

# Practice Question Paper 2020-21

Class X

Science (086) Theory

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.

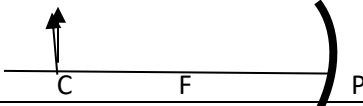
(iii) Section–B - question no. 21 to 26 are short answer type questions, carrying 2 marks each. Answers to these questions should be in the range of 30 to 50 words.

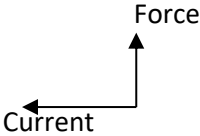
(iv) Section–C - question no. 27 to 33 are short answer type questions, carrying 3 marks each. Answers to these questions should be in the range of 50 to 80 words.

(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	Complete the following chemical reaction: $2 \text{FeSO}_4 \xrightarrow{\hspace{1cm}} \text{Fe}_2\text{O}_3 + \dots + \dots$ OR Write essential condition for following reaction to take place:- $2\text{AgBr} \xrightarrow{\hspace{1cm}} 2\text{Ag} + \text{Br}_2$ Write one application of this reaction.	1
2	Write the chemical name and formula of the compound which is yellowish in colour and used for disinfecting water.	1
3	Which element exhibits the property of catenation to maximum and why?	1
4	Why does Sun appears reddish in the morning?	1
5	“The refractive index of diamond is 2.42.” What is the meaning of this statement?	1
6	Draw the following diagram in your answer book and show the formation of image with the help of suitable rays. 	1

	OR	
	Define 1 Diopter Power of Lens.	
7	Draw schematic diagram of a circuit showing a cell of 1.5volt, 10 ohm resistor and 15 ohm resistor and a plug key all connected in series.	1
8	State the direction of magnetic field in the following case. Force and current are lying on the plane of paper in given Directions.	1
		
9	What happens to the resistance of a conductor when its area of cross section is increased.	1
	OR	
	When is the Potential difference between two points is said to be 1 Volt?	
10	The stomata are found more on lower surface of leaves as compared to upper surface. Justify.	1
11	Why do walls of trachea do not collapse when there is less air in it?	1
	OR	
	Name the enzyme presents in Human saliva. State its function also.	
12	Why excess of CFC is a cause of concern?	1
	OR	
	The first trophic level on a food chain is always a plant. Explain.	
13	What is translocation in plants?	1
	For question numbers 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	<b>Assertion:</b> Plaster of Paris should be stored in a moisture proof container. <b>Reason:</b> Plaster of Paris is a powdery mass that absorbs water to form a hard solid Gypsum.	1
15	<b>Assertion :</b> Ozone is formed in upper atmosphere by O <sub>2</sub> in presence of UV radiations. <b>Reason:</b> Ozone depletion will lead to UV rays reaching earth which may cause skin cancer.  OR <b>Assertion:</b> Pyruvate is a six-carbon molecule. <b>Reason :</b> It is prepared in the cytoplasm as the first step to cellular respiration.	1
16	<b>Assertion:</b> The sex of a child in human beings will be determined by the type of chromosome he/she inherits from the father. <b>Reason:</b> A child who inherits 'X' chromosome from his father would be a girl (XX), while a child who inherits a 'Y' chromosome from the father would be a boy (XY).	1

17

Read the following and answer any four questions from 17 (i) to 17 (v)

Study these tables related to blood sugar levels and answer the questions that follow:

**TABLE A**

	Mean Blood Glucose Level (mg/dL)
Doctor's advice needed	380
	350
	315
	280
	250
	215
Good	180
	150
Excellent	115
	80
	50

**TABLE B**

Report of patient X and Y

Time to Check	Blood Glucose ranges (mg/dL)	
	Patient X	Patient Y
Before breakfast (Fasting)	< 100	70 – 130
Before lunch, supper and snack	< 110	70 – 130
Two hours after meals	< 140	< 180
Bedtime	< 120	90-15

(i): Refer to Table B showing the blood report of the levels of glucose of patients X and Y. Infer the disease which can be diagnosed from the given data.

(ii): Identify the reasons responsible for rapid increase of the disease in India.

a) Sedentary life style b) obesity c) both a and b d) None of the above

(iii): Which one of the following diets would you recommend to the affected

1

1

	<p>patient?</p> <p>a) High sugar and low fat diet.  b) Low sugar and high protein diet.  c) High Fat and low fiber diet.  d) Low sugar and high fiber diet.</p> <p>(iv): Refer to the Table A and suggest the value of the mean blood glucose level beyond which doctor's advice is necessary:</p> <p>a) 180 mg/dL b) 115 mg/dL c) 50 mg/dL d) 80 mg/dL</p> <p>(v) Refer to table B at what time you observe the spike in blood glucose level of patient X and patient Y.</p>	<p>1</p> <p>1</p> <p>1</p>
18	<p>Read the following and answer <u>any four</u> questions from 18 (1) to 18 (v)</p> <p>Elements are arranged in Modern Periodic table in increasing order of their atomic numbers. Metals are on left hand side and middle of periodic table mainly and non-metals are on right hand side. A zig-zag diagonal line divides metals and non-metals. Elements near zig-zag line are called metalloids. Elements of same group have same number of valence electrons but different number of shells. Elements of same period have different number of valence electrons but same number of shells. Elements in the middle of periodic table are called transition metals.</p> <p>(I) Which one of the following statement is correct.</p> <p>(a) All group contain both metal and nonmetals.  (b) In group 17, reactivity decreases down the group.  (c) In group 1, reactivity decreases down the group.  (d) Atoms of same group have same number of electrons.</p> <p>(II) Which of the following is correct formula of hydrides of phosphorus?</p> <p>(a) PH<sub>2</sub> (b) PH<sub>3</sub>  (c) PH<sub>5</sub> (d) PH<sub>4</sub></p> <p>(III) Why group 1 elements have low melting and boiling points?</p> <p>(IV) Name two metals having soft texture:-</p> <p>a) Calcium and potassium b) Sodium and potassium  c) Zinc and Magnesium d) Sodium and Magnesium</p> <p>(v) Elements in the middle of periodic table are called.</p> <p>(a)Metalloid (b) Transition elements  (c) Non metal (d) none of the above</p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>
19	<p><u>Read the following and answer any-four questions from 19 (1) to 19(v)</u></p> <p>The foundation of modern optics lays in 1672 when Sir Isaac Newton publishes his paper on the bending of light through prism. His experiments in bending of light through prisms led, eventually, to the revolutionary discovery of the existence of a mixture of distinct coloured rays in white light and, distinguishable when refracted</p>	

through a prism. In his experiment, he set up a prism near his window, and projected a beautiful spectrum 22 feet onto the far wall. Further, to prove that the prism was not colouring the light, he refracted the light back together. Prisms are made from transparent materials such as glass, plastic and fluorite and are in different forms and shapes, depending on the application. They are usually categorised based on the shapes of their bases. Prism has the capacity to reverse the direction of light by internal reflection and redirect the light at a defined angle. It is mostly used in telescopes, periscopes and microscopes, binoculars, and monoculars. Prism spectrometer is used to measure the deviations of light for various wavelengths.

(i) State the property of light that is used by the prism to form a spectrum.

- a) Scattering b) Reflection c) Refraction d) all of the above

(ii) Which of the coloured light has the least speed glass prism:-

- a) Violet b) yellow c) green d) red

(iii) List any two factors on which the angle of deviation through a prism depends:-

- a) Angle of prism b) Angle of incidence c) Wavelength of the light d) all the above

(iv) Name the instrument used to measure the deviation of light :-

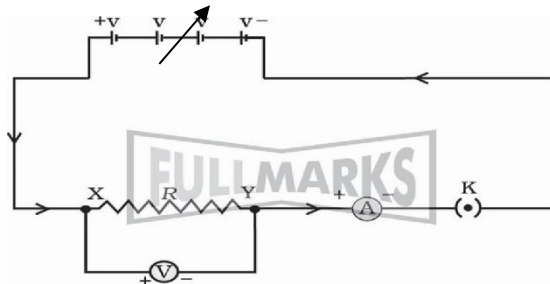
- a) Spectrometer b) Monoculars c) Light meter d) Gauge

(v) Reversing the direction of light at a definite angle is called:-

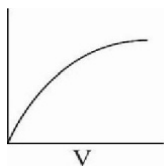
- (a) Bending of light (b) Deviation of light (c) Internal reflection (d) None of the above

20 Read the following and answer any four questions from 20 (i) to 20 (v)

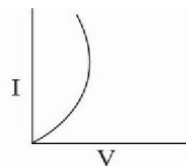
Ohm's law gives the relationship between current flowing through a conductor with potential difference across it provided the physical conditions and temperature remains constant. The electric current flowing in a circuit can be measured by an ammeter. Potential difference is measured by voltmeter connected in parallel to the battery or cell. Resistances can reduce current in the circuit.



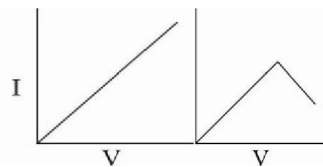
(i) Which graph is correspond to ohmic conductor.



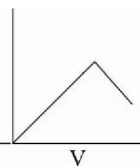
a



b



c



d

(ii) A, B, C, D are different wires. All the wires are of same length and thickness. Which of the following wires has higher resistivity?

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1

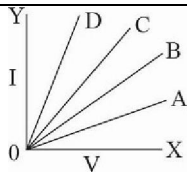
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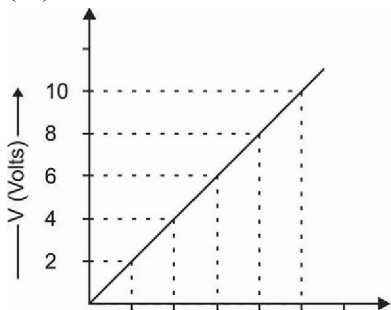
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- a) A b) B c) C d) D

(III) What is the value of resistance at  $V = 10$  volts?



1 2 3 4 5  
CURRENT (i) AMP

- a) 2 ohm b) 4ohm c) 6 ohm d) 1 ohm

(IV) Which of the following has smallest resistivity?

- (a) Silver (b) Nickel (c) Iron (d) Copper

(V) Out of the two wires X and Y of the same material and same cross-sectional area as shown below, which is correct about their resistance?



- a)  $R_X = R_Y$  b)  $R_X > R_Y$  c)  $R_X < R_Y$  d)  $R_X = 3R_Y$

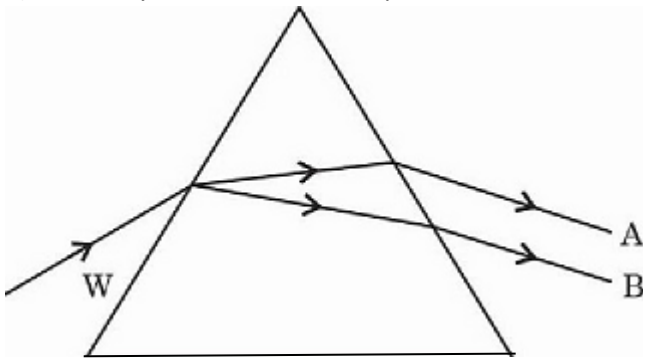
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## SECTION B

21	<p>Why certain substances are selectively reabsorbed for tubules of nephron in to blood ?</p> <p style="text-align: center;">OR</p> <p>A student is viewing under a microscope a permanent slide showing various stages of asexual reproduction by binary fission in amoeba. Draw diagrams of what he observes. (in proper sequence)</p>	2
22	How guard cells regulate the opening and closing of stomata?	2
23	<p>(a) State the reason why carbon can neither form <math>C4+</math> cations nor <math>C4-</math> anions, but forms covalent bonds. Also state reasons to explain why covalent compounds (i) are bad conductors of electricity. (ii) have low melting and boiling points.</p> <p style="text-align: center;">OR</p> <p>What is a homologous series? Which two of the following organic compounds belong to the same homologous?</p>	2

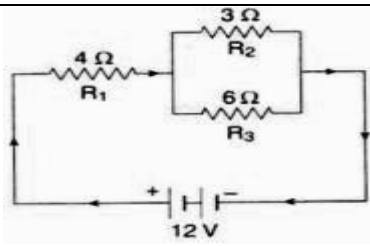
	$\text{CH}_3, \text{C}_2\text{H}_6, \text{C}_2\text{H}_6\text{O}, \text{C}_2\text{H}_6\text{O}_2, \text{CH}_4\text{O}$	
<b>24</b>	<p>Four beakers were taken and marked A, B, C and D respectively. 200 ml of solution of <math>\text{Al}_2(\text{SO}_4)_3</math> in water, <math>\text{CaSO}_4</math> in water, <math>\text{FeSO}_4</math> in water and <math>\text{CuSO}_4</math> in water was filled in the beakers A, B, C and D respectively. Clean piece of metal zinc was placed in each solution and kept undisturbed for two hours.</p> <p>(1) What color change would you observe in beaker D?</p> <p>(2) (ii) Arrange the metal Zn, Al, Ca, Fe, and Cu in the order of decreasing reactivity.</p>	<b>2</b>
<b>25</b>	<p>In the following figure:</p> <p>a) identify 'A' and 'B' which represent different colours of the spectrum.</p>  <p>b) Why does this phenomenon occur?</p>	<b>2</b>
<b>26</b>	An electric heater is rated 2Kw. Calculate the cost of using it for 2 hours daily for the month of September, if each unit costs 4.00 Rs.	<b>2</b>

### SECTION C

<b>27</b>	<p>The genotype of green stemmed plant is denoted by GG, and that of purple stemmed is of gg, when these two are crossed :-</p> <p>a) What colour of stem do you expect in F1 progeny.</p> <p>b) Give the percentage of purple stemmed plants in F1 are self pollinated.</p> <p>c) In what ratio would you find the genotypes GG and gg in the progeny?</p> <p style="text-align: center;">OR</p> <p>“It is possible that a trait is inherited but may not be expressed.” Give a suitable example to justify this statement.</p>	<b>3</b>
<b>28</b>	<b>Newspapers</b> report about pesticides levels in readymade food items are often seen these days. what do you think would be source of pesticides in these items? What methods can be applied to reduce our intake of pesticides?	<b>3</b>
<b>29</b>	What is lymph? Give its function. Name two places of your body where lymph glands are present?	<b>3</b>
<b>30</b>	<p>You might have noted that when copper powder is heated in a china dish, the reddish brown surface of copper powder becomes coated with a black substance.</p> <p>(a) Why has this black substance formed?</p> <p>(b) What is this black substance?</p> <p>(c) Write the chemical equation of the reaction that takes place.</p>	<b>3</b>

31	<p>Given below are four elements with their atomic numbers:</p> <table border="1" data-bbox="365 73 992 325"> <thead> <tr> <th>Element</th> <th>Atomic Number</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>16</td> </tr> <tr> <td>B</td> <td>11</td> </tr> <tr> <td>C</td> <td>3</td> </tr> <tr> <td>D</td> <td>14</td> </tr> </tbody> </table> <p>a) Identify the element which belong to same group of Modern Periodic Table.</p> <p>b) Arrange the given elements in decreasing order of atomic size.</p> <p>c) Which of the above element is a metalloid .</p>	Element	Atomic Number	A	16	B	11	C	3	D	14	3
Element	Atomic Number											
A	16											
B	11											
C	3											
D	14											
32	<p>a) Write the electron dot structure of Sodium and Chlorine atom.</p> <p>b) How does they form bond, name the bond.</p> <p>c) Why does such a compound form have high melting point?</p>	3										
33	<p>A concave mirror produces three times enlarged image of an object placed 10 cm in front of it .Calculate the radius of curvature.</p>	3										
<b>SECTION D</b>												
34	<p>Explain why is hydrochloric acid a strong acid and acetic acid, a weak acid. How can it be verified?</p> <p>(ii) Explain why aqueous solution of an acid conducts electricity.</p> <p>(iii) You have four solutions A, B, C and D. The pH of solution A is 6, B is 9, C is 12 and D is 7,</p> <p>(a) Identify the most acidic and most basic solutions.</p> <p>(b) Arrange the above four solutions in the increasing order of H<sup>+</sup> ion concentration.</p> <p>(c) State the change in colour of pH paper on dipping in solution C and D.</p> <p style="text-align: center;">OR</p> <p>The metal salt 'A' is blue in colour. When salt 'A' is heated strongly over a burner, then a substance 'B' present in it is eliminated and a white powder 'C' is left behind. When a few drops of a liquid 'D' are added to C, it becomes blue again.</p> <p>(i) Identify 'A', 'B', 'C' and 'D'</p> <p>(ii) Write the chemical equations involved in heating and again adding D</p> <p>(iii) Give an example of a salt which also shows the above properties</p>	5										
35	<p>a) In human what is the role of (i) Seminal vesicle (ii) Prostate gland</p> <p>b) List two functions of testis.</p> <p>c) Suggest three contraceptive methods to control size of population.</p>	5										
36	<p>a) The circuit diagram given below shows the combination of three resistors R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub>. :</p> <p>Find : (i) total resistance of the circuit.</p> <p>(ii) total current flowing in the circuit.</p> <p>(iii) total potential difference across R<sub>1</sub>.</p>	5										





b) What is meant by electric power? Write the formula of power in terms of potential difference and resistance.

OR

(a) State Fleming's left hand rule.

(b) Write the principle of working of an electric motor.

(c) Explain the function of the following parts of an electric motor.

(i) Armature (ii) Brushes (iii) Split ring