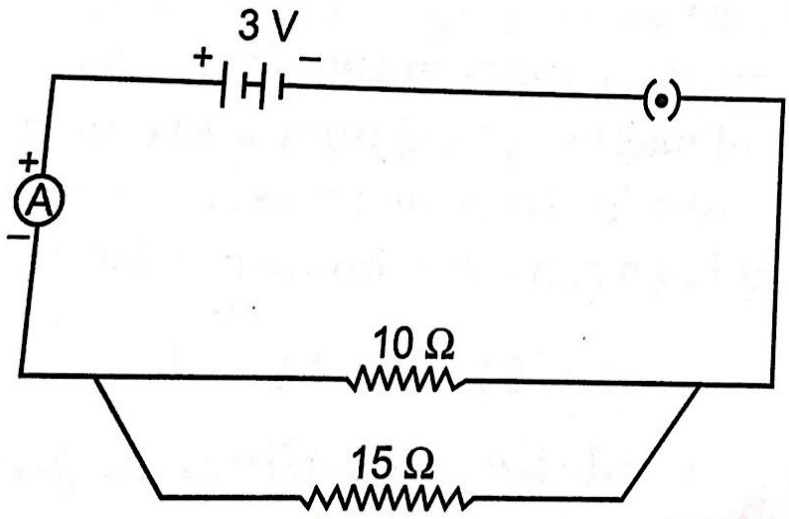
OR

a) The following table gives the value of electrical resistivity of some samples :

Sample	A	B	C
Resistivity	1.6×10^{-8}	7.5×10^{17}	44×10^{-6}

Which one is the best conductor and insulator?

b) Study the following circuit answer the following questions that follows:



i. State the type of combination of the two resistors in the circuit.
ii. How much current is flowing through 10 Ω and through 15 Ω resistors?
iii. What is the ammeter reading?

5