* Choose the correct alternative from those given below each questions [13]

1. What inspired the idea of flight in early scientific explorations?
   (A) A spaceship (B) Bird feathers (C) Paper planes (D) Bubbles

   Ans. : (C) Paper planes

2. Why is science described as a process?
   (A) It ends with an experiment
   (B) It memorises facts
   (C) It follows fixed rules
   (D) It involves questioning and exploration

   Ans. : (D) It involves questioning and exploration

3. What role does heat play in changes around us?
   (A) Slows them down (B) Prevents changes
   (C) Speeds up or causes changes (D) Has no effect

   Ans. : (C) Speeds up or causes changes

4. What makes scientific learning exciting in this book?
   (A) Rote memorisation (B) Experiments and questioning
   (C) Closed-ended answers (D) Static chapters

   Ans. : (B) Experiments and questioning

5. Why is it important to ask questions in science?
   (A) To memorise facts (B) To avoid mistakes
   (C) To explore new ideas (D) To fill up pages

   Ans. : (C) To explore new ideas

6. When ice melts, it changes into
   (A) Water (B) Remains the same
   (C) Water vapours (D) None of these

   Ans.: (A) Water

7. How did people tell time before the age of electric clocks and the digital watches?
   (A) By observing the shadow
   (B) They already had watches and clocks
   (C) They did not require anything to tell time
   (D) None of these

   Ans.: (A) By observing the shadow

8. What are the uses of light and shadows other than shadow puppets or telling the time?

(A) To see the world (B) To create art only (C) Both (a) and (b) (D) None of these

Ans.: (A) To see the world

9. What is the purpose of asking questions and exploring in science?

(A) To memorise facts

(B) To confirm known facts

(C) To discover new things and think critically

(D) To learn only from textbooks

Ans. : self

10. What is science primarily about?

(A) Discovering new facts

(B) Learning about different things in nature

(C) A process of thinking that welcomes curiosity and asks questions

(D) Memorising facts

Ans. : (C) A process of thinking that welcomes curiosity and asks questions

11. What is the purpose of activities and experiments in science?

(A) To make the class fun

(B) To explore the world and gain a deeper understanding of the environment

(C) To memorise facts

(D) To avoid learning

Ans. : (B) To explore the world and gain a deeper understanding of the environment

12. What is the connection between scientific ideas in different areas?

(A) They are completely separate topics.

(B) Scientific ideas in one field can lead to new discoveries or raise questions in another field.

(C) They have no relationship.

(D) They only deal with practical problems.

Ans. : (B) Scientific ideas in one field can lead to new discoveries or raise questions in another field.

13. Why is asking questions about the nature of light and time important?

(A) To understand how clocks work

(B) To explore and discover how things function

(C) To make the light brighter

(D) To make clocks digital

Ans. : (B) To explore and discover how things function

*** a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option.** [13]

14. Assertion (A): Paper planes can inspire real science.
Reason (R): Science needs complex machines only.
(A) Both Assertion (A) and Reason (R) are true, and (R) is the correct explanation of (A).
(B) Both Assertion (A) and Reason (R) are true, but (R) is not the correct explanation of (A).
(C) (A) is true, but (R) is false.
(D) (A) is false, but (R) is true.

Ans. : (C) (A) is true, but (R) is false.

15. Assertion (A): Shadows are caused by light being blocked.
Reason (R): Light cannot pass through objects.
(A) Both Assertion (A) and Reason (R) are true, and (R) is the correct explanation of (A).
(B) Both Assertion (A) and Reason (R) are true, but (R) is not the correct explanation of (A).
(C) (A) is true, but (R) is false.
(D) (A) is false, but (R) is true.

Ans.: (A) Both Assertion (A) and Reason (R) are true, and (R) is the correct explanation of (A).

16. Assertion (A): Middle-school students undergo rapid body changes.
Reason (R): These changes are caused by growth hormones.
(A) Both Assertion (A) and Reason (R) are true, and (R) is the correct explanation of (A).
(B) Both Assertion (A) and Reason (R) are true, but (R) is not the correct explanation of (A).
(C) (A) is true, but (R) is false.
(D) (A) is false, but (R) is true.

Ans.: (A) Both Assertion (A) and Reason (R) are true, and (R) is the correct explanation of (A).

17. Assertion (A): Science is a process of asking questions and exploring answers.
Reason (R): Science only deals with things that can be memorised.
(A) Both Assertion (A) and Reason (R) are true, and (R) is the correct explanation of (A).
(B) Both Assertion (A) and Reason (R) are true, but (R) is not the correct explanation of (A).

(C) (A) is true, but (R) is false.

(D) (A) is false, but (R) is true.

Ans. : (C) (A) is true, but (R) is false.

18. Assertion (A): Curiosity is essential for scientific learning.
Reason (R): Without curiosity, one cannot think deeply or explore unknown ideas.

(A) Both Assertion (A) and Reason (R) are true, and (R) is the correct explanation of (A).

(B) Both Assertion (A) and Reason (R) are true, but (R) is not the correct explanation of (A).

(C) (A) is true, but (R) is false.

(D) (A) is false, but (R) is true.

Ans.: (A) Both Assertion (A) and Reason (R) are true, and (R) is the correct explanation of (A).

19. Assertion (A): The study of shadows helped humans measure time in the past.
Reason (R): Shadows remain the same throughout the day.

(A) Both Assertion (A) and Reason (R) are true, and (R) is the correct explanation of (A).

(B) Both Assertion (A) and Reason (R) are true, but (R) is not the correct explanation of (A).

(C) (A) is true, but (R) is false.

(D) (A) is false, but (R) is true.

Ans. : (C) (A) is true, but (R) is false.

20. Assertion (A): Different branches of science are interconnected.
Reason (R): Knowledge in one field can lead to discoveries in another.

(A) Both Assertion (A) and Reason (R) are true, and (R) is the correct explanation of (A).

(B) Both Assertion (A) and Reason (R) are true, but (R) is not the correct explanation of (A).

(C) (A) is true, but (R) is false.

(D) (A) is false, but (R) is true.

Ans.: (A) Both Assertion (A) and Reason (R) are true, and (R) is the correct explanation of (A).

21. Assertion (A): Scientists always find correct answers in their first experiment.
Reason (R): Science is about getting perfect results quickly.

(A) Both Assertion (A) and Reason (R) are true, and (R) is the correct explanation of (A).

(B) Both Assertion (A) and Reason (R) are true, but (R) is not the correct explanation of (A).

(C) (A) is true, but (R) is false.

(D) (A) is false, but (R) is true.

Ans. : (D) (A) is false, but (R) is true.

22. Assertion (A) : Scientists work together across the world.
Reason (R) : Collaboration allows them to share ideas and solve problems more efficiently.

(A) Both A and R are true and R is the correct explanation of A.

(B) Both A and R are true but R is not the correct explanation of A.

(C) A is true but R is false.

(D) A is false but R is true.

Ans. : self

23. Assertion (A): Science is an ongoing process of discovery.
Reason (R): Science involves asking questions and conducting experiments to understand how the world works.

(A) Both A and R are true and R is the correct explanation of A.

(B) Both A and R are true but R is not the correct explanation of A.

(C) A is true but R is false.

(D) A is false but R is true.

Ans.: (A) Both A and R are true and R is the correct explanation of A.

24. Assertion (A): Some changes in the world are irreversible.
Reason (R): Changes like burning of paper or rotting of an apple can be reversed.

(A) Both A and R are true and R is the correct explanation of A.

(B) Both A and R are true but R is not the correct explanation of A.

(C) A is true but R is false.

(D) A is false but R is true.

Ans. : (C) A is true but R is false.

25. Assertion (A): Questions about light and shadows lead to a deeper understanding of the universe.
Reason (R): Studying light and shadows helps explain phenomena like eclipses and the Earth's movement.

(A) Both A and R are true and R is the correct explanation of A.

(B) Both A and R are true but R is not the correct explanation of A.

(C) A is true but R is false.

(D) A is false but R is true.

Ans.: (A) Both A and R are true and R is the correct explanation of A.

26. Assertion (A): The Earth's rotation does not cause day and night.
Reason (R): The Earth rotates on its axis, and this movement leads to different parts of the Earth facing the Sun at different times.

(A) Both A and R are true and R is the correct explanation of A.

(B) Both A and R are true but R is not the correct explanation of A.

(C) A is true but R is false.

(D) A is false but R is true.

Ans. : (D) A is false but R is true.

*** State Whether The Following Sentences Are True Or False.[1 Marks Each]** **[9]**

27. Science is only about learning facts and definitions.

Ans. : false

28. Light plays a role in understanding the universe.

Ans. : true

29. Experiments always confirm what we expect.

Ans. : false

30. Plants breathe just like humans.

Ans. : false

31. Melting ice is an irreversible change.

Ans. : false

32. The book promotes rote memorisation.

Ans. : false

33. A torch battery can be used forever.

Ans. : false

34. Life processes are important for survival.

Ans. : true

35. The Moon goes around the Earth.

Ans. : true

*** Fill In The Blanks With Correct Alternative.[1 Marks Each]** **[15]**

36. Science is not just about facts, it is also about _____ and _____.

Ans. : questioning, exploring

37. The page numbers in the book follow the playful flight of a _____ and a _____.

Ans. : butterfly, paper plane

38. Simple observations like paper planes inspired early studies about _____.

Ans. : flight

39. Science promotes a way of thinking that welcomes _____ and is open to the _____.

Ans. : curiosity, unknown

40. Some changes, like fruits ripening, are _____ and cannot be _____.

Ans. : permanent, reversed

41. Heat can make changes happen _____, like melting ice or evaporating water.

Ans. : faster

42. Animals need to _____, _____, and circulate nutrients to survive.

Ans. : eat, breathe

43. Plants prepare their own food through a process called _____.

Ans. : photosynthesis

44. Studying light and shadows helped people understand day, night, and _____.

Ans. : eclipses

45. Science is connected to both discovery and _____ towards nature and society.

Ans. : responsibility

46. Science is a _____ that encourages questioning and curiosity.

Ans. : process

47. Light helps us to _____ our surroundings.

Ans. : see

48. Shadows can help us understand _____ and eclipses.

Ans. : day and night

49. The Earth rotates on its _____ .

Ans. : axis

50. The _____ goes around the sun.

Ans. : Earth

*** Answer The Following Questions In One Sentence.[1 Marks Each]** **[12]**

51. What inspired early scientific explorations of flight?

Ans. : Early scientific explorations about flying were inspired by simple things like watching birds in the sky and playing with paper planes. These small observations led to big inventions later.

52. Define scientific exploration.

Ans. : Scientific exploration is like going on an adventure to learn about the world using science.

53. Name any two life processes.

Ans. : (1) Breathing: Taking in air and releasing air. This helps us stay alive.
(2) Eating: Taking in food, which gives us energy to grow and play.

54. Why is asking questions important in science?

Ans. : Science is all about understanding the world around us. Asking questions helps us dig deeper and learn more.When we ask a question, it often leads to designing experiments to find answers.

55. What should I do if my coffee is too strong?

Ans. : Just add some milk.

56. Why did my cat have trouble chewing its food?

Ans. : Because the cat's teeth were crooked.

57. What should I do? I forgot to bring your bathrobe.

Ans. : Don't panic, I have my towel.

58. If a box contains 6 sets of books, and each set has 7 books, how many books are in the box?

Ans. : 42

59. What happens when we wash the haldi stain on our uniform?

Ans. : When we wash a haldi stain on our uniform with soap, being basic in nature, soap reacts with the haldi stain. This reaction causes the stain to change into red colour, making it harder to remove.

60. What might happen even if experiments confirm what we expect?

Ans. : They might lead to more questions.

61. What should you think like while doing experiments?

Ans. : A scientist.

62. What do scientists aim to do in their work?

Ans. : Scientists aim to understand how things work and why events happen.

*** consists of questions of 2 marks each.** **[80]**

63. What property of materials do we test using batteries, lamps and wires?

Ans. : When we use batteries, lamps and wires, we are testing whether a material can conduct electricity. Materials that allow electricity to pass are called conductors and those that don't are called insulators.

64. Why can some changes not be reversed? Give an example.

Ans. : Some changes cannot be reversed because they are permanent. For example, once a fruit ripens or a rock breaks into pebbles, they cannot return to their original form again.

65. How does heat affect the changes happening around us?

Ans. : Heat makes many changes happen faster. Like, ice melts into water quicker when heated and water evaporates more easily on a hot day. Heat gives energy to make changes.

66. What are the essential processes animals perform to survive?

Ans. : Animals must eat food to get energy, breathe to take in oxygen, and circulate nutrients through blood so every part of their body stays alive and works properly.

67. How do plants get their food?

Ans. : Plants prepare their own food by using sunlight, water and carbon dioxide through a process called photosynthesis. This helps them grow, stay alive, and provide food for other living beings too.

68. What is the scientific importance of light and shadows?

Ans. : Light is very important because it helps us see everything around us. Studying light and shadows has taught us about the universe, like how eclipses happen and how day and night work. Light also helped scientists understand deep things like Earth's movement and even the behavior of other planets.

69. What was an early method of measuring time?

Ans. : Long ago, before clocks and watches were invented, people used shadows to measure time. They would observe how the shadow of a stick or object moved with the Sun's position. This gave them a rough idea of morning, noon, and evening.

70. How do the movements of Earth and Moon affect life on Earth?

Ans. : Earth's rotation gives us day and night and the Moon's movement causes tides and eclipses. These natural motions create a balance in nature. Seasons, weather patterns and even the behavior of animals depend on these regular movements.

71. How are different fields of science interconnected?

Ans. : Different areas of science like physics, chemistry, biology and earth science are all linked. A discovery in one area often leads to new questions or inventions in another. Science grows bigger because everything is connected.

72. Why is it important to perform experiments according to Class 7 Science Curiosity Chapter 1?

Ans. : Doing experiments is important because they help us check if our ideas are correct. Sometimes experiments also surprise us and create new questions. This keeps science exciting and helps us learn more deeply.

73. According to the chapter, what makes a great scientist?

Ans. : A great scientist is not someone who just answers questions, but someone who asks amazing, thoughtful and curious questions. Asking the right questions

leads to important discoveries.

74. Give an example where a simple observation led to a big scientific idea.

Ans. : A simple paper plane inspired scientists to think about real flight. By watching how a paper plane flies, people got ideas about how to build flying machines like airplanes.

75. Is science limited only to laboratories?

Ans. : No, science is not just inside laboratories. It is all around us – in homes, schools, nature and cities. Science helps explain daily things like cooking, growing plants or weather changes.

76. Besides finding correct answers, what else is important in science?

Ans. : Besides getting correct answers, asking new and interesting questions is very important in science. Questions open up new areas to explore and make science a never-ending journey.

77. What is the message of the “Happy Exploring!” section?

Ans. : The message is to stay curious, enjoy asking questions and have fun while learning. Science is not just for exams but for understanding the amazing world we live in.

78. Why is curiosity important in the study of science?

Ans. : Curiosity is the spark that ignites scientific exploration and discovery. When you're curious, you naturally want to ask questions and find answers. This leads to deeper thinking and a drive to perform experiments, helping you understand the world better. Curiosity makes learning science more engaging and meaningful, turning it from just memorizing facts into an exciting adventure of discovery.

79. What does the book mean by 'exploration is not just discovery'?

Ans. : The book emphasizes that science and exploration are more than just finding new facts. It's about developing a curious mindset that constantly asks questions and seeks to understand the world more deeply. This involves performing experiments, thinking critically, and being open to new ideas. Exploration also includes understanding our role in the world and acting responsibly towards our environment. So, it's not just about finding something new, but about the entire process of learning and growing.

80. Why should we not rely only on facts in science?

Ans. : While facts provide a foundation, science is fundamentally about inquiry and understanding. Over-reliance on facts can limit our ability to question, explore, and connect ideas, which are crucial for deeper learning and discovery. The true essence of science lies in the process of asking questions, conducting experiments, and thinking critically, allowing us to not only memorize information but also comprehend its underlying principles and applications.

81. How does light help us beyond vision?

Ans. : Before clocks, people used the position of shadows cast by the Sun to measure time. Light can be converted into electricity using solar panels.By studying light from distant stars and galaxies, scientists can learn about the universe.

82. Why is it important to learn from failed experiments?

Ans. : Failed experiments provide valuable data and insights, helping scientists understand what doesn't work and why.By analyzing failures, researchers can refine their hypotheses, adjust their methods, and avoid repeating mistakes.

83. If we never questioned existing ideas, how would that impact scientific progress?

Ans. : "If we stopped questioning what we already know, science would get stuck. No one would come up with new ideas or challenge old ones, so we wouldn't discover anything new. Questioning pushes us to explore and experiment, which helps us find new stuff and fix mistakes in our thinking. If we don't question, we might keep believing wrong things and never adapt to changes in the world".

84. Imagine a world without light. How would this affect our understanding of time and space?

Ans. : Without sunlight, the most obvious and consistent way of tracking time (the day-night cycle) would disappear.People might rely more on other senses like hearing, touch, or even internal biological rhythms to estimate the passage of time.

85. A group of students noticed that a torch does not light up even though the batteries are new. They replaced the wire and it worked. What scientific approach did the students use to solve the problem? Explain the role of hypothesis and experiment in this scenario.

Ans. : The students used the scientific method. They observed the torch not working, made a hypothesis that the wire was faulty, and experimented by replacing it. The experiment confirmed their hypothesis, leading to the conclusion that the wire was the problem.

86. You see two rocks, one breaks easily and one does not. How would you identify what causes the difference scientifically?

Ans. : I would compare the rocks' properties using tests for hardness and density. I'd also examine their structure under magnification to check for cracks or different mineral arrangements. Differences found would help determine why one rock breaks more easily.

87. Day and night depends on receiving light from the sun. Explain in your words.

Ans. : The Earth rotates, and only the side facing the Sun experiences daylight because it receives direct sunlight. The side facing away is in darkness, creating night. As Earth continues to spin, different parts move into sunlight, causing the cycle of day and night.

88. How do things work?

Ans. : Things work because of how different parts or materials interact with each other. For example, in a clock, the gears move to show the time, and in a plant, the roots absorb water to help it grow, glowing of an electric bulb. Our bodies work in a similar way, with each organ having a special role to keep us healthy. Science helps us understand how these parts work together to make things function properly.

89. Why do events happen the way they do?

Ans. : Events happen the way they do because of a combination of cause and effect. Every action or decision leads to a result. For example, if it rains, the ground gets wet because rain causes that change. In nature, and in life, things happen based on certain conditions, patterns, and rules. Science helps us understand these patterns, so we can predict and explain why certain events occur the way they do.

90. What can we learn from the patterns that we see in nature?

Ans. : From the patterns in nature, we can learn about how things work, how changes happen, and how to predict the future events. For example, the changing seasons follow a regular pattern, so we know when to expect spring, summer, fall, or winter. The way plants grow and animals behave also follow patterns that help us understand their life cycles. Studying these patterns helps us make better decisions and understand the world more clearly.

91. Why are some fruits sour?

Ans. : Some fruits are sour because they contain acids like citric acid. The acid content and ripeness affect how sour they taste. For example, lemons are sour due to high citric acid, while other fruits like green mangoes become sweeter as they ripen.

92. What is science and how does it help us understand the world around us?

Ans. : Science is the study of the natural world through observations, experiments, and facts. It helps us understand how things work, solve problems, and make informed decisions about the world around us.

93. Why is it important to step out of the classroom and engage in activities and experiments for learning science?

Ans. : It is important to step out of the classroom and engage in activities and experiments because they help connect theory with practice. Hands-on experiences make science more interesting, help us understand concepts better, and develop critical thinking skills.

94. What happens when materials like batteries run out?

Ans. : The blood circulates the nutrients obtained from food throughout our body. Nutrients absorbed from the digestive system are carried by blood to all cells and tissues for energy, growth, and repair.

95. What circulates the nutrients obtained from food throughout our body?

Ans. : The blood circulates the nutrients obtained from food throughout our body. Nutrients absorbed from the digestive system are carried by blood to all cells and tissues for energy, growth, and repair.

96. Define curiosity.

Ans. : It is the driving force behind scientific discoveries and inventions, motivating humans to explore and understand the world.

97. How did early humans measure time before clocks?

Ans. : Before clocks, early humans measured time using natural events and simple devices, such as:
Sundials – using the position of the sun's shadow to tell time.
Water clocks (clepsydra) – measuring time by the flow of water from one container to another.

98. What causes eclipses, day and night?

Ans. : Eclipses: Eclipses are caused by the alignment of the Sun, Earth, and Moon, which blocks the light from one body onto another.
Solar eclipse: Moon comes between Sun and Earth.
Lunar eclipse: Earth comes between Sun and Moon.
Day and Night: Day and night are caused by the rotation of the Earth on its axis.

99. What role does science play in addressing environmental challenges?

Ans. : Science helps in addressing environmental challenges by providing knowledge, technology, and solutions to problems like pollution, climate change, and resource depletion.

100. What is the main purpose of doing science experiments?

Ans. : The main purpose of doing science experiments is to test hypotheses, observe phenomena, and verify scientific ideas.

101. What are the benefits of conducting experiments and asking questions in science? How does this lead to deeper understanding and further exploration?

Ans. : Conducting experiments and asking questions in science helps to test ideas, observe results, and gather evidence.
This leads to a deeper understanding of natural phenomena and encourages further exploration to discover new facts or solve problems.

102. Describe the formation of rain.

Ans. : Water from oceans, rivers, and lakes evaporates due to heat from the sun and forms water vapour.The water vapour rises into the atmosphere, cools, and condenses into tiny droplets to form clouds.When these droplets combine and grow heavy, they fall as rain due to gravity.

* consists of questions of 3 marks each. [18]

103. Draw and label the stages of the water cycle. Colour it as well.

Ans. : self

104. During the summer, you see that fruits ripen faster when left in a paper bag. Using your understanding of scientific reasoning, how can this observation lead to an experiment? What variables would you test to explore this change further?

Ans. : Observing that fruits ripen faster in a paper bag during the summer can lead to a scientific experiment based on the hypothesis that paper bags trap ethylene gas, which accelerates ripening. To test this, compare the ripening rates of fruits stored in paper bags with those left in open air. The presence or absence of a paper bag is the independent variable, while the ripening rate (measured by changes in color, firmness, and sweetness) is the dependent variable. Controlled variables include the type of fruit, temperature, humidity, and initial ripeness stage to ensure accurate results.

105. Discuss how scientific experiments and observations can lead to a deeper understanding of the environment and human activities.

Ans. : Scientific experiments and observations are crucial for understanding the natural world and the impact of human activities on the environment. Through hands-on experiments, like testing how materials conduct heat or electricity, we gain insights into the properties of materials and how they affect daily life. By asking questions about changes in nature, like why fruits ripen or how ice melts, we begin to understand deeper environmental processes such as the water cycle or energy flow. Furthermore, as we explore the relationship between human activities and nature, such as how deforestation or pollution affects the environment, we learn how to make more responsible choices. This knowledge not only helps us understand the world better but also empowers us to address environmental challenges and work towards a sustainable future.

106. Explain the importance of understanding the properties of different materials, and how does this helps in everyday life?

Ans. : Understanding the properties of materials is essential because it helps us choose the right materials for specific uses. For example, metals are good conductors of electricity, so they are used in electrical wiring. Rubber is a poor conductor, so it is used for insulation. In everyday life, we interact with various materials without thinking about their properties, such as the clothes we wear (which are chosen for comfort and durability) or the tools we use (which are made of strong, durable materials). Knowledge of material properties helps engineers, manufacturers, and even consumers make informed choices about products, ensuring they are safe, efficient, and long-lasting.

107. How do scientific ideas inspire innovations in other areas of life?

Ans. : Scientific ideas often inspire technological and practical innovations in various fields. For example, the discovery of electricity led to innovations in lighting, communication, and transportation. Similarly, advancements in biology have led to the development of life-saving medicines and vaccines. Scientific principles in physics have led to the creation of machines, engines, and tools that make our lives easier. The application of scientific discoveries in technology allows us to solve real-world problems, improve efficiency, and enhance the quality of life. Thus, science serves as the foundation for many innovations in everyday life and various industries.

108. Light and shadows are not only found around us at home. Even the Earth and the Moon can cast shadows, which causes eclipses. We also have day and night because of sunlight. To understand these things, we need to learn how the Earth spins on its axis, how the Moon moves around the Earth, and how the Earth moves around the Sun. These movements affect life on our planet. You will observe things, do fun experiments, and learn to think like a scientist. Even simple experiments can lead to more questions and learning.

Q.1 What causes day and night on Earth?

Q.2. What do we need to understand to learn about eclipses?

Q.3. Why should we do experiments while learning science?

Ans. : 1. Day and night happen because the Earth rotates on its axis.

2. We need to know how the Earth and the Moon move and how they cast shadows.

3. Experiments help us understand things better and ask more questions.

*** consists of questions of 5 marks each.** **[20]**

109. Discuss the role of observation and imagination in scientific discovery.

Ans. : → Scientific discovery often begins with careful observation of the world around us.

→ Observation involves using our senses (sight, hearing, touch, smell, taste) to gather information about phenomena, patterns, or events.

→ Imagination is the ability to form new ideas, concepts, or mental images.

→ Scientists use imagination to create possible explanations for observed phenomena.

→ Imagination allows scientists to "think outside the box" and come up with novel approaches to solving problems.

→ Even after a discovery is made, imagination is essential for envisioning its potential applications.

110. Describe how this chapter encourages sustainable thinking.

Ans. : → The chapter emphasizes how different scientific fields (physics, chemistry, biology, earth sciences) are interconnected.

→ By understanding that everything is connected, we realize our actions have consequences.

→ It encourages us to observe the world around us and ask questions.It also promote a mindset that values curiosity and exploration.

→ The chapter also touches on resources. It asks us to think about the changes that happen to them.

→ It subtly introduces the idea that human activities are linked to what happens in nature.

→ The chapter aims to encourage us to "think like a scientist."This involves analyzing problems and designing solutions.

111. Explain the relationship between questions and discovery in science.

Ans. : → Science is fundamentally driven by the desire to understand the natural world, and this pursuit begins with questions.

→ Scientific inquiry is initiated by questions arising from observations, existing knowledge, or simple curiosity. These questions define the scope of investigation.

→ Discovery is the process of finding answers to these questions through experimentation, observation, and analysis. It provides insights into the natural world.

→ However, discovery is not the end. New findings often reveal complexities, unexpected connections, or previously unknown phenomena, generating fresh questions and new avenues for investigation.

→ This iterative process of question, discovery, and more questions forms the backbone of scientific progress. Each discovery builds upon previous knowledge while paving the way for future exploration, leading to a deeper and more comprehensive understanding of the universe.

112. What makes science an interconnected field?

Ans. : → Scientific disciplines share fundamental principles and laws. For example, the laws of thermodynamics apply to physics, chemistry, and biology, illustrating how core concepts bridge different fields.

→ Many modern scientific advancements occur at the intersection of multiple disciplines. Fields like biochemistry, biophysics, and environmental science combine knowledge and techniques from different areas to tackle complex problems.

→ The scientific method, with its emphasis on observation, experimentation, and analysis, provides a common framework across various scientific fields. This shared approach ensures rigor and consistency in scientific investigations.

→ Scientific fields often build upon each other in a hierarchical manner. For instance, chemistry relies on principles from physics, while biology relies on principles from both chemistry and physics. This layered structure creates dependencies and interconnections.

→ Many real-world problems require interdisciplinary approaches. Addressing

climate change, developing new medicines, or creating sustainable energy solutions demands collaboration among scientists from diverse fields, highlighting the interconnected nature of scientific inquiry.

* **Match the Following.** **[8]**

113.

Column A	Column B
Q.1. Science	A. Supports life
Q.2. Earth	B. Involves experiments and activities
Q.3. Scientist	C. Encourages asking questions
Q.4. Curiosity	D. A process of discovery

Ans. :

Column A	Column B
1. Science	D. A process of discovery
2. Earth	A. Supports life
3. Scientist	B. Involves experiments and activities
4. Curiosity	C. Encourages asking questions

Column A	Column B
114. Water	A. Can be reversible or irreversible
115. Changes	B. Essential for the survival of all animals
116. Growth	C. Evaporates from the seas
117. Life processes	D. Causes rapid changes in our bodies

Ans. :

Column A	Column B
1. Water	C. Evaporates from the seas
2. Changes	A. Can be reversible or irreversible
3. Growth	D. Causes rapid changes in our bodies
4. Life processes	B. Essential for the survival of all animals

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