ROLL NO:								

Candidate must write code on the title page of answer book

1. Please check this question paper contains 10 printed pages
2. Code number given in the right hand side of the question paper should be written on the title page of the answer book by the candidate.
3. Please check that this question paper contains 36 of questions
4. Please write down the serial number of question papers before attempting it
5. Fifteen minutes are allotted to read this question paper during this time student will read the question papers and will not write any answer during this time

PRE BOARD EXAMINATION 2021

SCIENCE THEORY- CLASS X

Time Allowed: 3.00Hrs. Maximum Marks: 80

The question paper comprises four section A,B,C and D.

i. There are 36questions 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. Answer 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
v. marks each. Answer to these questions should in the range of 50 to 80 words.
vi. Section -D-question no - 34 to 36 are long answer type questions carrying 5 arks each. Answer to these questions should be in the range of 80 to 120 words.
vii. 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.
viii. Wherever necessary, neat and properly labeled diagrams should be drawn.

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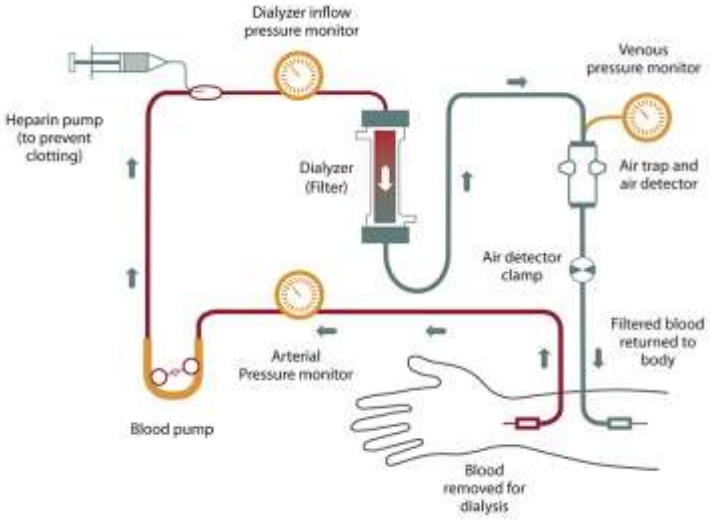
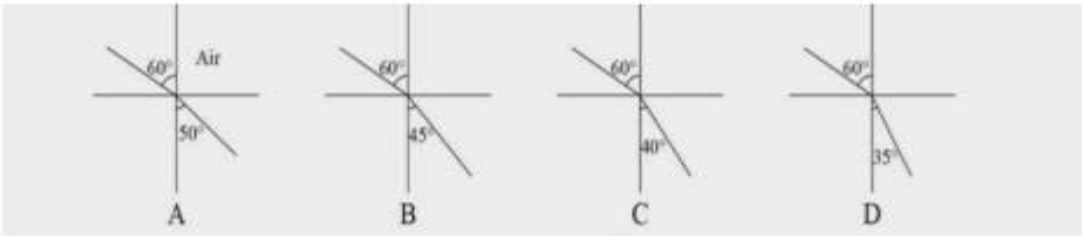
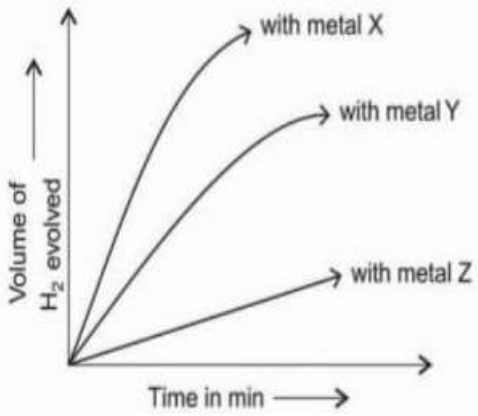
1. Why does the sun appears white at noon? 1
2. Both a spherical mirror and a thin spherical lens have a focal length-15cm. What type of mirror and lens are these? 1

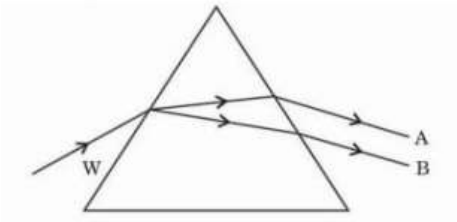
3	The image formed by a concave mirror is observed to be real, inverted and larger than the object. Where is the object placed? **(OR)** Name the part of a lens through which a ray of light passes without suffering any deviation.	1
4	At what place of magnet are the magnetic field lines closer?	1
5	current through a horizontal power line flows in east to west direction. What is the direction of the magnetic field at a point directly below it and at a point directly above it. **(OR)** Which of the following works on the principle of Faraday's law of electromagnetic Induction (a) Electric fuse (b) Electric motor (c) Electric generator (d) Galvanometer	1
6	When a 4V battery is connected across an unknown resistor, there is a current of 100mA in the circuit. The value of the resistances of the resistor is a) 4Ω b) 40Ω c) 400Ω d) 0.4Ω	1
7	Name two sexually transmitted diseases.	1
8	Which element exhibits the property of catenation to the maximum extent and why? (OR) Write the next homologue of each of the following: (a) C_5H_8 b) C_7H_{12}	1
9	Give one reason why multicellular organisms require special organs for exchange of gases between their body and their environment.	1
10	What change in colour is observed when white silver chloride is left exposed to sunlight? State the type of chemical reaction in this change	1
11	A metal M belongs to 13^{th} group in the modern periodic table. Write the valency of the metal	1
12	Why do the walls of trachea not collapse when there is less air in it? **(OR)** What are the components of the transport system in highly organised body?	1
13	What are final products after digestion of carbohydrates and proteins? (OR) Write one structural difference between artery and vein	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	**Assertion :** Gold and silver are used for making jewellery **Reason :** They are bright and shiny.	1
15	**Assertion (A):** Genes are the segments of DNA and they determine the characters of an organism. **Reason (R):** For each DNA molecule the genes are functional units.	1
16	**Assertion (A):** Garden is an artificial ecosystem. **Reason (R):** Biotic and Abiotic components are manipulated by human **(OR)** **Assertion (A):** Ozone layer protects life on earth by blocking out of IR rays of the Sun. **Reason (R):** IR rays cause cancer in human beings	1
17	Read the following and answer any four questions from 17 (i) to (17 (v)Dialysis is a process that filters your blood when your kidneys no longer can. It isn't a cure, but it can help you feel better and live longer. You can choose from two types of dialysis: hemodialysis and peritoneal dialysis  	4x1=4

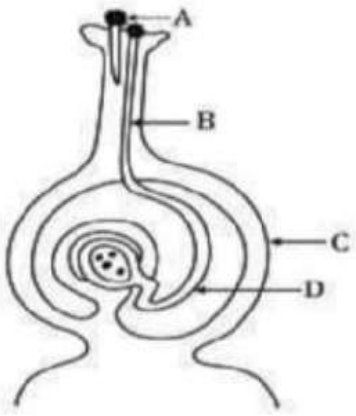
	17 (i) What is the use of heparin pump in dialysis machine? 17.(ii) Choose the correct pathway of urine in our body Choose the correct pathway of urine in our body a) Kidney → ureters → urethra → urinary bladder b Kidney → urinary bladder → urethra → ureters c) Kidney → ureters → urinary bladder → urethra d) Urinary bladder → kidney → ureters → urethra	
	17 (iii) What is the main toxic waste that kidneys filter from Blood? a) Glucose b) Amino acids c) Water d) Urea	
	17.(iv) The functional unit of the kidney is called: a) Glomerulus b) Nephron c) Corpuscle d) Neuron	
	17 (v) What is the function of Kidney? a) It cleans blood by filtering it and removes waste products. b) It regulates minerals in the body and produce hormones c) Both A and B are correct d) Only A is correct.	
18	Read the following and answer any four questions from 18 (i) to 18 (v)Mohan is performing an experiment with four different optical media, he traced the path of light in different media A,B, C and D as below  18 (i) Which of the following media has maximum optical density? a) A b) C c) D d) B 18 (ii) Through which media, will speed of light be maximum? a) B b) C c) D d) A	4x1=4

	18 (iii) Absolute refractive index of medium is maximum in: a) A b) B c) C d) D 18 (iv) Which is correct about absolute refractive index of medium? a) A > B b) C = B d) D > A d) A = C 18 (v) When a light travel from medium A to D it will: a) bend towards normal b) bend away from normal c) pass straight without bending d) reflect back to medium A	
19	Read the following and answer any four questions from 19 (i) to 19 (v) The graph below show the rate of reaction of three different metals X, Y and Z with dilute sulphuric acid.  (i) Out of Al, Mg, Fe which will represent Z? a) Al v) Mg c) Fe d) None of these (ii) Which one will be represented by 'X'? a) Na b) Mg c) Al d) Zn (iii) The decreasing order of reactivity of X,Y,X is : a) X > Y > Z b) Y >Z > X c) Z > Y > X d) Z > X > Y (iv) What will be observed if Mg ribbon is placed in $CuSO_4$? a) Blue colour change to colourless b) Brown colour change to blue c) Reddish brown colour disappear d) No change (v) Which of the following is represented by 'Y' ? a) Al v) Mg c) Zn d) Cu	4x1=4

20	Read the following and answer any 4 questions from 20 (i) to 20 (v)Krish uses a refracting type telescope with a large diameter lens in order to observe stars of low brightness in the night. The telescope was made of two lenses, L_1 and L_2. Larger and thick lenses are powerful, but heavy. 20 (i) Why does using a telescope with a large diameter lens make it possible to observe stars of low brightness? A) The larger the lens the more light is collected B) The larger the lens the more it magnified. C) Large lenses allow more of the sky to be seen D) Larger lenses can detect the dark colours in stars. 20 (ii) When object at infinity moves closer to a convex lens, the image formed by it shift. A) Away from the lens B) Towards the lens C) First towards and then away from the lens D) First away and then towards the lens. 20 (iii) If the focal lengths of the lenses L1 and L2 are of focal lengths 100 cm and 200 cm each, what will be the their powers P1 and P2 of the lenses a) 1D, 2D b) 100D, 200D c) 1D.0.5 D d) 2D, 1D 20 (iv) For a set of three convex lenses, which will give an image of same size as object <table><tr><th>Object distance</th><th>Focal length</th></tr><tr><td>30</td><td>20</td></tr><tr><td>10</td><td>15</td></tr><tr><td>20</td><td>10</td></tr></table> (a) Lens of f = 20 cm b) Lens of f = 15 cm (c) Lens of f = 10 cm (d) Cannot be predicted C) The brightness of city lights makes many stars hard to see. D) The air is warmer in cities due to heat emitted by cars, machinery and houses.	4 x1 =4

	20 (v) Krish noticed that the view of stars in the night sky is better from his grandparent's house in a village than from his house in the city. Why can many more stars be observed in the countryside than in large cities? A) The moon is brighter in cities and blocks out the light from many stars. B) There is more dust to reflect light in country air than in city air. C) The brightness of city lights makes many stars hard to see. D) The air is warmer in cities due to heat emitted by cars, machinery and houses.	
	Section – B	
21	What are enzymes? Name any one enzyme of our digestive system and write its function **(OR)** Give the overall reaction taking place in aerobic and anaerobic respiration	2
22	An alkane has molecular weight 86. Write its molecular formula. What will be its physical state? **(OR)** Write the molecular formula of ethene and draw it's electron dot structure	2
23	In the following figure identify 'A' and 'B 'which represent different colours of the spectrum why does this phenomenon occur?  	2
24	Two resistors with resistance 5 ohm and 10 ohm are to be connected to a battery of emf 6 V, so as to obtain (i) Minimum current (ii) Maximum current	2
25	Give reason a) Leaves of bryophyllum fallen on ground produce new plants. b) Plasmodium reproduces very fast in the host body.	2
26	Given below are four elements with their atomic numbers:	2

	(i) <table><tr><th>Element</th><th>Atomic Number</th></tr><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></table> Identify the element which belong to same group of modern periodic table (i) Arrange the given elements in deceasing order of atomic size. ii) Write the formula of the oxide of 'B'. (iii) Which of the above element is a metalloid?	

	Section C	
27	(i) What is solenoid? (ii) Draw the pattern of magnetic field lines of a solenoid through which a steady current flows (iii) What does the pattern of the field lines inside the solenoid indicates?	3
28	i)What is 10 percent law? (ii) In type following food chain plants provide 2000J of energy to rats. How much energy will be available to hawk? To which trophic level of food chain does hawk belongs? Plants rats snakes hawks (iii) Food web increases the stability of an ecosystem Justify.	3
29	It's a matter of chance whether a couple will give birth to a boy or a girl. Justify the statement and support your answer with a neat Illustration (OR) Explain "Biological magnification" with the help of an example	3
30	a) Label the following parts.  b)) What are the advantages of sexual reproduction over asexual reproduction?	3

31	Write the balanced chemical equation for the following and identify the type of reaction in each case. a) Lead Nitrate Lead oxide + Nitrogen di oxide + Oxygen b) Iron + Water Iron (III) Oxide + Hydrogen c) Carbon dioxide + Water Glucose + Oxygen + Water	3
32	a) Show the formation of magnesium chloride and sodium chloride by the transfer of electrons b) Identify the ions present in these compounds. c) Why do ionic compounds do not conduct electricity in solid state?	3
33	(i) How does the atomic radius change as you go a) From left to right in a period? b) Down a group in the periodic table? (ii) Two elements X and Y have atomic numbers 12 and 16 respectively. Write the electronic configuration for these elements. To which period of the modern periodic table do these two elements belong?	3
	Section – D **All questions are compulsory. In case of internal choices, attempt anyone.**	
34	(i) Write the formula and chemical name of Bleaching powder. (ii) Write the chemical equation for the manufacture of bleaching powder. (iii) Give any two uses of bleaching powder. (iv) Name the chemical compound which is used for softening hard water. (v) Why does distilled water not conduct electricity, whereas rain water does? (OR) Define water of crystallisation. Give the chemical formula for two compounds as examples. How can it be proved that the water of crystallisation makes a difference in the state and colour of the compounds.	5
35	Why are budding fragmentation and regeneration all considered as asexual types of reproduction? With neat diagram explain the process of regeneration in planaria.	5

36	A student wants to project the image of a candle flame on a screen 60 cm in front of a mirror by keeping the candle flame at a distance of 15 cm from its pole. (i) Which type of mirror should the student use? (ii) Find the magnification of the image produced. (iii) Find the distance between the object and its image. (iv) Draw a ray diagram to show the image formation in this case and mark the distance between the object and its image.	5

	(OR) (i) State the law of refraction of light that defines the refractive index of a medium with respect to the other. Express it mathematically.How is the refractive index of any medium 'A' with respect to medium 'B' related to the speed of propagation of light into media. State the name of this constant when one medium is vacuum or air. (ii) The refractive indices of Glass and water with respect to vacuum are 3/2 and 4/3 respectively. if the speed of light in glass is 2×10^8 m/s, find the speed of light in a) vacuum b) water	