

3

SCIENCE (011) E [NCERT]

FORMAT OF THE QUESTION PAPER : 2023

Weightage of marks as per objectives :

Objectives	Knowledge	Under- standing	Applica- tion	Higher Order thinking Skill		Total
				Organising/ Analysis	Inference/ Evaluation	
Marks	20	28	24	04	04	80
Percentage	25	35	30	05	05	100

Weightage of marks as per type of questions :

Section	Type of Questions	Marks for each	Number of Questions	Total Marks
A	Objective Questions (OQ)	1 mark	16	16
B	Short Answer Questions (SQ-1)	2 marks	10	20
C	Short Answer Questions (SQ-2)	3 marks	08	24
D	Long Answer Questions (LQ)	4 marks	05	20
Total			39	80

Chapterwise weightage of marks :

Ch. No.	Name of Chapter	Marks	Unit	Weightage of marks	
1.	Chemical Reactions and Equations	04	Chemistry	25	
2.	Acids, Bases and Salts	06			
3.	Metals and Non-metals	05			
4.	Carbon and Its Compounds	06			
5.	Periodic Classification of Elements	04			
6.	Life Processes	06	Biology	22	
7.	Control and Coordination	05			
8.	How do Organism Reproduce ?	06			
9.	Heredity and Evolution	05			
10.	Light-Reflection and Refraction	06	Physics	11	23
11.	The Human Eye and the Colourful Words	05		12	
12.	Electricity	06			
13.	Magnetic Effects of Electric Current	06			
14.	Sources of Energy	04	Environ- ment	10	
15.	Our Environment	03			
16.	Sustainable Management of Natural Recource	03			
Total Marks		80		80	

STRUCTURE OF THE QUESTION PAPER

[2023]

Note : This format of the question paper is ment for the guidance of the student,s teachers, paper setters, modrators, etc. The paper setter has liberty to change the format keeping in mind the basic objectives of the syllabus and the chapterwise weightage of marks.

Section A : Objective Questions (Within the limit of 10 - 20 words)

- | | Marks |
|---|--------------|
| ✦ Questions 1 to 16 (16 questions) (Each question will be of 1 marks.) | 16 |
| ✦ All questions will be compulsory. | |
| ✦ In this section objective questions like MCQs (Multiple Choice Questions), MRQs (Multiple Response Questions (with more than one correct answers). True - False statements. Fill in the blanks. Definitions. Formulae, Equations, Very short answer questions. Answer in one word or one sentence. Give full form, Invention and inventor, Identify parts of diagram. Identify the odd one. Arrange in sequence, Graph-based questions, Identify the diagram, Assertion and Reason based questions, Complete the diagram or statement, Match the pairs, etc. types of questions can be asked. | |
| ✦ Ensure not to include more than 4 questions of any particular type. | |

Section B : Short Questions - 1 (Within the limit of 40 - 50 words)

- | | |
|---|----|
| ✦ Questions 17 to 26 (10 questions) (Each question will be of 2 marks.) | 20 |
| ✦ Internal options will be given in any Four questions. | |

Section C : Short Questions - 2 (Within the limit of 60 - 80 words)

- | | |
|--|----|
| ✦ Questions 27 to 34 (8 questions) (Each question will be of 3 marks.) | 24 |
| ✦ Internal options will be given in any THREE questions. | |

Section D : Long Questions (Within the limit of 90 - 120 words)

- | | |
|--|----|
| ✦ Questions 35 to 39 (5 questions) (Each question will be of 4 marks.) | 20 |
| ✦ Internal options will be given in any TWO questions. | |

Total Marks : **80**



9.PAPER**1****Science : (011)E****QUESTION PAPER - 1****Std.-10**

Time : 3 Hours

MARCH-2020 (FULLY SOLVED)

Total Marks : 80

Instructions : Same as per Question Paper-1

Section : A

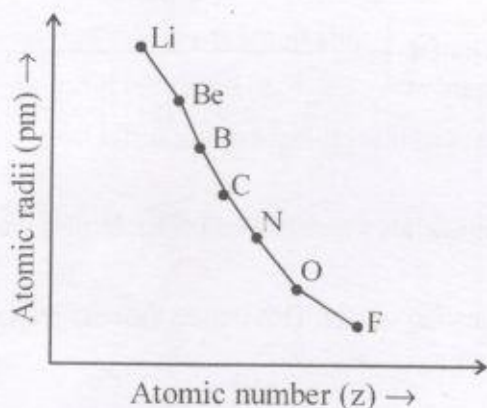
- Answer the questions 1 to 16 in a word or sentence. [One mark each] 16
- ★ Fill in the blank with correct answer :
- $ZnO + C \rightarrow Zn + CO$
In the above equation reduction takes place in _____ substance.
 - Butanone is a four-carbon compound with _____ functional group.
 - The farmers have arrested flower development in _____ to have bred broccoli.
 - If _____ is deficient in our diet, there is a possibility that we might suffer from goitre.
- ★ State if the following are true or false.
- The soap molecules form structures called miscelles where one end of molecules is towards the oil droplet while ionic end faces outside?
 - Optician has prescribed corrective lens indicating $-0.4D$. This means the lens prescribed is convex.
 - The reflex action is controlled by the heart.
- ★ Choose the correct option from the given options :
- Which among the given options is not an inert gas?
(A) H (B) He
(C) Ne (D) Ar
 - Which of the following is not a part of the female reproductive system in human beings?
(A) Ovary (B) Uterus
(C) Vas deferens (D) Fallopian tube
 - The fossil dating technique is used to find which among the following?
(A) Composition of soil (B) Age of fossil
(C) Inheritance of traits over generations (D) Composition of fossil
 - The least distance of distant vision for a young adult with normal vision is _____.
(A) 25 m (B) 2.5 cm
(C) 25 cm (D) 2.5 m
- ★ Do as directed :
- In the modern Periodic Table I am an element belonging to the second group and third period. Who am I?
 - Name the type of energy from sea that we get due to the gravitational pull of mainly the moon on the spinning earth the level of water in the sea rises and falls.
 - Name the scientist after whom the SI unit of electric current is expressed?
 - Name the group of bacteria, found in human intestines, whose presence in water indicates contamination by diseases causing micro organisms?
- ★ Complete the sentence :
- We should avoid the use of disposable plastics because, _____.

Section : B

- Answer the questions 17 to 26 in brief : (approximately 40 to 50 words) 20
[2 marks each]
- 17. A milkman adds a very small amount of baking soda to fresh milk.
 - (a) Why does he shift the pH of the fresh milk from 6 to slightly alkaline?
 - (b) Why does this milk take a long time to set as curd?
- 18. Give Reason : "Aluminium with Nitric acid does not produce hydrogen gas.
- 19. State the limitations of Newland's Law of Octaves.

OR

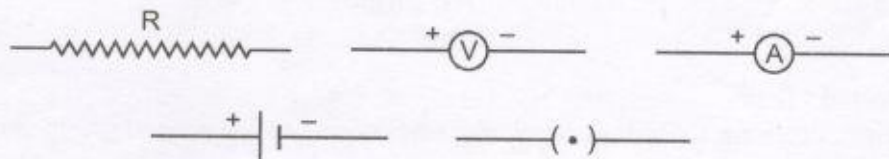
19. Study the variation in the atomic radii of second group elements are given below and answer the questions given.



- (a) In the second group which element has the highest metallic characteristics?
 - (b) In this second group of elements which element has the smallest atomic size?
20. Write the equation necessary for the process of photosynthesis.

OR

20. Differentiate between Aerobic respiration and Anaerobic Respiration.
21. What are the changes seen in girls at the time of puberty?
22. Name the type of mirror used in side / rear view mirror of a vehicle. Support your answer with reason.
23. Symbols of some components are given below. Using all of them only once draw an appropriate circuit diagram. Assume you are already having the wires for connection.



Also name each component used.

OR

23. An electric refrigerator rated 400W and an electric bulb rated 100W. Operates 10 hours/day. What is the cost of the energy to operate it for 10 days at Rs 8.00 per kWh?
24. What precaution should be taken to avoid the overloading of domestic electric circuits?
25. How can you help in reducing the problem of waste disposal? Give any two methods?

26. To save the environment you have come across the words "Reuse" and "Recycle". What do they refer to?

OR

26. Mention any two problems addressed to by construction of large dams.

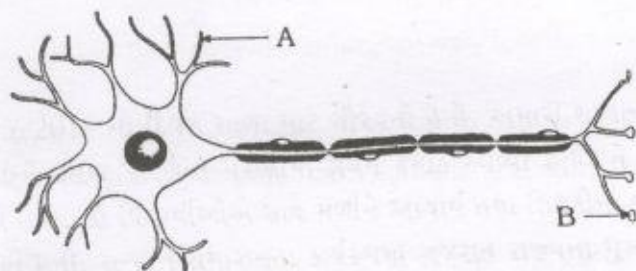
Section : C

- ★ Answer the question Numbers 27 to 34 in detail (approximately 60 to 80 words) 24
[3 marks each]

27. A solution of a substance X is used for whitewashing
(a) Name the substance X
(b) Write formula of substance X
(c) Write reaction of substance X with water
28. Explain the electrolytic refining of copper with the help of a diagram.

OR

28. Explain thermit process with equation.
29. From the diagram given below name the parts A and B. Also write the function of Part A and Part B.



30. State the different types of asexual reproduction and explain binary fission in amoeba.
31. Explain Homologous organs and analogous organs giving an example each.

OR

31. Ramesh has two daughters and his wife Maya is pregnant again. He desires to have a son. So he forces his wife Maya to go for sonography for sex determination of the child
(a) Who is responsible if the child born is a girl or boy? Father's or Mother's sex chromosome.
(b) In case of Ramesh's daughters which set of sex chromosome is not present in them?
(c) Is sex determination test illegal? Why?
32. Draw the diagram of Image formation by a concave mirror when the object is placed between Centre of Curvature and Focus of the concave mirror. Also state the position, size and nature of the image formed.

OR

32. A pencil, 4.0 cm in size, is placed at 25.0 cm in front of a concave mirror of focal length 15.0 cm. At what distance from the mirror should a screen be placed in order to obtain a sharp image? Find the nature and the size of the image.
33. Derive the equation of equivalent resistance of resistors connected in parallel.
34. The electricity bill of Atulbhai's house is more. So Sachin advised him to go for Government's subsidy scheme and put solar panels in his house. By doing so Atulbhai's electricity bill reduced.

- (a) In the solar panel the solar energy is converted into what form of energy?
- (b) How many watts of electricity is produced from a typical solar cell when exposed to sun?
- (c) State the limitations of solar energy.

Section : D

- **Answer the question Numbers 35 to 39 in detail (approximately 90 to 120 words) 20 [4 marks each]**
- 35. Name the chemical compound commonly used by your mother in the kitchen for making tasty crispy pakoras or cake. State its chemical formula and write the chemical equation of its production.

OR

- 35. Describe the reaction of zinc granules with dilute sulphuric acid with diagram. Also write the equation of zinc with sodium hydroxide.
- 36. (a) Draw the structure of compounds of carbon given below.
 - (i) Benzene
 - (ii) Chloropropane
- (b) What is esterification reaction? Also write its equation.
- 37. Draw the schematic sectional view (diagram) of human heart and also describe the circulation of blood in heart.
- 38. Shyam a student has difficulty reading the blackboard while sitting in the last row. What could be the defect the child is suffering from? How can it be corrected? Explain with help of appropriate diagram.
- 39. Explain the underlying principle, working and uses of an electric generator with a labelled diagram.

OR

- 39. What is electromagnetic induction? A coil of insulated copper wire is connected to a galvanometer. What will happen in the galvanometer if a bar magnet is
 - (a) pushed into the coil
 - (b) withdrawn from inside the coil
 - (c) held stationary inside the coil



QUESTION PAPER : 1 : MARCH - 2020 : FULLY SOLVED

Section : A

1. $ZnO + C \rightarrow Zn + CO$
In the above equation reduction takes place in **ZnO** substance.
2. Butanone is a four-carbon compound with **Ketene** / $>C=O$ functional group.
3. The farmers have arrested flower development in **Wild cabbage** to have bred broccoli.
4. If **Iodine** is deficient in our diet, there is a possibility that we might suffer from goitre.
5. The soap molecules form structures called micelles where one end of molecules is towards the oil droplet while ionic end faces outside? **True (✓)**
6. Optician has prescribed corrective lens indicating $-0.4D$. This means the lens prescribed is convex. **False (x)**
7. The reflex action is controlled by the heart. **False (x)**
8. (A) H
9. (C) Vas deferens
10. (B) Age of fossil
11. (C) 25 cm
12. In the modern Periodic Table I am an element belonging to the second group and third period. Who am I ?

Ans. Mg

13. Name the type of energy from sea that we get due to the gravitational pull of mainly the moon on the spinning earth the level of water in the sea rises and falls.

Ans. Tidal Energy

14. Name the scientist after whom the SI unit of electric current is expressed?

Ans. Andre - Marie Ampere

15. Name the group of bacteria, found in human intestines, whose presence in water indicates contamination by diseases causing micro organisms?

Ans. Coliform

16. We should avoid the use of disposable plastics because.

→ Non biodegradable / Cause pollution

Section : B

17. A milkman adds a very small amount of baking soda to fresh milk.
 - (a) Why does he shift the pH of the fresh milk from 6 to slightly alkaline?
 - (b) Why does this milk take a long time to set as curd?
- Ans. (a) By shifting the PH of milk towards alkaline presents milk from becoming sour or tuning curd.
- (b) Baking soda is base, it neutralize the formation of lactic acid. so milk takes more time to become cued.

18. **Give Reason : "Aluminium with Nitric acid does not produce hydrogen gas.**

Ans. HNO_3 Is a strong oxidizing agent.

→ It oxidises the H_2 Produced to water and it gets reduced to any of the nitrogen oxides

19. **State the limitations of Newland's Law of Octaves.**

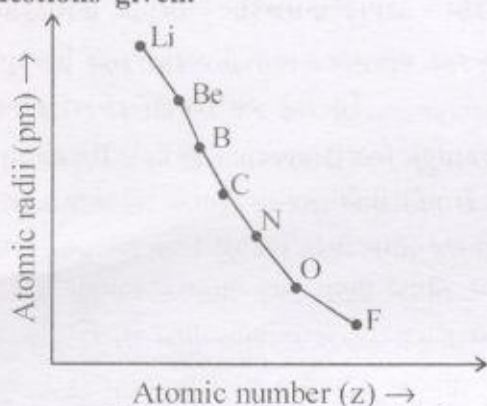
Ans. Applicable only upto calcium.

→ He thought no more elements could be discoursed.

→ He adjusted two elements in the slot even though properties are not matching.

OR

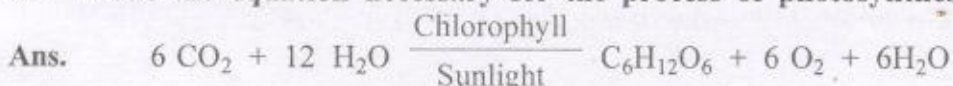
19. Study the variation in the atomic radii of second group elements are given below and answer the questions given.



- (a) In the second group which element has the highest metallic characteristics?
 (b) In this second group of elements which element has the smallest atomic size?

Ans. (a) Lithium (b) Fluorine

20. Write the equation necessary for the process of photosynthesis.



OR

20. Differentiate between Aerobic respiration and Anaerobic Respiration.

Aerobic respiration	Anaerobic respiration
(1) O_2 is used in this process.	(1) O_2 is not used in this process.
(2) At the end of this process CO_2 and H_2O are produced.	(2) At the end of this process in medium of plant origin Ethanol and CO_2 are produced and in medium of animal origin only lactic acid is produced and no CO_2 .
(3) In aerobic respiration complete oxidation of glucose molecules occurs, in which one mole of glucose on oxidation releases much greater energy.	(3) In anaerobic respiration glucose molecules are incompletely oxidized, so one mole of glucose releases less energy along with the organic by-products.
(4) There are two phases in aerobic respiration, the first phase occurs in the cytoplasm and does not utilize O_2 . The second phase occurs in the mitochondria and utilizes O_2 .	(4) There is only one phase in anaerobic respiration. It occurs in the cytoplasm. It occurs entirely in the absence of O_2 .

21. What are the changes seen in girls at the time of puberty?

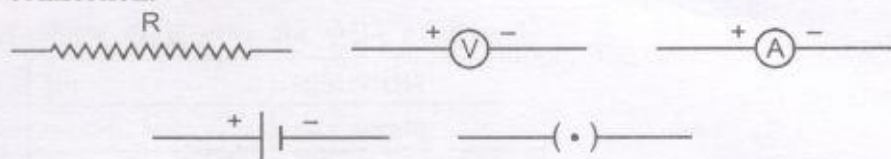
• **Secondary sexual changes :** In girls, ovary starts secreting female sex hormones.
 → Ovaries start producing ova.
 → Development of reproductive organs and breasts develop, with darkening of the skin of the nipples.

→ Menstrual cycle starts.

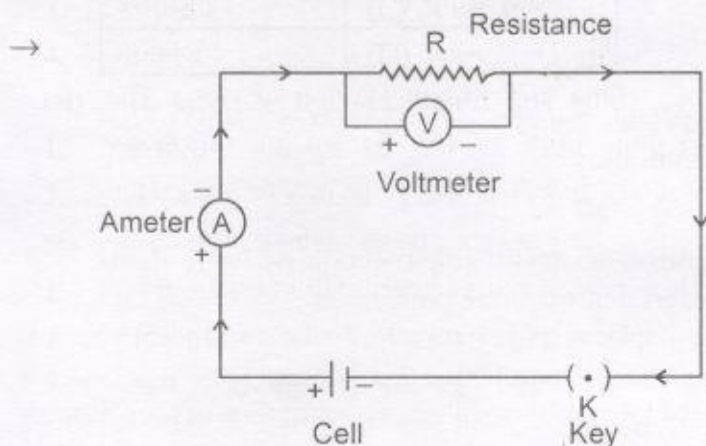
22. Name the type of mirror used in side / rear view mirror of a vehicle. Support your answer with reason.

→ The field view of a convex mirror is very large, i.e., it gives over-all view of vast area of the backside of a vehicle and it forms a virtual, erect and diminished image of a backside object. Hence, the vehicle can be driven safely by viewing backside fully.

23. Symbols of some components are given below. Using all of them only once draw an appropriate circuit diagram. Assume you are already having the wires for connection. 02



Also name each component used.



OR

23. An electric refrigerator rated 400W and an electric bulb rated 100W. Operates 10 hours/day. What is the cost of the energy to operate it for 10 days at Rs 8.00 per kWh?

→ Refrigerator : 400 w

Bulb : 100 w

Total : 500 w

$$W = P \times t$$

$$= 500 \times 10 \text{ hours/day} \times 10 \text{ days}$$

$$= 500 \times 10 \times 10$$

$$= 50000$$

$$= 50 \text{ k wh}$$

...(1)

$$\text{Cost} = 8 \times 50 = 400 \text{ Rs.}$$

24. What precaution should be taken to avoid the overloading of domestic electric circuits?

→ To avoid overloading of domestic electric circuits, the following precautions should be taken :

→ Wires used for carrying current should be of proper current rating.

→ Two separate circuits should be used, one of 5 A current for lighting electric bulbs, tubes, TV, etc. and another of 15 A for higher current rating appliances such as heating appliances, AC, etc.

- Parallel circuits should be used and each circuit should have a fuse of proper rating.
- Too many higher power rating electrical appliances such as electric iron, geyser, air-conditioner, etc. should not be switched on at the same time.
- Too many electrical appliances should not be operated on a single socket simultaneously.
- Wires should be replaced by new wires of proper rating and good insulation after every 5 - 6 years.
- PVC of good quality should be used.

25. How can you help in reducing the problem of waste disposal? Give any two methods?

- Make compost with biodegradable tens.
Recycle those items which are non-biodegradable.
- **Two methods** : - Reuse
- Recycle

26. To save the environment you have come across the words "Reuse" and "Recycle". What do they refer to?

- **Reuse** : - Use things again and again.
- Reverse it and use it again.
- Recycle** - Recycle non-biodegradable things
- Make new things from old

OR

26. Mention any two problems addressed to by construction of large dams.

- Criticisms about large dams project address three problems :
- **Social problems** : Construction displaces large number of tribals and local peasants without proper compensation and rehabilitation.
- **Economic problems** : Projects need lot of money without the generation of proportionate benefits.
- **Environmental problems** : Construction of a dam causes deforestation and loss of biodiversity.

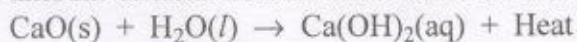
Section : C

27. A solution of a substance X is used for whitewashing

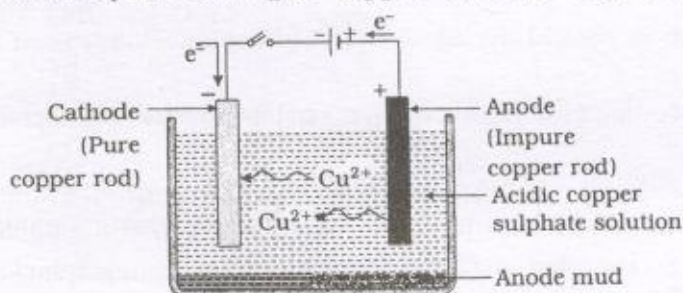
03

- (a) Name the substance X
- (b) Write formula of substance X
- (c) Write reaction of substance X with water

- Substance X is calcium oxide. Its formula is CaO.
- Calcium oxide reacts vigorously with water and forms slaked lime ($\text{Ca}(\text{OH})_2$) and liberates large amount of heat. It is an exothermic reaction.

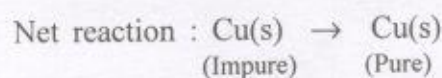
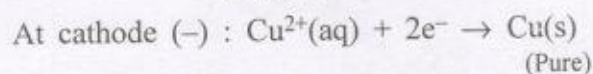
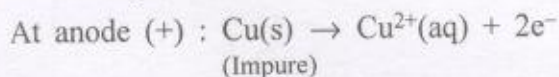


28. Explain the electrolytic refining of copper with the help of a diagram.



- The metals obtained from their ores are not very pure. Hence, it is essential to purify the metals. The most widely used method for refining impure metals is electrolytic refining.
- Metals such as copper, zinc, tin, nickel, silver and gold are refined by electrolytic process. In this process, the impure metal is made the anode and a thin strip of pure metal is made the cathode.
- A solution of the metal salt is used as an electrolyte.
- The apparatus is set up as shown in the figure.
- On passing the electric current through the electrolyte, the pure metal from the anode dissolves into electrolyte. An equivalent amount of pure metal from the electrolyte is deposited on the cathode.

→ For example,

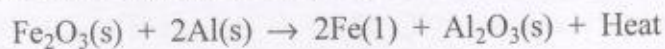


- The soluble impurities pass into the solution while the insoluble impurities such as gold, silver, platinum are settled at the bottom of the anode and are called anode-mud.

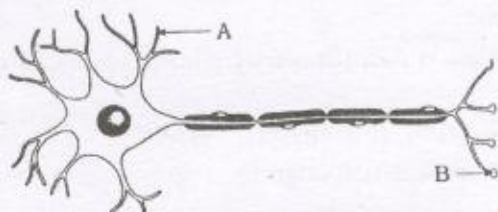
OR

28. Explain thermit process with equation.

- More reactive metals displace less reactive metals from the solution of their compounds.
- Such displacement reactions are highly exothermic. The amount of heat evolved is so large that the metals are produced in the molten state.
- This reaction is called as the thermit reaction.
- For example, the reaction of iron (III) oxide (Fe_2O_3) with aluminium forms molten Fe, which is used to join railway tracks or cracked machine parts.



29. From the diagram given below name the parts A and B. Also write the function of Part A and Part B.



- (A) Dendrite : Receive message from receptors and initiate chemical reaction producing electrical impulses.
- (B) Nerve endings : Pass the impulse to another cell by the synapse.

30. State the different types of asexual reproduction and explain binary fission in amoeba.

- (1) Budding (2) Fission (3) Fragmentation (4) Regeneration

● **The different types of asexual reproduction :**

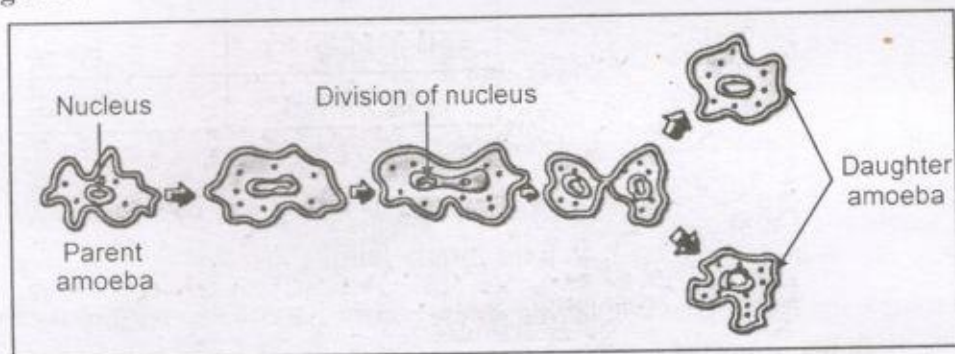
- Amoeba takes in food using temporary finger like extensions (Pseudopodia) of the cell surface which fuse over the food particle forming a food vacuole.

- Inside the food vacuole, complex substances are broken down into simpler ones which then diffuse into the cytoplasm. The remaining undigested material is moved to the surface of the cell and thrown out.
- In *Paramecium*, a unicellular animal has a definite cell shape and food is taken in at a specific spot. Food is moved to this spot by the movement of cilia which cover the entire surface of the cell.

● **Binary fission :**

- Many bacteria and protozoa simply split into two equal halves during cell division.
- Amoeba, the splitting of the two cells during division can take place in any plane.

● **Figure :**



31. **Explain Homologous organs and analogous organs giving an example each.**

- **Homologous :** The internal structure and fundamental origin of these organs are mostly similar.
e.g. The fore limbs of frog, lizard, bird and man are homologous organs.
- **Analogous organs :** The fundamental structure and origin of these organs are totally dissimilar.
e.g. The wings of butterfly wings of birds, and those of bat.

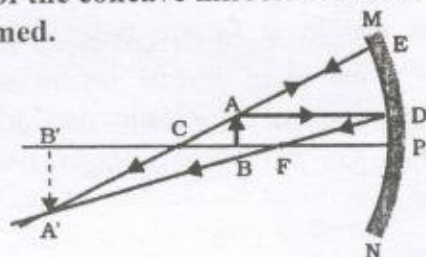
OR

31. **Ramesh has two daughters and his wife Maya is pregnant again. He desires to have a son. So he forces his wife Maya to go for sonography for sex determination of the child**

- (a) Who is responsible if the child born is a girl or boy? Father's or Mother's sex chromosome.
- (b) In case of Ramesh's daughters which set of sex chromosome is not present in them?
- (c) Is sex determination test illegal? Why?
- (a) Father's chromosome is responsible.
- (b) Y chromosome
- (c) Illegal, Gender determination, inequality, bias.

32. **Draw the diagram of Image formation by a concave mirror when the object is placed between Centre of Curvature and Focus of the concave mirror. Also state the position, size and nature of the image formed.**

- **Position :** Beyond centre of curvature C
- Size :** Magnified (Enlarged)
- Nature :** Real and Inverted



OR

32. A pencil, 4.0 cm in size, is placed at 25.0 cm in front of a concave mirror of focal length 15.0 cm. At what distance from the mirror should a screen be placed in order to obtain a sharp image? Find the nature and the size of the image.

→ Object size $h = +4.0$ cm

Object distance $U = -25$ cm

Focal length $f = -15$ cm

$v = ?$ $m = ?$

$$\frac{1}{v} + \frac{1}{u} = \frac{1}{f}$$

$$\begin{aligned} \frac{1}{v} &= \frac{1}{f} - \frac{1}{u} = \frac{1}{-15.0} - \frac{1}{-25.0} = -\frac{1}{15.0} + \frac{1}{25.0} \\ &= \frac{-5+3}{75} = \frac{-2}{75} = \frac{-1}{37.5} \end{aligned}$$

$$v = -37.5 \text{ cm}$$

The screen should be placed at 37.5 cm in front the mirror. The image is real.

$$\text{Also magnification } m = \frac{h'}{h} = \frac{-v}{u},$$

$$h' = -\frac{vh}{u} = \frac{-37.5 \times 4}{(-25 \text{ cm})} = -6.0 \text{ cm}$$

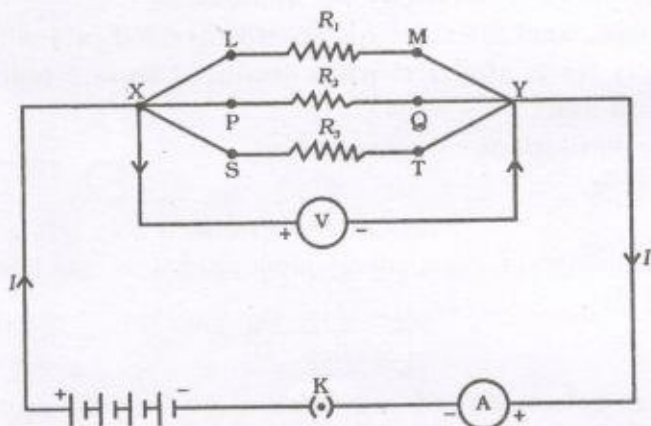
→ Real, inverted and magnified.

33. Derive the equation of equivalent resistance of resistors connected in parallel.

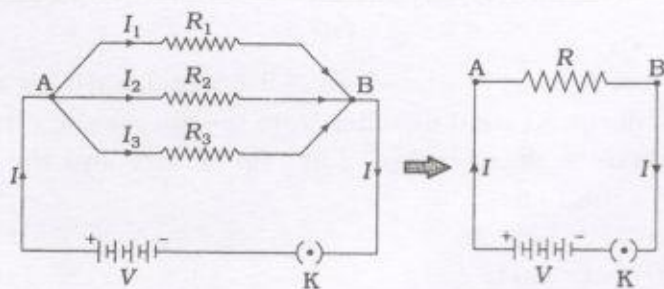
→ Two or more than two resistors are said to be connected in parallel if one end of each resistor is connected to one point and the other end is connected to another point so that more than one paths are available for the current flow and potential difference across each resistor is the same and is equal to the applied potential difference between the two common points.

→ Three resistors with resistances, R_1 , R_2 and R_3 are connected in parallel between points A and B as shown in the figure.

→ Here, the current I gets divided at point amongst three resistors as shown in the figure.



→ The value of the current flowing through each resistor depends on the value of its resistance.



(a) Electric circuit

(b) Equivalent circuit

→ Let I_1 , I_2 and I_3 be the currents flowing through the resistors with resistances R_1 , R_2 and R_3 respectively.

$$\therefore I = I_1 + I_2 + I_3 \quad \dots(2)$$

→ In a parallel combination of resistors, the potential difference across every resistor is equal to the potential difference V of the battery.

→ According to Ohm's law,

$$I_1 = \frac{V}{R_1}, I_2 = \frac{V}{R_2} \text{ and } I_3 = \frac{V}{R_3}$$

$$\therefore I = \frac{V}{R_1} + \frac{V}{R_2} + \frac{V}{R_3} \quad \dots(3)$$

→ Now, if a resistor with resistance R_p , instead of three resistors with resistances R_1 , R_2 and R_3 , is connected in the circuit such that the current flowing through the circuit remains the same as I then R_p is called the equivalent resistance of the circuit (see figure (b)).

$$I = \frac{V}{R_p} \quad \dots(4)$$

→ From equation (3),

$$\frac{V}{R_p} = \frac{V}{R_1} + \frac{V}{R_2} + \frac{V}{R_3}$$

→ Thus, in a parallel combination of resistors, the sum of the reciprocals of the individual resistances is equal to the reciprocal of the equivalent resistance R_p . R_p is less than any of the individual resistances in the circuit.

34. The electricity bill of Atulbhai's house is more. So Sachin advised him to go for Government's subsidy scheme and put solar panels in his house.

By doing so Atulbhai's electricity bill reduced.

(a) In the solar panel the solar energy is converted into what form of energy?

(b) How many watts of electricity is produced from a typical solar cell when exposed to sun?

(c) State the limitations of solar energy.

→ (a) Electric energy

(b) 0.7 watt

(c) Cost of installation is high, energy produced is less, can't be used during cloudy and rainy day.

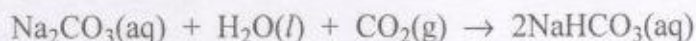
Section : D

35. Name the chemical compound commonly used by your mother in the kitchen for making tasty crispy pakoras or cake. State its chemical formula and write the chemical equation of its production.

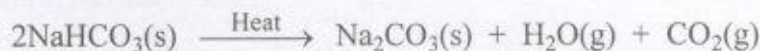
- **Preparation :** When carbon dioxide gas is passed through an aqueous solution of sodium chloride and further saturated with ammonia gas, forms baking soda (NaHCO_3).



- By passing carbon dioxide gas in an aqueous solution of sodium carbonate, baking soda can be obtained.



- Chemical name of baking soda is sodium hydrogen carbonate or sodium bicarbonate.
- It is a mild non-corrosive basic salt. When it is heated during cooking the food, following reaction occurs :

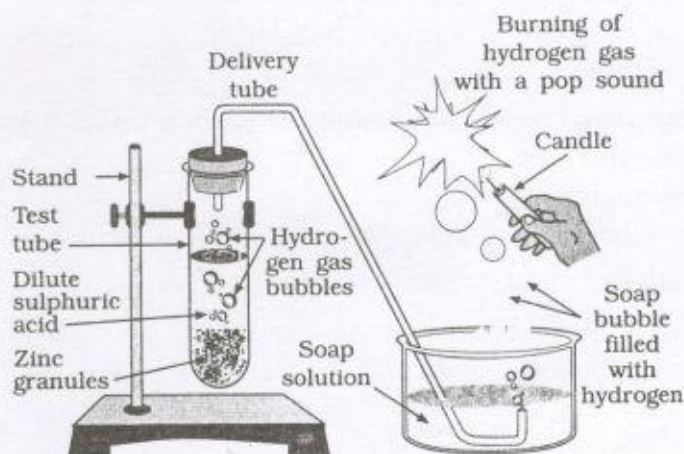


- **Uses :**

- For making baking powder.
- When it is heated or mixed in water, carbon dioxide produced during the reaction makes bread, cake or pakoras soft and spongy.
- As an antacids.
- It is used in soda-acid fire-extinguishers.
- As disinfectant.
- As a reagent in laboratory.

OR

35. Describe the reaction of zinc granules with dilute sulphuric acid with diagram. Also write the equation of zinc with sodium hydroxide.



- **Aim :** Testing of hydrogen gas formed by the reaction of zinc granules with dilute sulphuric acid (H_2SO_4).
- **Caution :** This activity needs the teacher's assistance.
- **Activity :** Arrange the apparatus as shown in the figure.
- Take about 5 mL of dilute sulphuric acid in a test tube and add a few pieces of zinc granules to it.
- What do you observe around the surface of zinc granules ?
- Pass the gas being evolved through the soap solution.
- Why are bubbles formed in the soap solution?
- Take a burning candle near a gas filled in bubbles.

- What do you observe ?
- Repeat this activity with some more acids like HCl, HNO₃ and CH₃COOH.
- Are the observations in all the cases the same or different ?
- In above reaction, metal displace hydrogen gas from acid.
- In short, when metal reacts with an acid forms salt and evolves H₂ gas.
Metal + Acid → Salt + Hydrogen gas

Questions :

(1) What do you observe around the surface of zinc granules ?

Ans. Hydrogen gas is bubbled around the surface of zinc granules.

(2) Why are bubbles formed in the soap solution ?

Ans. Zinc granules reacts with H₂SO₄ forming hydrogen gas which, when passed through the solution of soap form bubbles.

(3) What happens, when a burning candle is brought near the hydrogen gas ?

Ans. When a burning candle is brought near the hydrogen gas, it burns with a popping sound.

(4) Does zinc metal liberate hydrogen gas with dilute HCl, dilute HNO₃ and CH₃COOH solution ? Mention it with equations of chemical reactions.

Ans. $Zn(s) + 2HCl(aq) \rightarrow ZnCl_2(aq) + H_2(g)\uparrow$
(Dilute) (evolved)

$Zn(s) + HNO_3(aq) \rightarrow H_2(g)$ is not evolved.
(Dilute)

$Zn(s) + CH_3COOH(aq) \rightarrow H_2(g)$ is not evolved.

(5) Write the balanced chemical equation of reaction of zinc metal with dilute H₂SO₄.

Ans. $Zn(s) + H_2SO_4(aq) \rightarrow ZnSO_4(aq) + H_2(g)$
(Dilute)

36. (a) Draw the structure of compounds of carbon given below. 04

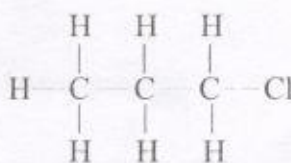
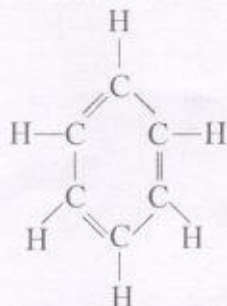
(i) Benzene

(ii) Chloropropane

(b) What is esterification reaction? Also write its equation.

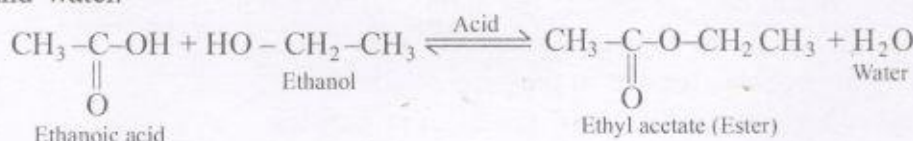
(a) (1) Benzene

(2) Chloropropane

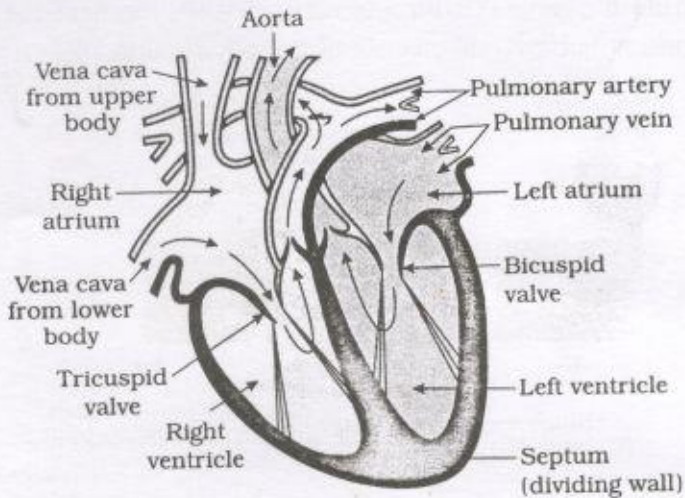


(b) **Esterification reaction :** Reaction of a carboxylic acid and an alcohol in the presence of an acid catalyst forms ester and water. This reaction is called an esterification reaction

→ Ethanoic acid reacts with absolute ethanol in the presence of an acid catalyst to form ester and water.



37. Draw the schematic sectional view (diagram) of human heart and also describe the circulation of blood in heart.



● **The circulation path in human heart :**

→ Heart has 2 upper receiving chambers called atria. It has 2 lower chamber called ventricles which can push blood out of the heart.

● **In Left chambers :**

- Oxygen rich blood from the lungs comes to the thin walled upper left chamber of the heart, i.e. left atrium through pulmonary veins.
- The left atrium relaxes when it is collecting this blood.
- Now, left atrium contracts, while left ventricle relaxes.
- So, that the blood is transferred to left ventricle.
- When the muscular left ventricle contracts, the blood is pumped through aorta and supplied to the whole body.

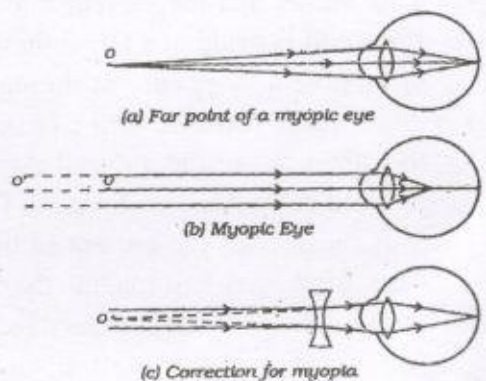
● **In Right chambers :**

- Deoxygenated blood comes from the body to the upper right chamber, i.e. right atrium as it relaxes.
- As the right atrium contracts, the corresponding lower chamber, the right ventricle dilates.
- This transfers deoxygenated blood to the right ventricle, which in turn pumps it through pulmonary artery to the lungs for oxygenation.

- Valves ensure that blood does not flow backwards when the atria or ventricles contract.
- Since ventricles have to pump blood into various organs, they have thicker muscular walls, than the atria do.

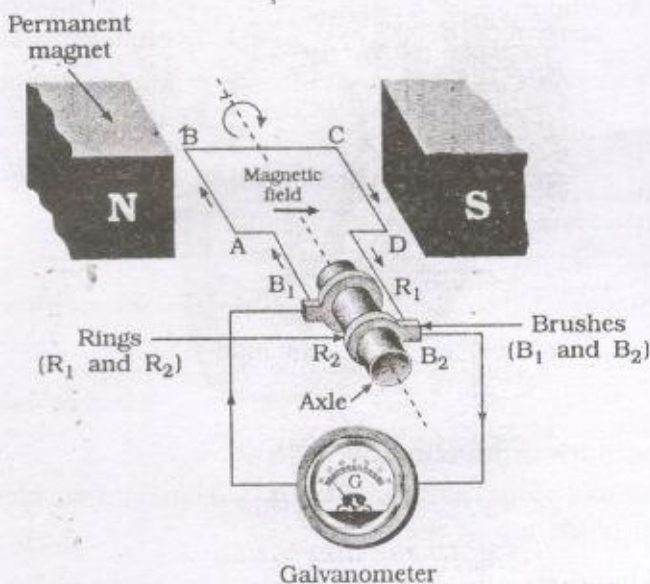
38. Shyam a student has difficulty reading the blackboard while sitting in the last row. What could be the defect the child is suffering from? How can it be corrected? Explain with help of appropriate diagram.

→ Image of distant object is formed in front of the retina. It happens due to excessive convergence of eye lens and due to elongation of eyeball.



39. Explain the underlying principle, working and uses of an electric generator with a labelled diagram.

→ **Principle :** An electric generator is a device that converts mechanical energy into electrical energy. Its working is based on electromagnetic induction.



Construction :

- Figure shows the construction of an AC generator. It consists of a rectangular coil ABCD placed between the two poles of a permanent magnet.
- Two ends of this coil are connected to the two metal (copper) rings R_1 and R_2 . The inner side of these rings is insulated.
- The two conducting stationary brushes B_1 and B_2 are kept pressed separately on the rings R_1 and R_2 respectively.
- The two rings R_1 and R_2 are internally attached to an axle. The axle may be mechanically rotated from outside to rotate the coil inside the magnetic field.
- Outer ends of the two brushes are connected to the galvanometer to show the flow of current in the given external circuit.

Working :

- Suppose, the axle attached to the two rings is rotated such that the arm AB moves up and the arm CD moves down in the magnetic field produced by the permanent magnet.
- Then the coil ABCD rotates clockwise in the arrangement shown in the figure. By applying Fleming's right-hand rule, we find that the induced currents are set up in these arms along the directions AB and CD.
- This means that the current in external circuit flows from brush B_2 to B_1 .
- If the coil is made of a larger number of turns, the current generated in each turn adds up to give a large current through the coil.
- After half a rotation, arm CD starts moving up and AB moving down. As a result, the directions of the induced currents in both the arms change, giving rise to the net induced current in the direction DCBA.
- This means that the current in the external circuit now flows from brush B_1 to B_2 .
- Thus, after every half rotation the direction of the current in the respective arms changes.
- Such a current, which changes direction after equal intervals of time, is called an alternating current (abbreviated as AC).

Uses :

- Electric generators are used in hospitals, theatres, shops, banks, etc.
- The coil in an electric generator can be rotated using wind energy, energy of falling water, diesel engine, etc.

OR

39. What is electromagnetic induction? A coil of insulated copper wire is connected to a galvanometer. What will happen in the galvanometer if a bar magnet is
- (a) pushed into the coil
 - (b) withdrawn from inside the coil
 - (c) held stationary inside the coil

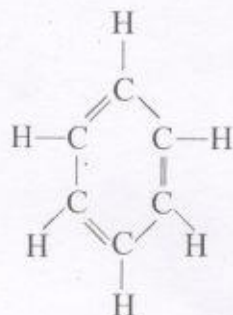
Electromagnetic induction :

- The process, by which a changing magnetic field in a conductor induces a current in another conductor is called electromagnetic induction.
- An electric current produced in a closed circuit by a changing magnetic field is called an induced current. This phenomenon is called electromagnetic induction.
 - (a) The galvanometer will show a momentary deflection in one direction. It means a current is induced in the coil in one direction due to the relative motion between the coil and the magnet.
 - (b) The galvanometer will show a momentary deflection in the opposite direction. It means a current is induced in the coil in the opposite direction due to the relative motion between the coil and the magnet.
 - (c) There will be no deflection in the galvanometer. It means no current is induced in the coil, as there is no relative motion between the coil and the magnet.




9.PAPER**2****Science : (011)E****QUESTION PAPER - 2****Std.-10****Time : 3 Hours****AUGUST-2020****Total Marks : 80****Instructions : Same as per Question Paper-1****Section : A**

- **Answer the questions 1 to 16 in a word or sentence. [One mark each]** 16
- ★ **Select the proper alternative from the given MCQ; with its proper name and order.**
- On heating lead nitrate which of the following pair of gases will be evolved :
 (A) $\text{NO} + \text{O}_2$ (B) $\text{NO}_2 + \text{O}_2$
 (C) $\text{NO}_3 + \text{O}_2$ (D) $\text{N}_2\text{O} + \text{O}_2$
 - In the badminton tournament Saina Nehwal has won a Bronze medal. Name the metals used in the preparation of medal?
 (A) Cu and Zn (B) Cu and Sn
 (C) Pb and Sn (D) Cu and Pb
 - An element X forms as chloride compound XCl_2 which possess a very high Melting Point. Find the component X.
 (A) Na (B) Mg (C) Al (D) Si
 - Which of the following energy source is not connected with solar energy?
 (i) Geothermal energy
 (ii) Tidal energy
 (iii) Nuclear energy
 (iv) Wind energy
 (A) (i) and (ii) (B) (ii) and (iii)
 (C) (i) and (iii) and (iii) (D) (iii) and (iv)
- ★ **Fill in the blanks so as to make the following statements true :** 4
- _____ hormone maintains the sugar level in the human body.
 - _____ is used as a preservative in 'achars' and 'pickles' used in market.
 - An element X has atomic number 13; then _____ is the nearest inert gas to the element X.
 - Dinosaur were in _____ family classification.
- ★ **State True OR False :** 4
- Is this the structure of of Cyclohexane ?



- Usage of various plastic bottles and boxes in Kitchen for the preservation of Jams and pickles are the example of Reused process?

11. 
Does this sign indicate a battery?
12. The involuntary action like salivation is controlled by the medulla in the hind brain?

★ Answer in one word / sentence.

4

13. Which male hormone is responsible for the development of beard and moustache?
14. The given table is of Dobereiner's Triads find the missing element X.
- | | | |
|----|----|----|
| Li | Ca | Cl |
| Na | Sr | Br |
| K | X | I |
15. Which of the following possess the highest biological magnification :
Grasshopper; frog, snake and peacock.
16. Two different animals possessing different organs P and Q; possess same body functions. These organs are thus called as?

Section : B

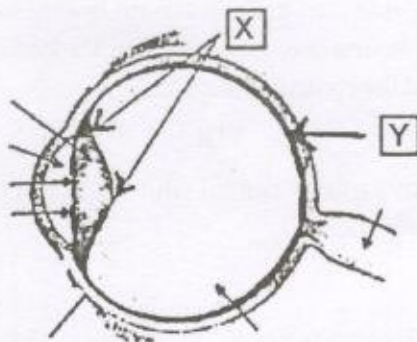
★ Answer the questions 17 to 26 in brief : (approximately 40 to 50 words)
[2 marks each]

20

17. Describe briefly Budding.
18. An orthopedic surgeon uses a white powder to reset human bones :
(i) Write the scientific name & its chemical formula.
(ii) Other than one use given in above question; Give two other uses of this Powder.

OR

18. For diluting sulphuric acid; the acid should be added to water instead of water being added to acid? Justify :
19. As shown in the figure below; write the functions of X and Y marked.



20. As per "Swachh Bharat Abhiyan" (Clean India) what steps will you take for the disposal of waste.
21. Which of the following is a stable element ?
 ${}_{20}\text{Ca}$, ${}_6\text{C}$, ${}_{16}\text{S}$, ${}_{10}\text{Ne}$, ${}_{13}\text{Al}$, ${}_2\text{He}$
22. Which type of connection is seen in a domestic circuit? Describe its uses?

OR

22. Describe the factors affecting the resistance of a conductor.
23. Rearrange the following organs of digestive system.
Considering the process of partial digestion of Starch and proteins in them :
Small intestine; Oesophagus; Stomach; Rectum; mouth; large intestine.

24. A concave mirror is commonly used in torches; draw a ray diagram to show the working of this optical instrument. 2

OR

24. Suresh gets his eye checked and doctor prescribes +4.0 D. What type of lens should he wear? Also find its focal length?
25. There was a fire due to overloading in circuit in Ramanbhai's house. What precautions had he taken to prevent this hazard? 2

OR

25. Differentiate : (Only 2 points)
(A.C.) Alternate Current
(D.C.) Direct Current
26. What steps should be taken to control the scarcity of Water reservoirs? 2

Section : C

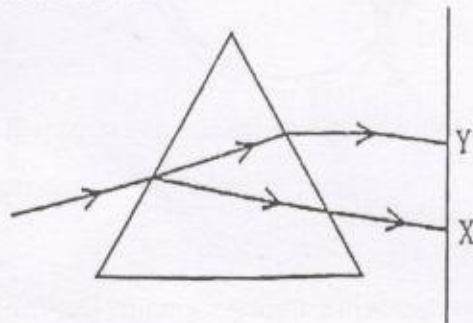
- Answer the question Numbers 27 to 34 in detail (approximately 60 to 80 words) 24 [3 marks each]
27. Write the Principle involved in Hydro electric Power plant. Explain the process of generating electricity through it, also describe any three ecological problems created due to the functioning of Hydro Power Plant.
28. The electronic configuration of three elements A, B and C are shown below :
- | | | | |
|---|---|---|---|
| A | 2 | 8 | 2 |
| B | 2 | 8 | 7 |
| C | 2 | 4 | |

From the above data answer the following question :

- (i) Which of the following A, B and C is a metal? & also write the name of the metal?
 - (ii) Which of the above is a non-metal? & write the name of the non-metal.
 - (iii) Write the Chemical Equation combining the metal and non-metal from the above data.
29. Dhiren sitting near the Window of his class room is able to read letters of his Text Book clearly; but unable to see the number plate of a Car Parked at 30 feet. Can you suggest the name of his eye defect; and the remedial diagram.

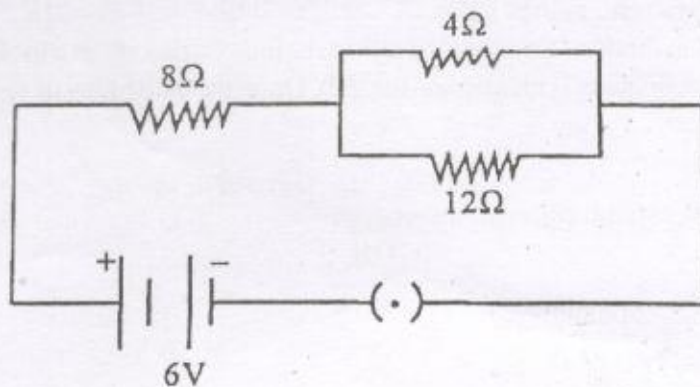
OR

29. As shown in the figure above a thin beam of white light is incident on a glass prism forms a spectrum ranging between Y and X

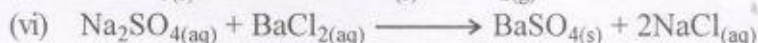
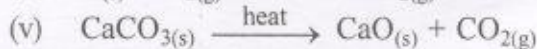
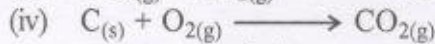
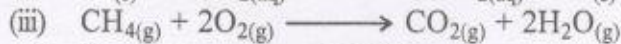
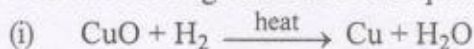


- (i) Write the Principle involved.
- (ii) Write the name of the coloured rays X and Y.
- (iii) Using the above data clarify scientifically as to which colour light is used as a danger signal.

30. Calculate the Equivalent resistance of the circuit.



31. From the below given Chemical Equation state its types.



31. Ashokbhai started a small scale industry for manufacture of Potato chips; after some time the product became rancid and their smell and taste changed. What do you understand by Rancidity? also state the remedies to prevent it”?

32. The following functions are related to Fore Brain and Hind Brain, classify the following activities:

- (i) Hearing
- (ii) Salivation
- (iii) Blood pressure
- (iv) Sight
- (v) Smell
- (vi) Vomit

33. Explain the process of Sex determination in human?

34. Describe briefly various contraceptive methods to control (family planning)? Contraceptive aids?

OR

34. What do you understand by Vegetative Reproduction? Describe any two of its advantages.

Section : D

• Answer the question Numbers 35 to 39 in detail (approximately 90 to 120 words)
[4 marks each]

20

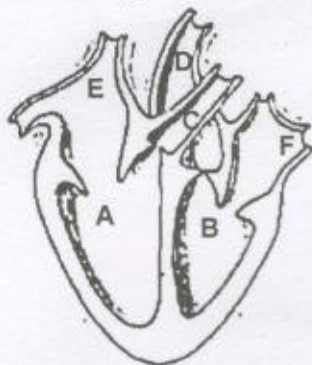
35. (i) If the magnification of a lens is +0,35. What will be the nature of the lens; Convex OR Concave. If the focal length of the lens lens is 15 cms; draw a ray diagram to study its image.
- (ii) Rakesh projects a beam of light from different angles on a lens placed perpendicular to the table. The beams of light passing through this lens turn at different angles but a ray of light from one place on the lens does not turn even after passing through the lens. Where is this beam of light being projected from? Draw a figure of the rays.

OR

35. (i) State laws of refraction of light.
 (ii) A glass slab made of a material of refractive index n_1 is kept in a medium of refractive index n_2 . A light ray is incident on the slab. Draw the path of ray of light emerging from the glass slab.
 (a) $n_1 > n_2$ (b) $n_1 = n_2$ (c) $n_1 < n_2$
36. Explain the process of nutrition in Amoeba.

OR

36. (i) In the above figure label A, B, E and F.



- (ii) Which organ separates the above shown parts of the heart and further prevents the flow of blood back to its original path.
 (iii) Through which part of the heart will the blood be pumped chronically towards lungs.
 (iv) After purification of blood from lungs the blood flows back to heart. Arrange the organs chronically.
37. Explain preparation of bleaching powder with Chemical Equation; and also write its uses.
 38. With the help of a diagram; Explain Principle & Working of electric motor.
 39. Below are the given five Organic Compounds.

A	B	C	D	E
C_3H_6	C_2H_6	C_2H_5OH	CH_3COOH	C_2H_4

- (i) From the above given compound A, B, C, D and E which of the following is a saturated hydrocarbon.
 (ii) From the above given data select the proper alcohol compound and also draw its structural formula.
 (iii) Write the chemical reaction seen by reacting C and D compounds with concentrated sulphuric acid.
 (iv) Write two uses of the product obtained while reacting the compounds C and D.



QUESTION PAPER : 2 : AUGUST - 2020 : SHORT ANSWERS

- | | | |
|--------------------------------|------------------|----------------|
| 1. (B) $NO_2 + O_2$ | 2. (B) Cu and Sn | 3. (B) Mg |
| 4. (C) (i) and (iii) and (iii) | 5. Insulin | 6. Acetic Acid |
| 7. Niyon | 8. Sari Suf | 9. False |
| 10. False | 11. False | 12. True |
| 13. Testotaron | 14. Ba (Beriyer) | 15. Peacock |
| 16. Analogous organs | | |

Q.PAPER	Science	
3	QUESTION PAPER - 3	Std.-10
Time : 3 Hours	Board Sample Question Paper	Total Marks : 100

Instructions : Same as per Question Paper-1

Section-A

Answer the following Q. No. 1 to 18 (within the limit of 10 to 20 words) as directed :
(1 mark each) 16

- ★ Fill in the blanks so as to make each of the following statements true :
- The surface of metal acquires a green coating, when it is exposed to air, but on heating the metal, it acquires a black coating.
 - is the formula of functional group present in ketone compounds.
 - The dinosaurs belong to class
 - hormone synthesised at the shoot tip. helps the cells to grow longer.
- ★ State whether the following statement are true or false. [Q. 5 to 7]
- The number of C - H bonds in C_2H_6 is 6.
 - Lens of power +2.0 D is a convex lens.
 - Adrenaline hormone is responsible for faster heartbeats.
- ★ Choose the correct option and write it with answer from those given below multiple choice questions : (MCQs)
- Which scientist proposed the 'Law of Triad' for the classification of elements ?
(a) Dobereiner (b) Newland (c) Moseley (d) Mendeleev
 - If according to Indian almanac real sunrise of a day is 6:32 hour, then at the horizon Sun will appear at hours.
(a) 6 : 32 (b) 6 : 34 (c) 6 : 30 (d) 6 : 36
 - What is called a flower having both stament and pistil ?
(a) Male flower (b) Female flower
(c) Unisexual flower (d) Bisexual flower
 - Match the following :
- | Column 'A'
(Evidences of evolution) | Column 'B'
(Example) |
|--|------------------------------|
| (1) Homologons Organs | (a) Ammonite, Trilobite |
| (2) Analogous Organs | (b) limbs of frog and lizard |
| (3) Fossils | (c) wings of birds and bats |
- (a) (1-a), (2-b), (3-c).
(b) (1-c), (2-b), (3-a)
(c) (1-b), (2-c), (3-a)
(d) (1-b), (2-a), (3-c).
- ★ Answer the following questions as directed :
- What is ment by Valency ?
 - In an electric circuit, how can the battery having 12 V be shown symbolically ?
 - "I am a chief constituent of biogas." Identify me.

15. Mention the full form of CFC.
16. Which tree leaves are used in manufacture of bidies ?

Section : B

- ★ Answer the following questions Q. no. 17 to 26 (within the limit of 40 to 50 words) as directed : (2 marks each) (20)

17. A milkman adds a very small amount of baking soda to fresh milk.
 - (A) Why does he make the milk slightly alkaline ?
 - (B) Why does the milk take a long time to set as curd ?
18. Give scientific reason : Hydrogen gas is not evolved when copper reacts with dilute H_2SO_4 .
19. An atom has electronic configuration 2, 8, 7,
 - (A) What is the atomic number of this element ?
 - (B) To which of the following elements would it be chemically similar ?
(Atomic numbers are given in parentheses.)
N(7), F(9), P(15), Ar (18)

OR

19. Answer the following questions based on depiction of Group 17 of modern periodic table :

Group 17
-
A
-
C

- (A) State whether A is a metal or non-metal.
 - (B) State whether A is more reactive or less reactive than C.
20. State the name of any four organs of human digestive system.

OR

20. State the name of any four organs of human respiratory system.
21. If any animal is cut into many pieces, can a new complete animal body be generated from each piece ? if yes, then explain such events.
22. Draw the ray diagrams showing incident ray and reflected ray for (1) a ray parallel to the principal axis and (2) a ray passing through the principal focus of a concave mirror.
23. State the advantages / merits of a series combination of resistors.

OR

23. State two practical application of heating effect of electric current.
24. Explain : An electric fuse is an important component of all domestic circuits.
25. Distinguish between biodegradable waste and non-biodegradable waste.
26. Explain : (1) Refuse and (2) Repurpose aspects to save environment.

OR

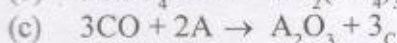
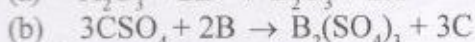
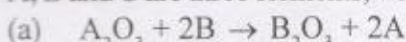
26. Which four steps would you suggest to reduce the use of energy ?

Section : C

- ★ Answer the following Q. no. 27 to 34 in short (within the limit of 60 to 80 words) as directed. (3 marks each) 24

27. When you mixed the solutions of lead (II) nitrate and potassium iodide, then.
 - (1) What is the colour of precipitate obtained ? Mention the name of the substance.
 - (2) Write a balanced chemical equation for the reaction.
 - (3) Mention the type of reaction.

28. A, B and C are three elements, which gives the following reactions :



(1) Which amongst the A, B and C is most reactive ?

(2) Which amongst the A, B and C is least reactive ?

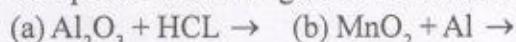
(3) Arrange the elements A, B and C in descending order of their reactivity.

OR

28. Answer the following questions :

(1) Give scientific reason : Platinum, gold and silver are used to make jewellery.

(2) Complete the following chemical reactions and balance it :



29. Represent the table to show the name of any three endocrine glands of human, name of hormone secreted from it and its functions.

30. Mother of 2 daughters living in a joint family, again gets pregnant. Her father-in-law and mother-in-law wish for a baby boy. They believe that daughter-in-law is solely responsible for the birth of son. They pressurised her for prenatal sex-determination.

(1) Should daughter-in-law go for prenatal sex-determination ? Why ?

(2) What should they do if female embryo is developing ?

(3) Do you agree with the belief of father-in-law and mother-in-law ?

31. Explain sex-determination in human.

OR

31. Write brief note on analogous organs.

32. Draw the ray diagram for the image formation by a convex lens. when an object is placed between principal focus F_1 and optical centre O. State the position, nature and size of the image.

OR

32. A concave lens has focal length of 15 cm. At what distance should the object from the lens be placed so that it forms an image at 10 cm from the lens ? Also, find the magnification produced by the lens.

33. Derive the formula of equivalent resistance of series combination of resistors.

34. Answer the following questions.

(1) On which principle does the solar cooker work ?

(2) State the two advantages of using the solar cooker.

(3) State the two limitations of using the solar cooker.

Section : D

★ Answer the following Q. no. 35 to 39 in detail (within the limit of 90 to 120 words) as directed : (4 marks each) 20

35. Answer the following questions :

(1) Why does an aqueous solution of HCl conduct electricity ?

(2) What change in concentration of H_3O^+ ion is observed. When a solution of an acid is diluted with water ?

(3) Which of the solutions amongst the concentrated HCl and dilute HCl possess the higher value of pH ?

(4) Write a chemical equation of reaction that occurs between dilute HCl with $NaHCO_3$.

OR

35. Answer the following questions :
- (1) Explain the importance of pH in our digestive system.
 - (2) State the molecular formula of bleaching powder and write its three uses.
36. An organic compound A having the molecular formula $C_2H_4O_2$ is used as a preservative. This compound reacts with ethanol forms a sweet smelling compound B.
- (1) Identify the compound A.
 - (2) Write a balanced chemical equation for the reaction of A with ethanol.
 - (3) How can we get compound A from B ?
 - (4) Which gas is produced when compound A reacts with washing soda ?
37. Draw a labelled diagram of internal structure of human heart and explain the blood circulation in human heart.
38. Draw a labelled diagram of the human eye. List a least four names of its parts and state the functions of any two parts.
39. Draw a labelled diagram of an electric motor. Explain its principle, working and uses.

OR

39. Answer the following questions :
- (1) Draw a schematic diagram of one of the common domestic circuits.
 - (2) State the safety measures commonly used in electric consumption.


QUESTION PAPER : 3 - SHORT ANSWERS

1. The surface of copper metal acquires a green coating, when it is exposed to air, but on heating the metal, it acquires a black coating.
2. $>C=O$ is the formula of functional group present in ketone compounds.
3. The dinosaurs belong to class Reptilia.
4. Auxin hormone synthesised at the shoot tip, helps the cells to grow longer.
5. The number of C - H bonds in C_2H_6 is 6. - True
6. Lens of power +2.0 D is a convex lens. - True
7. Adrenaline hormones is responsible for faster heartbeats. - True
8. A. Dobereiner
9. C. 6 : 30
10. D. Bisexual flower
11. C. (1-b), (2-c), (3-a)
12. Valency : The valency is the combining capacity of gn atom to acquire noble gas configuration.

OR

12. Relative ability of an element to combine with other element is known as a valency.
13. The battery having 12 V can be shown symbolically as follow :



14. I am a chief constituent of biogas - Methane.
15. Full form of CFC : Chlorofluorocarbon
16. Tendu tree leaves are used in manufacture of bidies.

Q.PAPER	Science	
4	QUESTION PAPER - 4	Std.-10
Time : 3 Hours	011 (E)	Total Marks : 100

Instructions : Same as per Question Paper-1

Section : A

Answer the following Q. No. 1 to 18 (within the limit of 10 to 20 words) as directed :
(1 mark each) 16

- ★ **Fill in the blanks so as to make each of the following statements true :**
1. Reaction in which energy is absorbed are known as reactions.
 2. The value of charge on a neutron is
 3. tissue is made up of an organised network of neurons.
 4. The horizontal rows in the periodic table are known as
- ★ **State whether the following statement are true or false.**
5. Thyroid gland regulates the BMR of body.
 6. Alkanes undergo substitution reactions.
 7. DNA is a heredity material.
- ★ **Choose the correct option and write it with answer from those given below multiple choice questions : (MCQs)**
8. Molecular formation of Ethyne
(a) C_2H_2 (b) CH_4
(c) C_3H_6 (d) C_3H
 9. From the list given below pick the item that is not a natural resource.
(a) Soil (b) Water
(c) Electricity (d) Air
 10. Which one of the following is an artificial ecosystem?
(a) Pond (b) Crop field
(c) Lake (d) Forest
 11. Select the group which shares maximum number of common characters.
(a) Two individuals of a species (b) Two species of a genus
(c) Two genera of a family (d) Two genera of two families
- ★ **Answer the following questions as directed :**
12. What is the maximum temperature attained in a concave reflector type solar cooker?
 13. Name a light sensitive part of the eye where image of an object is formed.
 14. Speciation means...
 15. Write the name and symbol of the element from the description
The most reactive nonmetal
 16. What is the range of wavelength of visible light in Å units ?

Section : B

- ★ **Answer the following questions Q. no. 17 to 26 (within the limit of 40 to 50 words) as directed : (2 marks each)** (20)
17. Give six uses each of acids and bases.

18. Differentiate between an ionic bond and a covalent bond.

19. What were the limitations of Newlands' Law of Octaves?

OR

19. a. How do we calculate the valency of an element from its electronic Configuration?
b. How does the valency vary in a period?

20. What are enzymes? Name any one enzyme of our digestive system and write its function.

OR

20. Why are the walls of ventricles thicker and more muscular than those of atria?

21. What is reproductive health?

22. Explain Reflection of light.

23. Give the difference between series and parallel connections of resistors.

OR

23. Give the difference between open circuit and closed circuit.

24. List the properties of magnetic lines of force.

25. Why are some substances biodegradable and some non-biodegradable?

26. What is watershed management? What is its aim and what are the benefits?

OR

26. List any four advantages of water harvesting.

Section : C

★ Answer the following Q. no. 27 to 34 in short (within the limit of 60 to 80 words) as directed. (3 marks each) 24

27. Distinguish between an exothermic and an endothermic reaction.

28. State the condition under which the following metals react with water. Write equations for each reaction.

a. Na b. Mg c. Fe

OR

28. What is meant by refining of metals? Describe the electrolytic refining of copper with a neat labelled diagram.

29. Mention the characteristics of hormones?

30. Explain various steps of budding in yeast.

31. What do you understand by analogous organs? Explain with the help of a suitable example.

OR

31. Distinguish between acquired and inherited traits by giving one example of each.

32. Rule for image formation on a convex mirror.

OR

32. Explain Refraction through a rectangular glass slab.

33. Give the difference between ammeter and voltmeter.

34. Draw a neat diagram of the box type solar cooker. Label it and explain the function of each part.

Section : D

★ Answer the following Q. no. 35 to 39 in detail (within the limit of 90 to 120 words) as directed : (4 marks each) 20

35. Compounds such as alcohols and glucose also contain hydrogen but are not categorized as acids. Describe an activity to prove it.

OR

35. To show that acids react with metals to liberate hydrogen gas.
36. To study the formation of an ester.
37. Explain the process of nutrition in Amoeba.
38. Describe the main parts and functions of human eye.
39. To study electromagnetic induction (Faraday's experiment).

OR

39. Briefly explain an activity to plot the magnetic field lines around a bar magnet, Sketch the field pattern for the same specifying field directions, A. region has magnetic field lines relatively closer than another region B. Which region has stronger magnetic field. Give reason to support your answer.



QUESTION PAPER : 4 - SHORT ANSWERS

- | | | | | |
|--|-------------------|------------|-----------------|---------|
| 1. Endothermic | 2. Zero | 3. Nervous | 4. Periods | 5. True |
| 6. True | 7. True | 8. (a) | 9. (c) | 10. (b) |
| 11. (a) | 12. 200° | 13. Retina | | |
| 14. Development of a new species from existing one | | | 15. Fluorine(F) | |
| 16. 4000 to 7000 A | | | | |

Q.PAPER	Science	
	QUESTION PAPER - 5	Std.-10
5	011 (E)	Total Marks : 100
Time : 3 Hours		

Instructions : Same as per Question Paper-1

Section : A

Answer the following Q. No. 1 to 18 (within the limit of 10 to 20 words) as directed :
(1 mark each) 16

- ★ **Fill in the blanks so as to make each of the following statements true :**
- Reduction is the of oxygen or gain of hydrogen.
 - The ratio V/I is called
 - Central nervous system is consist of and
 - The cells in human female have chromosomes of the type
- ★ **State whether the following statement are true or false.**
- ADH helps in reabsorption of water from nephron.
 - Detergents give scum with hard water.
 - The polar end in soap is called hydrophilic end.
- ★ **Choose the correct option and write it with answer from those given below multiple choice questions : (MCQs)**
- The most rapidly dwindling natural resource in the world is

(a) Water	(b) Forests
(c) Wind	(d) Sunlight
 - An ecosystem includes

(a) all living organisms
(b) non-living objects
(c) both living organisms and non-living objects
(d) sometimes living organisms and sometimes non-living objects
 - Which of the following is a non-renewable source of energy?

(a) Wood	(b) Sun
(c) Fossil fuels	(d) Wind
 - Select the incorrect statement

(a) Frequency of certain genes in a population change over several generations resulting in evolution.
(b) Reduction in weight of the organism due to starvation is genetically controlled.
(c) Low weight parents can have heavy weight progeny.
(d) Traits which are not inherited over generations do not cause evolution.
- ★ **Answer the following questions as directed :**
- Name the transparent membrane through which light enters the eye.
 - Write the name and symbol of the element from the description.
The most electronegative atom.
 - Write the name and symbol of the element from the description. The noble gas with the smallest atomic radius.

15. Define: Power of lens.
16. What is the full form of AIDS?

Section : B

★ Answer the following questions Q. no. 17 to 26 (within the limit of 40 to 50 words) as directed : (2 marks each) (20)

17. Explain the action of dilute HCL on the following, with chemical equations.
 - a. Magnesium ribbon
 - b. Sodium hydroxide
 - c. Crushed egg shells
18. Differentiate between metals and non metals on the basis of their chemical properties.
19. How does the electronic configuration of an atom relate to its position in the Modern Periodic Table?

OR

19. How could the Modern Periodic Table remove various anomalies of Mendeleev's Periodic Table ?
20. What is the role of saliva in the digestion of food?

OR

20. Draw a well-labelled diagram of human excretory system.
21. Draw the labelled diagram of
 - a. germination of pollen on stigma.
 - b. seed germination.
 - c. structure of seed.
22. Explain Refraction by spherical lenses.
23. State Ohm's law and write its formula.

OR

23. Write the disadvantages of series connection.
24. State the right hand thumb rule.
25. What is the significance of food chain?
26. Why should we conserve forests and wildlife?

OR

26. Why are some forests known as biodiversity hot spots?

Section : C

★ Answer the following Q. no. 27 to 34 in short (within the limit of 60 to 80 words) as directed. (3 marks each) 24

27. Explain the effects of oxidation reactions in everyday life.
28. To show that metals are good conductors of heat. OR
28. To illustrate the reaction of metals with salt solutions.
29. What are reflex actions? Give two examples. Explain the function of any two of its parts.
30. Distinguish between self and cross- pollination.
31. List three factors that provide evidences in favour of evolution in organisms and state the role of each in brief.

OR

31. Write a brief note on evolution of human.
32. Representation of images formed by spherical mirrors using ray diagrams:
 - a. Image formation by concave mirror
 - b. Image formation by convex mirror

OR

32. Sign conventions for spherical mirrors.
33. Explain resistance of a system of resistors.
34. Explain construction and working of a bio-gas plant with a labeled diagram.

Section : D

- ★ Answer the following Q. no. 35 to 39 in detail (within the limit of 90 to 120 words) as directed : (4 marks each) 20

35. Draw and explain structure of nephrons. Explain Function of nephrons.
36. Explain Dispersion of white light by a glass prism.

OR

36. State the rule to determine the direction of a
 - a. magnetic field produced around a straight current carrying conductor,
 - b. force experienced by a current- carrying straight conductor placed in a magnetic field which is perpendicular to it, and
 - c. current induced in a coil due to its rotation in a magnetic field.
37. What is triple bond or triple covalent bond? Explain the formation of triple bond giving two examples.
38. To show that acid reacts with metal carbonate to liberate carbon dioxide.

OR

38. To show that crystals of salts contain water of crystallization.
39. To find out a pattern of concentric circles indicating the field lines of a magnetic field around a straight conducting wire.



QUESTION PAPER : 5 - SHORT ANSWERS

- | | | | | |
|----------|---------------|-----------------------|----------------|---------|
| 1. Loss | 2. Resistance | 3. Brain, Spinal cord | 4. 44+XX | 5. True |
| 6. False | 7. True | 8. (b) | 9. (c) | 10. (c) |
| 11. (b) | 12. Cornea | 13. Fluorine (F) | 14. Helium (H) | |
15. The reciprocal of the focal length(f) of a lens is called the power of that lens
16. Acquired immunodeficiency syndrome

9.PAPER**Science****6****QUESTION PAPER - 6****Std.-10**

Time : 3 Hours

011 (E)

Total Marks : 100

Instructions : Same as per Question Paper-1

Section : A

Answer the following Q. No. 1 to 18 (within the limit of 10 to 20 words) as directed :
(1 mark each) 16

★ Fill in the blanks so as to make each of the following statements true :

1. Electric potential at a point in an electric field is measured as the done in bringing a unit positive test charge from infinity to that point.
2. fluid is found in ventricles of brain.
3. is a part of hind brain which maintain the posture and balance of body.
4. Atomic size from left to right in a period.

★ State whether the following statement are true or false.

5. Oxidation is the loss of electrons from a substance.
6. The reaction of ethanol with conc. H_2SO_4 gives ethane.
7. Carboxylic acids react with alcohols to form esters.

★ Choose the correct option and write it with answer from those given below multiple choice questions : (MCQs)

8. The three R's that will help us to conserve natural resources for long Term use are
(a) recycle, regenerate, reuse (b) reduce, regenerate, resuse
(c) reduce, reuse, redistribute (d) reduce, recycle, reuse
9. Organisms which synthesise carbohydrates from inorganic compounds using radiant energy are called
(a) decomposers (b) producers (c) herbivores (d) carnivores
10. Fuel used in thermal power plants is
(a) Water (b) Uranium
(c) Biomass (d) Fossil fuels
11. In human males all, the chromosomes are paired perfectly except one.
This/these unpaired chromosome is/are
(i) Large chromosome (ii) Small chromosome
(iii) Y-chromosome (iv) X-chromosome
(a) (i) and (ii) (b) (iii) only
(c) (iii) and (iv) (d) (ii) and (iv)

★ Answer the following questions as directed :

12. Which part of the human eye helps in changing the thickness of lens?
13. What is meant by F1 generation?
14. Write the name and symbol of the element from the description. The atom having the smallest atomic mass.
15. Which waves do not require material medium for propagation?
16. What is the age of puberty in human males?

Section : B

- ★ Answer the following questions Q. no. 17 to 26 (within the limit of 40 to 50 words) as directed : (2 marks each) (20)

17. Explain properties and uses of Baking soda.
18. What are amphoteric oxides? Give two examples of amphoteric oxides.
19. Compare the radii of two species X and Y. Give reasons for your answer.
 - a. X has 12 protons and 12 electrons
 - b. Y has protons and 10 electrons

OR

19. An element X with 18 neutrons has mass number 35. Write atomic number and electronic configuration of X. Also write group number, periodic number and valency of X.
20. What are the difference between autotrophic nutrition and heterotrophic nutrition?

OR

20. List in tabular form, three differences between arteies and veins.
21. Why is variation beneficial to the species but not necessarily for the individual?
22. State the laws of refraction.
23. To study the variation of current in series combination of resistance.

OR

23. An electric iron has a rating of 750 W , 220 V. Calculate the
 - a. Current flowing through it and
 - b. Its resistance when in use.
24. How does alternating current differ from the direct current ?
25. What are the components of ecosystem?
26. What is meant by wildlife? How is wildlife important foe us?

OR

26. What is 'Chipko Movement'?

Section : C

- ★ Answer the following Q. no. 27 to 34 in short (within the limit of 60 to 80 words) as directed. (3 marks each) 24

27. To prepare copper oxide and to show the redox reaction of copper oxide with hydrogen gas.
28. To compare the reactivity of different metals towards water.

OR

28. Write the various properties of ionic compounds.
29. Mention the function of adrenaline hormone.
30. Give differences between asexual and sexual modes of reproduction.
31. How is the sex of the child determined in human beings?
32. To determine the principal focus and rough focal length of a convex lens.

OR

32. To show that the apparent depth of a coin at the bottom of a bucket filled with water is less than the real depth of the coin in the water.

33. To verify Ohm's law.
34. a. What is a solar water heater?
b. Mention advantages of solar water heaters.

Section : D

★ Answer the following Q. no. 35 to 39 in detail (within the limit of 90 to 120 words) as directed : (4 marks each) 20

35. Draw the electron dot structures of the following compounds:
- Cyclopentane
 - Butyne
 - Ethene
 - Sulphur molecule
36. Draw and explain human heart.
37. Explain the working of an electric motor with the help of a diagram.

OR

37. To study the relationship between direction of current, magnetic field and motion (force acting on a conductor) of a conductor.
38. Properties and uses:
- | | |
|---------------------|-----------------|
| a. Bleaching powder | c. Washing soda |
| b. Baking soda | |

OR

38. Design an activity to prove that acids show acidic behavior only when dissolved in water.
39. Defects of vision and their correction.



QUESTION PAPER : 6 - SHORT ANSWERS

- | | | | | |
|--|---------------------|---------------------|------------------|---------|
| 1. Work | 2. Cerebrospinal | 3. Cerebellum | 4. Decreases | 5. True |
| 6. False | 7. True | 8. (d) | 9. (b) | 10. (d) |
| 11. (c) | 12. Ciliary muscles | 13. First pregnancy | 14. Hydrogen (H) | |
| 15. Electromagnetic waves do not require material medium for propagation | | | | |
| 16. 12-14 year | | | | |

9.PAPER**7****Science****QUESTION PAPER - 7****Std.-10****Time : 3 Hours****011 (E)****Total Marks : 100****Instructions : Same as per Question Paper-1****Section : A**

Answer the following Q. No. 1 to 18 (within the limit of 10 to 20 words) as directed :
(1 mark each) 16

- ★ **Fill in the blanks so as to make each of the following statements true :**
- The addition of oxygen to a substance is called
 - All information from our environment is detected by the specialized cells.
 - is the science of heredity and evolution.
 - Size of Na^+ is than sodium atom.
- ★ **State whether the following statements are true or false.**
- A neutron has a positive charge of $1.6 \times 10^{-19}\text{C}$.
 - Secretion of exocrine glands is known as hormone.
 - Ethanoic acid is used in the manufacture of textiles.
- ★ **Choose the correct option and write it with answer from those given below multiple choice questions : (MCQs)**
- Select the eco-friendly activity among the following:
 - Using car for transportation
 - Using polybags for shopping
 - Using dyes for colouring clothes
 - Using windmills to generate power for irrigation
 - In an ecosystem, the 10% of energy available for transfer from one trophic level to the next is in the form of
 - heat energy
 - light energy
 - chemical energy
 - mechanical energy
 - Which is the ultimate source of energy?
 - Water
 - Sun
 - Uranium
 - Fossil fuels
 - Which of the following statements is incorrect?
 - For every hormone there is a gene
 - For every protein there is a gene
 - For production of every enzyme there is a gene
 - For every molecule of fat there is a gene
- ★ **Answer the following questions as directed :**
- In which type of eye defect far point of eye gets reduced?
 - Write the name and symbol of the element from the description.
The atom having the smallest size.
 - What is a beam of light?
 - What is the common name of ethanoic acid?
 - What is the full form of IUCD?

Section : B

- ★ Answer the following questions Q. no. 17 to 26 (within the limit of 40 to 50 words) as directed : (2 marks each) (20)

17. What is universal indicator? State the purpose for which this indicator is used.
18. State two ways to prevent the rusting of iron.
19. State two main characteristics of elements on which modern periodic table is based? No fixed position can be assigned to hydrogen in the periodic table. Why?

OR

19. Give reasons for the following statements:
 - a. Cations are smaller in size than the corresponding atom.
 - b. Size of the atom increases as we move down a group.
 - c. Atomic size decreases as we move across a period.
20. Describe in brief the function of kidneys, ureters, urinary bladder and urethra.

OR

20. What do the following transport:
 - a. Xylem
 - b. Pulmonary artery
 - c. Pulmonary vein
 - d. Vena cava
21. How is the process of pollination different from fertilization?
22. List four properties of the image formed by a plane mirror.
23. What are the causes of resistance in a conductor?

OR

23. State the advantages of heating effect of current in daily life.
24. List in tabular form, major differences between an electric motor and a generator.
25. What are trophic levels? Give an example of a food chain and state the different trophic levels in it.
26. Suggest three ways to maintain a balance between environmental and development to survive.

OR

26. List any two causes of our failure to sustain availability of underground water.

Section : C

- ★ Answer the following Q. no. 27 to 34 in short (within the limit of 60 to 80 words) as directed. (3 marks each) 24

27. How can a balanced equation be made more informative? Explain with examples.
28. Explain physical properties of metals and non-metals.

OR

28. Explain corrosion with examples.
29. Why is abscisic acid known as stress hormone?
30. What is placenta? Give the significance of placenta.
31. How is the equal genetic contribution of male and female parents ensured in the progeny?

OR

31. How are the areas of study - evolution and classification - interlinked?
32. Write any three points of difference between concave and convex mirrors.

OR

32. With the help of a ray diagram show the position, size and the nature of the image formed by a convex lens for various positions of the object.
33. To study the potential differences across a combination of resistors in series.
34. Define process of nuclear fission. Write the steps involved in generating electricity in a nuclear reactor.

Section : D

★ Answer the following Q. no. 35 to 39 in detail (within the limit of 90 to 120 words) as directed : (4 marks each) 20

35. To find the angle of deviation of a ray of light passing through the prism.
36. Explain the underlying principle and working of an electric generator by drawing a labelled diagram. What is the function of brushes?

OR

36. How will you show that the direction of the magnetic field depends on the direction of the current through the conductor?
37. Draw and explain excretory system in human beings.
38. Explain chemical properties of carbon compounds.
39. Explain chemical properties of acids and bases.

OR

39. Explain strength of acid and base solutions.



QUESTION PAPER : 7 - SHORT ANSWERS

- | | | | | |
|---|------------|--------------|-----------------|----------|
| 1. Oxidation | 2. Nerve | 3. Genetics | 4. Smaller | 5. False |
| 6. False | 7. True | 8. (d) | 9. (c) | 10. (b) |
| 11. (d) | 12. Myopia | 13. Hydrogen | | |
| 14. A bundle of light rays is called a beam of light. | | | 15. Acetic acid | |
| 16. Intra- utrine contraceptive device | | | | |

9.PAPER	Science	
8	QUESTION PAPER - 8	Std.-10
Time : 3 Hours	011 (E)	Total Marks : 100

Instructions : Same as per Question Paper-1

Section : A

Answer the following Q. No. 1 to 18 (within the limit of 10 to 20 words) as directed :
(1 mark each) 16

★ Fill in the blanks so as to make each of the following statements true :

- Largest part of brain is
- In human beings, sex is determined by
- An element 'B' belongs to the second period and group 13, formula of its oxide is
- A very short period contains elements.

★ State whether the following statements are true or false.

- Rusting is a double decomposition reaction.
- A voltmeter has a low resistance.
- Neurohypophysis is associated with Growth Hormone (GH)

★ Choose the correct option and write it with answer from those given below multiple choice questions : (MCQs)

- It is important to make small check dams across the flooded gullies because they

(i) Hold water for irrigation	(ii) Hold water and prevent soil erosion
(iii) Recharge groundwater	(iv) Hold water permanently
(a) (i) and (iv)	(b) (ii) and (iii)
(c) (iii) and (iv)	(d) (ii) and (iv)
- Flow of energy in an ecosystem is always

(a) unidirectional	(b) bidirectional
(c) multidirectional	(d) no specific direction
- Choose the correct statement

(a) Sun can be taken as an inexhaustible source of energy	(b) There is infinite storage of fossil fuel inside the earth
(c) Hydro and wind energy plants are non-polluting sources of energy	(d) Waste from a nuclear power plant can be easily disposed off
- Exchange of genetic material takes place in

(a) Vegetative reproduction	(b) Asexual reproduction
(c) Sexual reproduction	(d) Budding

★ Answer the following questions as directed :

- Which type of lens should be used to correct the presbyopia?
- What is the power of a convex lens whose focal length is 50 cm ?
- Structural formula of benzene is:
- Structural isomers of C_4H_{10}
- Which virus cause AIDS?

Section : B

- ★ Answer the following questions Q. no. 17 to 26 (within the limit of 40 to 50 words) as directed : (2 marks each) (20)

17. The pH a salt used to make tasty and crispy pakoras, is 14. Identify the salt and write a chemical equation for its formation. List its two uses.
18. What would you observe when zinc is added to a solution of iron (II) sulphate? Write the chemical reaction that takes place.
19. Nitrogen (atomic number 7) and phosphorous (atomic number 15) belong to group 15 of the Periodic Table. Write the electronic configuration of these two elements. Which of these will be more electronegative? Why?

OR

19. Why do you think noble gases are placed in a separate group?
20. Write the events that occur during photosynthesis.

OR

20. Explain the process of digestion in stomach.
21. State the changes observed in a flower after fertilization.
22. List four properties of the image formed by a convex mirror.
23. Which uses more energy, a 250 W TV set in 1 hr, or a 1200 W toaster in 10 minute?

OR

23. How many 176 resistors (in parallel) are required to carry 5A on a 220 V line?
24. An electric oven of 2 kW power rating is operated in a domestic electric circuit (220 V) that has a current rating of 5 A. What result do you expect? Explain.
25. Give difference between producers and consumers.
26. What is meant by global warming?

OR

26. List four advantages of water stored under the ground.

Section : C

- ★ Answer the following Q. no. 27 to 34 in short (within the limit of 60 to 80 words) as directed. (3 marks each) 24

27. Name different types of chemical reactions. Give one example for each.
28. You are provided with magnesium ribbon and sulphur powder. Explain with the help of an activity that metal oxides are basic and non-metal oxides are acidic in nature.

OR

28. Show that for rusting of iron, both air and moisture are required.
29. What is the importance of hypothalamus?
30. Describe the menstrual cycle.
31. What are the probable reasons for selection of pea plants by Mendel for his experiment?

OR

31. Explain how sexual reproduction gives rise to more viable variation than Asexual reproduction. How does this affect the evolution of those organisms that reproduce sexually?

32. With the help of a ray diagram show the type of images formed when object is placed at the following positions in front of a concave mirror :
- (a) at infinity (b) beyond C (c) at C (d) between C and F
(e) at F (f) between F and P

OR

32. Draw and explain the ray diagram formed by a convex mirror when
- object is at infinity
 - object is at infinite distance from the mirror
33. To study the relationship and current relationship in a parallel circuit.
34. Explain the transformation of energy in hydroelectric power plant.

Section : D

- ★ Answer the following Q. no. 35 to 39 in detail (within the limit of 90 to 120 words) as directed : (4 marks each) 20

35. Explain mechanism of breathing.
36. Explain scattering of light.

OR

36. Explain with the help of a figure, the ring system of wiring in domestic wiring.
37. Draw the structure for the following compounds:
- Propanoic acid
 - Hexanone
 - Fluoropentane
 - Benzene
 - Butanal
38. Explain pH scale and importance of pH scale in daily life.

OR

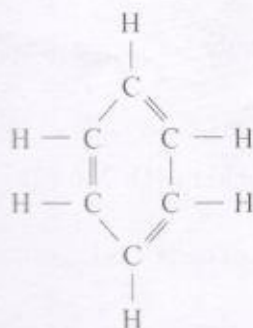
38. What do all acids and all bases have in common?
Explain strength of acid and base solution.
39. Explain force on a current carrying conductor in a Magnetic Field.



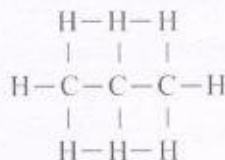
QUESTION PAPER : 8 - SHORT ANSWERS

1. Thalamus 2. Genes 3. B_2O_3 4. 2 5. False
6. False 7. False 8. (b) 9. (a) 10. (a)
11. (c) 12. Bi-focal lens 13. (+)2.0 D

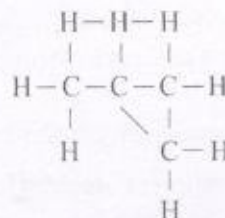
14.



15. (i)



(ii)



16. HIV OR Immunodeficiency virus

Q.PAPER**9****Science : (011)E****QUESTION PAPER - 9****Std.-10****Time : 3 Hours****MAY-2021****Total Marks : 80****Instructions :**

- (1) Write in a clear legible hand writing.
- (2) This question paper has five sections A, B, C, D and Question Numbers from 1 to 53.
- (3) All questions are compulsory. There are only internal options.
- (4) The numbers to the right represent the marks of the questions.
- (5) Draw neat diagrams wherever necessary.
- (6) New sections should be written in a new page. Write the answers in numerical order.

Section : A

★ For question 1 to 6 choose the correct alternative from the options given below each question. (MCQ): (Each question carries 1 marks) [6]

1. Burning of coal is _____ type of reaction.

(a) Displacement	(b) Decomposition
(c) Double displacement	(d) Combination
2. A molecule of ethene (C_2H_4) has

(a) Only single bond	(b) Only double bond
(c) Only triple bond	(d) Single and double bond
3. _____ is necessary for an autotrophic nutrition.

(a) CO_2	(b) Chlorophyll	(c) Sunlight	(d) All of the above
------------	-----------------	--------------	----------------------
4. Which of the following groups contain only bio-degradable substances ?

(i) grass, flower, leather	(b) (i), (ii) and (iv)
(ii) grass, wood, plastic	(d) (ii) and (iv)
(iii) fruit peels, cake, lemon juice	
(iv) cake, wood, grass	
(a) (i) and (ii)	
(c) (i), (iii) and (iv)	
5. Which type of image cannot be obtained by a convex lens ?

(a) Virtual and small	(b) Virtual and large
(c) Real and Small	(d) Real and large
6. Which of the following phenomena is / are responsible for the formation of rainbow?

(a) Refraction	(b) Dispersion
(c) Internal reflection	(d) All of the above

★ Fill in the blanks with appropriate words given in the brackets. [Q. 7 to 12] [6]
(Each question carries 1 marks)

7. Unique ability of carbon to form bonds with other atoms of carbon is known as _____.
(catenation, tetravalency, trivalency)
8. For the classification of element law of triads was given by _____ scientist.
(Newland, Dobereiner, Mendeleev)

9. Opening and closing of stomatal pore is regulated by _____ cells.
(guard, epidermal, aerenchyma)
10. _____ produces testosterone hormones.
(Vas deferens, testis, ovary)
11. Concave lens with _____ focal is having largest power.
(20 cm, 30 cm, 11 cm)
12. _____ W of electricity can be approximately generated by a solar cell.
(7.0, 0.7, 1.0)

★ State whether the following statements are TRUE and FALSE. [4]
(questions 13 to 16) (Each question carries 1 marks)

13. Mendeleev named Galium as eka-silicon.
14. One quarter of the obtained plants in F_2 generation of the Mendelian experiment were short.
15. Absolute refractive index of any material medium should be always greater than one.
16. Solar cooker works on the principle of "solar energy converted to light energy".

★ Answer the following in a word or a sentence : (Question 17 to 24) [8]
(Each question carries 1 marks)

17. Which action are controlled by medulla oblongate ?
18. Selection of arrested flower of wild cabbage plant has led to development of which vegetable ?
19. Few years back which animals fossils were found from Narmada Valley ?
20. Name the physical quantity that has KWh unit.
21. What is the main risk factor of a nuclear power generation ?
22. Use of plastic disposable cups served in train should be avoided / stopped because _____

23 Match the following :

Source of Energy	Type
a) Mineral oil	i) Renewable
b) Ocean thermal energy	ii) Nuclear energy
	iii) Non-renewable energy

24. Find out the mismatched pair from the following :

- i) Iodine - activates thyroid gland
- ii) Insulin - regulation of sugar in blood
- iii) Pituitary - secretion necessary for balanced growth
- iv) Ovary - regulation of digestive action.

Section : B

★ Answer any 9 questions from question number 25 to 36. Answer each question in the limit of 40 to 50 words. (Each question carries 2 marks) [18]

25. While diluting an acid, why is it recommended that acid should be added to water ?
26. Give an example of metal which :
- i) is a liquid at room temperature ii) can be easily cut with a knife
- iii) is the best conductor of heat iv) is a poor conductor of heat

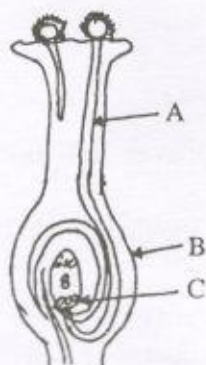
27. Write two points of difference between Mendeleev's periodic table and Modern periodic table.
28. The atomic number of an element 'X' is 12.
 - i) Identify element 'X' and write its electronic configuration.
 - ii) State to which group and period does 'X' belong.
29. What is the importance of DNA copying in reproduction.
30. Explain sex determination in human being.
31. What is meant by saying that the potential difference between two points is 1V? Name the device that helps to maintain a potential difference across a conductor.
32. State Ohm's law. Derive the equation for the law.
33. Write down the properties of magnetic field lines of force.
34. What will be your role in "Swachh Bharat Abhiyan" to reduce the problem of waste disposal?
35. State the importance of forest.
36. Explain 2R's
 - i) Refuse and
 - ii) Reduce for saving the environment

Section : C

★ Answer any 6 from question number 37 to 45. Answer each question in the limit of 60 to 80 words. [Each question carries 3 marks] [18]

37. State different types of decomposition reaction. Also give an example of any two types with appropriate chemical reaction.
38. One goldsmith makes ornaments of 22 carat gold and sell it at the price of 22 carat.
 - i) Why can't we use 24 carat gold for making ornaments?
 - ii) Which metals are mixed with gold in making of ornaments?
 - iii) What value for the goldsmith is observed here?
39. Compound 'X' and aluminium is used to join railway tracks.
 - i) Identify compound 'X'.
 - ii) Name the type of reaction.
 - iii) Write the chemical equation for this reaction.
40. For a particular situation which hormone prepares the human body for either fighting or running away from the situation. State the effect of this hormone in animals' body.
41. Explain different methods of contraception in human being.

42.



From the above figure

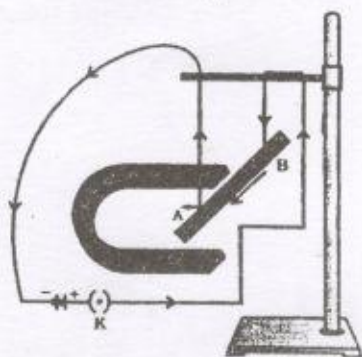
- i) Identify 'A' and write its function.
 - ii) Identify 'B' and State what change takes place in 'B' after fertilisation.
 - iii) Identify 'C' and state what change will take place in 'C' after fertilisation.
43. A student is using a lens to burn a paper with the help of sunlight.
 - i) State the type of lens used
 - ii) State the position of image formed
 - iii) Draw the ray diagram for the same.
 44. Define refraction of light. State laws of refraction of light.
 45. Draw a schematic diagram of a circuit consisting of 2 resistors R_1 and R_2 , Voltmeter, ammeter, key, battery and conducting wire all are connected in parallel.

Section : D

★ Answer any 5 questions from question number 46 to 53. Answer each question in the limit of 90 to 120 words. (Each question carries 4 marks) [20]

46. Explain an experiment (with neat labelled diagram) explaining the reaction between sodium carbonate with dilute hydrochloric acid.
47. Explain the importance of pH in human digestive system and string by a honey - bee.
48. Name the ionic group contained in soap and detergent. Explain the mechanism of cleansing action of soap.
49. Draw a neat labelled diagram of a nephron. Explain the process of urine formation in human being.
50. Draw a neat labelled diagram of human digestive system. Explain how digestion takes place in small intestine.
51. Explain dispersion of white light by a glass prism with required diagram.
52. Explain the following terms :

i) Over loading	ii) Short circuit
iii) Fuse	iv) Earthign
53. In an activity demonstrating the force acting on a current - carrying conductor placed in a magnetic field as shown in the figure, how do you think the displacement of rod AB will be affected if.
 - i) current in the rod AB is increased.
 - ii) a stronger horse-shoe magnet is used; and
 - iii) length of the rod AB is increased ?
 - iv) when will the displacement of rod AB will be the largest.



QUESTION PAPER : 9 : MAY - 2021 : SHORT ANSWERS

1. (d) combination
2. (d) Single and double bond
3. (d) All of the above
4. (c) (i), (iii) and (iv)
5. (a) Virtual and small
6. (d) All of the above
7. Catenation
8. Dobereiner
9. Guard
10. Testis
11. 10cm
12. 0.7
13. False
14. True
15. True
16. True
17. Blood pressure, secretion of saliva and vomiting.
18. Broccoli
19. Dinosaur
20. Electric power of electric energy
21. Creation of Radioactive wastes such as Uranium
22. They are non-biodegradable and harm the environment friendly.
23. Match the following :
 - (a) Mineral Oil - Non renewable energy
 - (b) Ocean thermal energy - Renewable
24. Mismatch pair : Ovary - regulation of digestive action.

9-PAPER

Science

10

QUESTION PAPER - 10

Std.-10

Time : 3 Hours

MARCH-2022 (011)E

Total Marks : 80

Instructions :

- (1) Write in a clear legible handwriting.
- (2) This question paper has five sections A, B, C, D & E and Question Numbers from 1 to 54.
- (3) All questions are compulsory. There are only internal options.
- (4) The numbers to the right represent the marks of the questions.
- (5) Draw neat diagrams wherever necessary.
- (6) New sections should be written in a new page. Write the answers in numerical order.

Section-A

★ For question 1 to 24 as directed. Each question carries 1 mark. [24]

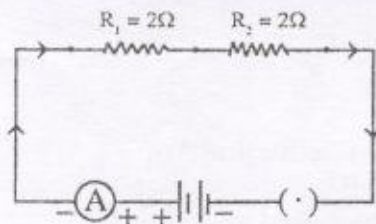
1. Potato chips manufacturers usually flush bags of chips with which inert gas to prevent the chips from getting oxidised? [1]
(a) Oxygen (b) Hydrogen (c) Chlorine (d) Nitrogen
2. Butanone is a four-carbon compounds with the functional group. [1]
(a) Carboxylic acid (b) Aldehyde (c) Ketone (d) Alcohol
3. Choose the correct option to complete the following reaction. [1]
$$6\text{CO}_2 + 12\text{H}_2\text{O} \xrightarrow[\text{Sunlight}]{\text{Chlorophyll}} \text{_____} + 6\text{O}_2 + 6\text{H}_2\text{O}$$

(a) $\text{C}_2\text{H}_5\text{OH}$ (b) $\text{C}_6\text{H}_{12}\text{O}_6$ (c) CH_4 (d) CH_3COOH
4. Which metal is used for inter connection of cells in solar panel? [1]
(a) Silver (b) Copper (c) Cobalt (d) Iron
5. If the object is placed at 40 cm in front of plane mirror, what will be the distance between object placed and image formed? [1]
(a) 40 cm (b) 80 cm (c) 20 cm (d) 60 cm
6. What is the least distance of distinct vision for a young adult with normal vision? [1]
(a) 25 m (b) 2.5 cm (c) 25 cm (d) 2.5 m

★ Fill in the blanks with correct answer.

7. _____ is used as a catalyst in the hydrogenation of vegetable oils. [1]
(Nickel, Calcium, Carbon)
8. The element _____ has the electronic configuration 2, 8, 2. [1]
(Aluminium, Magnesium, Sodium)

9.



_____ is the equivalent resistance in the above diagram. [1]

$$\left(\frac{1}{4} \Omega, 1 \Omega, 4 \Omega \right)$$

10. In somatic cells of human beings, the chromosomes are found in _____ pairs. [1]
(22, 23, 6)
11. _____ mirror is used in the head lights of a car. [1]
(Concave, Convex, Plane)
12. The device used for producing electric current is called _____. [1]
(generator, ammeter, motor)
- ★ State if following statements are true or false.
13. Tooth decay starts when pH of the mouth is lower than 5.5. [1]
14. The outermost shell of noble gases have 7 elements. [1]
15. Vegetative propagation takes place in the buds produced in the notches along the margin of Bryophyllum leaf. [1]
16. Carbon-di-oxide is a green house gas. [1]
17. Solder, an alloy of lead and tin has high melting point. [1]
18. Absciscic acid is a plant hormone which promotes growth. [1]
- ★ Answer the following questions as directed in one word or a sentence.
19. Write the chemical formula of Bleaching powder ? [1]
20. The breakdown of pyruvate to give carbondioxide, water, energy takes place in which organelle ? [1]
21. I measure the electric current, Which device am I ? [1]
22. Write full form of AC and DC ? [1]
23. What are fossil fuels ? [1]
- 24 Match the following type of Asexual reproduction with correct examples. [1]

Type of Asexual Reproduction	Examples
i) Fragmentation	a) Planaria
ii) Regeneration	b) Amoeba
	c) Spirogyra

Section : B

- ★ Question No. 25-37 each carries 2 marks. Answer in short in 40-50 words approximately. Attempt any 9 questions only. [18]
25. What are isomers ? Draw the structural formulas of butane. [2]
26. Write difference between Soaps and Detergents. [2]
27. The position of three elements A, B, C in the periodic table are shown below. [2]
- | | |
|----------|----------|
| Group 16 | Group 17 |
| - | - |
| - | A |
| - | - |
| B | C |
- a) State whether A is metal or nonmetal.
- b) State whether C is more reactive or less reactive than A.
- c) Will C be a larger or smaller in size than B.
- d) Which type of ion, cation or anion will be formed by element A ?
28. Draw a neat labelled diagram of Neuron ? [2]
29. How does phototropism and geotropism occur in plants ? [2]
30. What is pollination ? Explain difference between self pollination and cross pollination. [2]

31. What are the changes seen in the boys at the time of puberty ? [2]
32. Draw a diagram of sex determination in human being. [2]
33. Explain the terms analogous and homologous organs with examples. [2]
34. What is reflection of light ? Write laws of reflection of light. [2]
35. Write uses of concave mirror. [2]
36. How much work is done in moving a charge of 2C across two points having potential difference of 12 V? [2]
37. What is ozone and how does it affect any ecosystem ? [2]

Section : C

★ Question No. 38-46 each carries 3 marks. Answer in short in 60-80 words approximately. Attempt any 6 questions only. [18]

38. Write differences between endothermic reactions and exothermic reactions ? [3]
39. Write physical properties of metals ? [3]
40. Write different ways of prevention of corrosion of metals. [3]
41. Write Mendeleev's Periodic Law ? Explain achievements of Mendeleev's Periodic table. [3]
42. Explain the different methods of contraception? [3]
43. A convex mirror used for rear-view on an automobile has a radius of curvature of 3.00 m. If a bus is located at 5.00 m from his mirror, find the position, nature and size of the image. [3]
44. Draw a labelled diagram of solar cooker? Write the advantages and disadvantages of using a solar cooker ? [3]
45. Explain the following term : [3]
- i) Ecosystem
 - ii) Food chain
 - iii) Biological magnification
46. Explain the three R's : Reduce, Recycle, Reuse to save the environment. [3]

Section : D

★ Question No. 47-54 each carries 4 marks. Answer in long in 90-120 words approximately. Attempt any 5 questions only. [20]

47. How is plaster of paris formed? Write an equation to show the reaction between plaster of paris and water ? Write uses of plaster of paris. [4]
48. Compounds such as alcohols and glucose also contain hydrogen but are not categorised as acids. Describe an activity to prove it. [4]
49. Draw a neat labelled diagram of human alimentary canal. Write the role of saliva and role of hydrochloric acid in digestion of food. [4]
50. Explain the nutrition in Amoeba with a neat labelled diagram. [4]
51. What is Dispersion of white light by a glass prism ? Explain the dispersion of white light by the glass prism with a diagram. [4]
52. Let the resistors in parallel connection be R_1, R_2, R_3 . Derive an equation to find equivalent resistance $\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$ in a parallel connection. [4]

53. What is magnetic field ? Draw magnetic field lines around a bar magnet. Write the properties of magnetic field lines. [4]
54. State the principle, construction and working of an electric motor with a neat labelled diagram. [4]

◆

QUESTION PAPER : 10 : MARCH - 2022 : SHORT ANSWERS

1. (d) Nitrogen
 2. (c) Ketone
 3. (b) $C_6H_{12}O_6$
 4. (a) Silver
 5. (b) 80 cm
 6. (c) 25 cm
 7. Nickel
 8. Magnesium
 9. 4Ω
 10. 23
 11. Concave
 12. generator
 13. True
 14. False
 15. True
 16. True
 17. False
 18. False
 19. $CaOCl_2$
 20. Mitochondrion
 21. Ammeter
 22. AC : Alternating Current
DC : Direct Current
 23. The remains of plants and animals which are buried under the earth some millions of year ago and changed into fuel due to tremendous heat and and pressure and called fossil fuels. Fossil fuels example : coal, petroleum.
 - 24 i) Fragmentation → Spirogyra
ii) Regeneration → Planaria
- ◆

Q.PAPER**Science****11****QUESTION PAPER - 11****Std.-10**

Time : 3 Hours

JULY-2022 (011)E

Total Marks : 80

Instructions :

- (1) Write in a clear legible handwriting.
- (2) This question paper has five sections A, B, C and D Question Numbers from 1 to 54.
- (3) All questions are compulsory. There are only internal options.
- (4) The numbers to the right represent the marks of the questions.
- (5) Draw neat diagrams wherever necessary.
- (6) New sections should be written in a new page. Write the answers in numerical order.

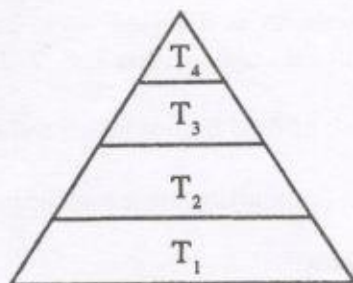
Section-A

- ★ From question numbers 01 to 24, answer all questions as directed. [24]

[Each question carries 1 mark]

Fill the blanks making the following statements true.

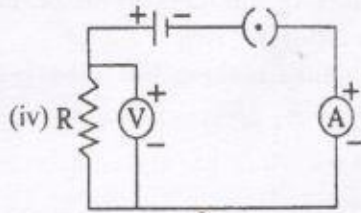
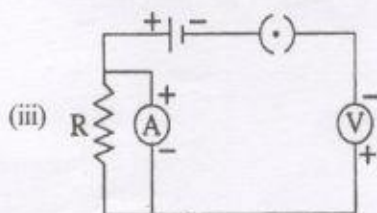
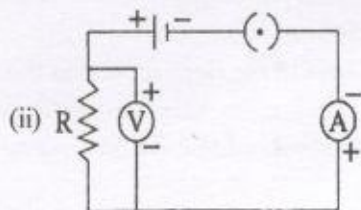
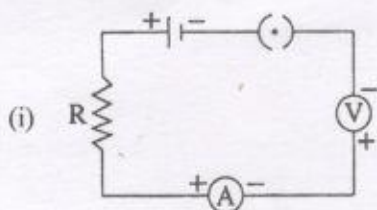
1. Due to the process of corrosion, _____ colour coating is seen on silver.
2. Alkane which has eight carbon atoms, has _____ numbers of hydrogen atoms.
3. Deficiency of _____ hormones in childhood leads to Dwarfism.
4. When Tall pea plant (TT) and Short pea plant (tt) were hybridized, it produced all tall progeny because tallness is _____ trait ?
5. 1 kWh = _____ Joule (J).
6. As shown in the figure, the given pyramid shows different Trophic Levels. _____ Trophic Level will receive maximum amount of energy.



- ★ Write 'True' or 'False' for following statements.

7. Methanoic acid is responsible for inflammation from Nettle sting.
8. Salivation, Blood pressure and Vomiting are voluntary actions.
9. Hibiscus has unisexual flowers.
10. In Domestic electric circuits, live wire has red insulation cover.
11. Which of the following metals is refined by Electrolytic refining?
 (i) Au (ii) Cu (iii) (i) and (ii) (d) K
 (A) (i) and (ii) (B) (i) and (iii)
 (C) (ii) and (iii) (D) (iii) and (iv)
12. Which of the following is not a homologous series ?
 (A) CH_4 (B) C_2H_6 (C) C_3H_8 (D) C_4H_8

13. A trait in an organism is influenced by?
 (A) Paternal DNA only (B) Maternal DNA only
 (C) Both Paternal and Maternal DNA (D) Neither Paternal nor Maternal DNA
14. Which of the following phenomena is related to the formation of Rainbow?
 (A) Dispersion, Refraction and Reflection
 (B) Refraction, Dispersion and Total internal reflection
 (C) Refraction, Dispersion and internal reflection
 (D) Dispersion, Scattering and Total internal reflection
15. In which of the following circuits, the components are connected properly?



- (A) (i) (B) (ii)
 (C) (iii) (D) (iv)
16. Which of the following constitute a food - chain ?
 (A) Grass, Wheat and Mango (B) Grass, Goat and Human
 (C) Goat, Cow and Elephant (D) Grass, Fish and Goat



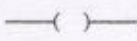
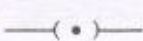
★ Answer the following questions as directed.

17. An element has electronic configuration 2, 8, 7. To which group of Modern Periodic Table does it belong ?
18. What regulates the exit of food from stomach and releases it in small amounts into the small intestine ?
19. How does the embryo get nourishment inside the mother's body?
20. Define power of lens.
21. Write full form of UNEP.
22. State Fleming's right-hand rule.
23. Complete the sentence :
 In Modern Periodic Table as we move from left to right the atomic size of elements _____
24. Who am I ?
 I am used to make filament of Bulbs.

★ From question numbers 25 to 37, answer any 9 questions as directed, within the limit of 40 to 50 words [Each question carries 2 marks]. [18]

25. How will you test Acid and Base using Olfactory indicators? Explain it with an example.
26. State four properties of Ionic compounds.
27. What is Gangue? On what basis Gangue is removed from the Ore?
28. What were the limitations of Newland's law of Octaves?
29. What were the criteria used by Mendeleev in creating his Periodic Table?
30. What is Lymph? Write its function.

31. Draw a ray-diagram for concave mirror when object is placed between Centre of Curvature (C) and Principal Focus (F). Also write Position Nature and size of the image.
32. An Ophthalmologist, Doctor Desai prescribed power + 1.5 D of corrective lens. Find the focal length of the lens and write the type of lens prescribed.
33. Match the following :

Components	Symbols
1. Plugkey (Open)	a) 
2. Plug key (Closed)	b) 
3. Wire crossing without joining	c) 
4. A wire joint	d) 

34. What is a Solenoid? Give the characteristics of magnetic field resulting from Solenoid.
35. What precautions should be taken to avoid the overloading of domestic electric circuits?
36. What can you as an individual do to reduce your consumption of the various natural resources?
37. State the advantages of water stored in the ground.

Section : C

- ★ From question numbers 38 to 46, answer any 6 questions as directed, within the limit of 60 to 80 words [Each question carries 3 marks] [18]
38. Write one equation each for decomposition reactions where energy is supplied in the form of heat, light or electricity.
39. Write the chemical formula, preparation and uses of Bleaching powder.
40. - Take three test tubes and place clean iron nails in each of them.
 - Label these test tubes A, B and C.
 - Pour some water in test tube 'A' and cork it.
 - Pour boiled distilled water in test tube 'B' add about 1 ml of oil and cork it.
 - Put some anhydrous Calcium chloride in test tube 'C' and cork it.
- Leave these test tubes for few days, write your observation for all three test tubes and regarding your observation give reason.
41. Write three differences between Autotrophic Nutrition and Heterotrophic Nutrition.
42. Draw neat and labeled diagram of Human brain.
43. What is puberty? What sexual changes are seen during puberty?
44. What are fossils? What do they tell us about the process of evolution?
45. Explain series connection of Resistors and derive the formula of equivalent resistance.
46. How is ozone formed? Write importance of ozone layer.

Section : D

- ★ From question numbers 47 to 54, answer any 5 questions as directed, within the limit of 90 to 120 words [Each question carries 4 marks]. [18]
47. Describe an experiment to show Reaction between Zinc granules and; dilute H_2SO_4 .
 48. Give chemical formula and draw the electron-dot structure of the following compounds.
 - (i) Ethane
 - (ii) Ethanoic acid
 49. Explain in detail the Blood circulation in human heart (Diagram not required).
 50. What is asexual reproduction? Explain Budding and Spore formation with diagram.
 51. Define the following terms related to spherical lens.
 - (i) Centre of curvature
 - (ii) Principal focus
 - (iii) Optical centre
 - (iv) Focal length
 52. Yashvi, student of standard 10 is sitting at the back of the classroom and is not able to read writings on the blackboard clearly, then what defect of vision she has? Explain. How can it be corrected [Diagram necessary].
 53. State principle and explain working of Electric generator with diagram.
 54. State advantages and major hazards of Nuclear Energy.



QUESTION PAPER : 11 : JULY - 2022 : SHORT ANSWERS

1. Black colour
2. 18
3. Growth Hormone (GH)
4. Maternal
5. 3.6×10^6
6. T_1
7. True
8. False
9. False
10. True
11. A. (i) & (ii)
12. D. C_4H_8
13. (C) Both Paternal and Maternal DNA
14. (C) Refraction, Dispersion and internal reflection
15. (B) Maternal DNA only
16. (B) Grass, Goat and Human
17. 17 group
18. colon (Sphincter muscles)
19. Placenta
20. $\frac{1}{f}$ inverse of focal length
21. united nation environmental programme
22. Fleming's law
23. Increases
24. Tungsten