

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

Time Allowed: 3.00Hrs.

Maximum Marks: 80

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

- i. 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. 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.

1. Name the physical quantity which is same in all the resistors when they are connected in series

2	<p>Why silver chloride turns grey when exposed to sunlight?</p> <p style="text-align: center;">(OR)</p> <p>Identify the product obtained when potassium is added to water.</p>	1
3	<p>Why intestinal villi are highly vascular?</p>	1
4	<p>Mention the part of the body where gustatory and olfactory receptors are located.</p>	1
5	<p>What happens when planaria get cut into pieces?</p> <p style="text-align: center;">(OR)</p> <p>Give one example of aquatic food chain.</p>	1
6	<p>Why should biodegradable and non –bio degradable waste be discarded in two separate dustbins.</p> <p style="text-align: center;">(OR)</p> <p>Inheritance is possible because of certain factor present in organisms. What is the factor?</p>	1
7	<p>An object of size 2 cm is placed at 25 cm in front of a concave mirror. If the magnification produced by the mirror is 4, what is size of the image?</p> <p style="text-align: center;">(OR)</p> <p>A lens has -4 D power. Is the lens concave or convex.</p>	1
8	<p>On which factor does the colour of the scattered white light depend?</p>	1

9	Why covalent compounds are poor conductors of electricity?	1
10	Dry Hcl does not change the colour of dry blue litmus. Give reason.	1
11	A bulb get dimmer when an electric iron or geyser is switched on, why? (OR) Which uses more energy, a 250W TV set in 1 hr, or a 1200 W toaster in 10 minutes?	1
12	Draw a diagram to represent the uniform magnetic field in the region around the magnet.	1
13	How is ammeter connected in a circuit to measure current flowing through it .Give circuit diagram.	1
	<p>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:</p> <p>a) Both A and R are true, and R is correct explanation of the assertion.</p> <p>b) Both A and R are true, but R is not the correct explanation of the assertion.</p> <p>c) A is true, but R is false.</p> <p>d) A is false, but R is true.</p>	

14	<p>Assertion : Metals are malleable.</p> <p>Reason : They can be easily hammered into thin sheets.</p> <p style="text-align: center;">(OR)</p> <p>Assertion : Ionic compounds are solid in nature.</p> <p>Reason : Ions are closely packed in 3-D crystal lattice structure.</p>	1
15	<p>Assertion (A): The sex of a child in human beings will be determined by the type of chromosome he/she inherits from the father.</p> <p>Reason (R): 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)</p>	1
16	<p>Assertion (A): Ozone is formed in upper atmosphere by O_2 in presence of UV radiations.</p> <p>Reason (R): Ozone depletion will lead to UV rays reaching earth which may cause skin cancer.</p>	1

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

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

(v)

“Properties of elements are periodic functions of their atomic number” - Modern periodic law.

The earliest attempt to classify the elements resulted in grouping them then known elements as metals and non-metals. Later further classifications were tried out as our knowledge of elements and their properties increased.

We can observe gradual changes in valency, atomic size and metallic properties, across the period and down the group in the periodic table. For example atomic radii of the elements of the second period are given below:

Li	Be	B	C	N	O
152pm	111pm	88pm	77pm	74pm	66pm

17.i Atomic radii of the elements in the first group is given as follwos;

K(231 pm), Rb(244pm),Li(152pm),Na(186pm),Cs(262 pm) Arrange them in decrasing order.

17.ii How do you claculate the valency of an element from its electronic configuration?

4

17.iii	On which side of the periodic table do you find the non-metals? Write two examples of non-metal.
17.iv	How do you think the tendency to lose electron changes in a group?
17.v	Name two elements that have two electrons in their outermost shell.

Read the following and answer any four questions from 18 (i) to 18 (v)

4	<p>Michael Faraday performed a simple experiment to show that an electric current can be produced in a closed circuit without the use of a cell or a battery but by moving a bar magnet towards or away from the closed circuit</p>
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18.1	<p>What will be the polarity of the coil when the south pole of the magnet is brought closer to the coil</p> <p>A) North b) South c) Cannot be predicted d) Any of the two, irrespective of the nature of pole approaching the coil.</p>
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18.ii	<p>In the case given in 18(i), what will be the direction of current developing at that end of the coil</p> <p>a) Clockwise</p> <p>b) Anti clockwise</p> <p>c) None of these</p> <p>d) Any of the two, irrespective of the nature of pole approaching the coil.</p>	
18.iii	<p>The phenomenon of electromagnetic induction is</p> <p>a) The process of charging a body</p> <p>b) The process of generating magnetic field due to current passing through the coil</p> <p>c) Producing induced current in a coil due to relative motion between a magnet and a coil</p> <p>c) Process of rotating a coil in an electric motor.</p>	
18.iv	<p>The device used for producing electric current is called a -</p> <p>a) Generator</p> <p>b) Galvanometer</p> <p>c) Ammeter</p> <p>d) Motor</p>	
18.v	<p>Name the rule to find the direction of induced current in a coil</p> <p>a) Fleming's left hand rule</p> <p>b) Fleming's right hand rule</p> <p>c) Right hand grip rule</p> <p>d) SNOW rule</p>	

19

Read the following and answer any four questions from 19 (i) to 19 (v)
Question numbers (a) to (d) are based on the two tables given below. Study these table related to haemoglobin levels and answer the questions that follow.

Haemoglobin level in g/dL		Doctor advice is needed
Age	Range	
1. At birth	13.5 - 24.0	<13.5 g/dL in males 5 <12.0 g/dL in females
2. 2 to 6 years	11.5 - 13.5	
3. 6 to 12 years	11.5 - 15.5	

Females		
12 to 19 years	12 - 16.0	
>18 years	12.1 - 5.1	
Males		
12 to 18 years	13 - 16	
>18 years	13.5 - 17.5	

i) The main cause of low haemoglobin level is

- a) deficiency of iron b) deficiency of vitamin D
c) deficiency of Ca d) deficiency of Zn

ii) A disease caused by iron deficiency is:

- a) anaemia b) osteoporosis
c) blindness d) chronic heart disease

(iii) Which of the following is dangerous haemoglobin level?

- a) 13 b) 12 c) 10 d) 6

(iv) Which of the following is genes are carried by haemoglobin in our body?

- a) O₂ b) O₃ c) N₂ d) SO₂

4

20 Read the following and answer any 4 questions from 20 (i) to 20

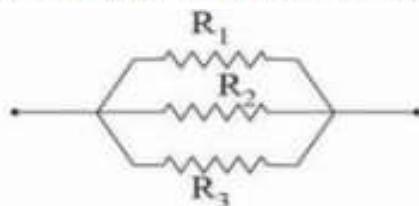
4

(v)

When resistors are joined end to end. It is called series combination of resistances i.e.



When resistances, says R_1 , R_2 , R_3 are connected in a way as shown, they are said to be connected in parallel, i.e



(i) When the current passing through each resistor is same, the circuit is called

- a) series circuit b) parallel circuit
c) Both (a) & (b) d) None of these

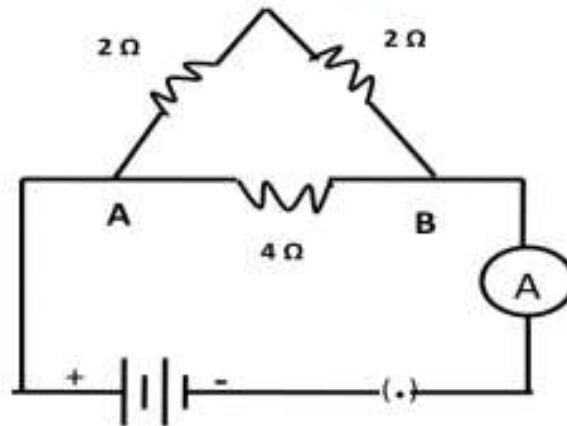
(ii) In parallel circuit, which of the following is same across resistors

- a) Current b) Potential difference
c) Resistance d) Resistivity

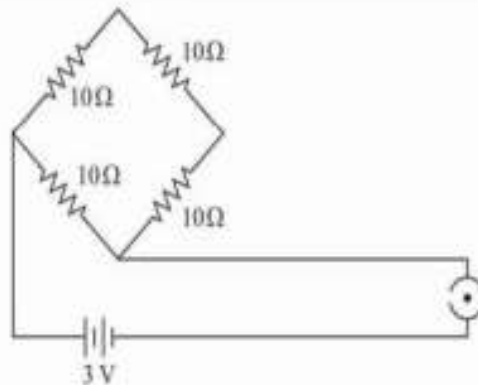
(iii) When resistance is double at constant voltage, current will become.

- a) $\frac{1}{2}$ b) 2 times c) $\frac{1}{4}$ d) 4 times

(iv) Find the resistance between A and B in the following network



- a) 2Ω b) 3Ω c) 4Ω d) 5Ω
 v) What is the resistance of circuit?



- a) 7.5Ω b) 8.53Ω c) 9.1Ω d) 10Ω

Section – B

21 List two characteristics of lungs which make it an efficient respiratory surface.

(OR)

Why is the small intestine in herbivores larger than in carnivores?

2

22	List the three events that occur during the process of photosynthesis. Explain the role of stomata in this process.	2
23	Explain structural isomers giving the example of Butane. (OR) Carbon forms a large number of compounds. Justify the statement by giving two reasons.	2
24	An element A which is part of common salt and kept under kerosene reacts with another element B of atomic number 17 to give a product C. When an aqueous solution of product C is electrolysed then a compound D is formed and two gases are liberated. a) What are A & B? b) What are C & D?	2
25	Explain the phenomenon of early sunrise and delayed sunset.	2
26	Draw a schematic diagram of a circuit consisting of a battery of 3 cells of 2V each, a combination of three resistors of 5Ω , 8Ω and 12Ω and a plug key and an ammeter, all connected in series.	2
SECTION – C		
27	The image of a candle flame placed at a distance of 30 cm from a spherical lens is formed on a screen placed at a distance of 60 cm from the lens. Identify the type of lens and calculate its focal length. If the height of the flame is 2.4 cm, find the height of its image. (OR)	3

30	How is ozone formed in the upper atmosphere? Why is damage to ozone layer a cause of concern to us ? What causes this damage ?	3
31	Compare the functioning of alveoli in the lungs and nephrons in the kidney with respect to their structure and functioning.	3
32	What is meant by homologous series of organic compounds? Write the chemical formulae of two members of a homologous series and state which part determines the (i) Physical properties (ii) Chemical Properties of these compounds.	3
33	Na, Mg and Al are the elements having one, two and three valence electrons respectively. Which of these elements i) has the largest atomic radius ii) is least reactive? Justify your answer stating reason for each.	3

SECTION – D

All questions are compulsory. In case of internal choices, attempt anyone

34	<p>(a) What is meant by isomers? Draw the structure of 2 isomers of C_4H_{10}. Explain why we cannot have isomers of first 3 members of alkane series.</p> <p>(b) Write the name and structure of saturated compounds in which carbon atoms are arranged in a ring give the number of single bonds present.</p> <p style="text-align: center;">(OR)</p> <p>(a) Can the following group of elements be classified as Dobereiner's triad?</p> <p>a) Na, Si, Cl</p> <p>b) Be, Mg, Ca</p>	5
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35	<p>i) If the image formed by a mirror for all position of the object placed in front of it is always diminished, erect and virtual, state the type of mirror and also draw a ray diagram to justify your answer. Write one use of such mirror are put to and why?</p> <p>ii) Define the radius of curvature of spherical mirrors. Find the nature and focal length of a spherical mirror, whose radius of curvature is 24 cm.</p>	5
36	<p>i) Identify any two parts from the given diagram which carry oxygenated and deoxygenated blood</p> <div data-bbox="365 808 1177 1354" data-label="Image"> </div> <p>ii) Explain the process of double circulation with the help of a flow chart</p> <p style="text-align: center;">(OR)</p> <p>Describe the structure and function of nephron.</p>	5