

The Making of a Scientist

— Robert W. Peterson



OBJECTIVE Type Questions

[1 mark]

Extract Based Questions

1. Read the extract given below and answer the questions that follow:

"I didn't get any real results," he said. "But I went ahead and showed that I had tried the experiment. This time I won." The next year his science fair project was testing the theory that viceroy butterflies copy monarchs. The theory was that viceroys look like monarchs because monarchs don't taste good to birds.

Viceroys, on the other hand, do taste good to birds. So, the more they look like monarchs, the less likely they are to become a bird's dinner.

Ebright's project was to see whether, in fact, birds would eat monarchs. He found that a starling would not eat ordinary bird food. It would eat all the monarchs it could get.

[CBSE Question Bank 2021]

- (A) Choose the option listing Ebright's qualities as depicted by the above extract:

- (1) persevering
- (2) visionary
- (3) determined



- (4) liberal
(5) conceited
(a) (1) & (2) (b) (3) & (5)
(c) (1) & (3) (d) (4) & (5)
- (B) According to the dictionary, 'fair' as a noun, shows the following meanings. Choose the option that lists the meaning similar to the usage to that in the extract:
(a) A gathering of stalls and amusements for public entertainment.
(b) A competitive exhibition showcasing products or ideas.
(c) A periodic gathering for the sale of goods.
(d) An annual exhibition of livestock, agricultural products, etc., held by a town, county, or state.
- (C) Choose the option that is true for the two statements given about the information in the extract:
Statement (1): Starling feeds on viceroy.
Statement (2): Starling does not eat seeds and insects.
(a) Both statements are clearly mentioned in the extract.
(b) Statement (1) cannot be clearly inferred from the text and statement (2) is true.
(c) Statement (1) is false and statement (2) cannot be clearly inferred from the extract.
(d) Both the statements need to be inferred from the given extract.
- (D) Choose the statements that are TRUE for the given extract contextually:
(1) Ebricht didn't get any results for the experiment he conducted on butterflies.
(2) Monarchs tasted awfully to the birds.
(3) Ebricht wanted to explore the possibility of monarchs getting eaten by birds.
(4) He wanted to prove that viceroys are lookalikes of monarchs.
(a) (1) & (2) (b) (2) & (3)
(c) (1) & (3) (d) (2) & (4)
- (E) ② Four friends bring their pets to a pet show. Choose the option that mentions the friend with a starling as a pet:
Friend 1 has a turtle named Missy.
Friend 2 has a dragonfly named Majesty.
Friend 3 has a rabbit named Molly.
Friend 4 has a bird named Mitch.
(a) Friend 1 (b) Friend 2
(c) Friend 3 (d) Friend 4

Ans. (A) (c) (1) & (3)

Explanation: It is clear from the extract that Ebricht 'didn't get any result but showed that he had tried the experiment'. This shows that he didn't stop trying even after failure as he was (3) determined and had (1) perseverance. Hence, (c) is the right answer.

- (B) (b) A competitive exhibition showcasing products or ideas.

Explanation: It is clear from the extract that it was an exhibition of scientific products and experiments. Hence, (b) is the right answer.

- (C) (c) Statement (1) is false and statement (2) cannot be clearly inferred from the extract.

Explanation: It is mentioned in the extract that starling eats monarchs but not viceroys so statement (1) is false. It is not mentioned anywhere if starling doesn't eat seeds or insects. So, statement (2) can't be inferred. Hence, (c) is the right answer.

- (D) (d) (2) & (4)

Explanation: It is clear from the extract that Ebricht wanted to work on a "theory that viceroys look like monarchs because monarchs don't taste good to birds". So, (2) and (4) are right. Hence, (d) is the right answer.

2. Read the extract given below and answer the questions that follow:

The butterfly collecting season around Reading lasts six weeks in late summer. (See graph below.) If you're going to chase them one by one, you won't catch very many. So the next step for Ebricht was to raise a flock of butterflies. He would catch a female monarch, take her eggs, and raise them in his basement through their life cycle, from egg to caterpillar to pupa to adult butterfly. Then he would tag the butterflies' wings and let them go. For several years his basement was home to thousands of monarchs in different stages of development.

(A) The town Reading was Ebricht's:

- (a) college town (b) home town
(c) laboratory area (d) University area

(B) Why did Ebricht want to catch butterflies?

- (a) It was his hobby.
(b) He wanted to pet them.
(c) He wanted to tag them for research.
(d) It was his school project.

(C) Why did Ebricht raise the butterflies instead of catching them?



- (a) He was not capable of catching them.
 - (b) There wasn't any butterfly.
 - (c) The season for butterflies was over.
 - (d) Butterfly season lasts only six weeks in Reading.
- (D) Ebright caught to raise its eggs in the basement.
- (a) Monarch (b) Viceroy
 - (c) skipper (d) swallow tail
- (E) Pick the stage that is NOT present in Ebright's raising of butterfly:
- (a) eggs (b) caterpillar
 - (c) pupa (d) wasp

Ans. (A) (b) home town

Explanation: Reading was the home town of Ebright. Hence, (b) is the right answer.

- (B) (c) he wanted to tag them for research

Explanation: It is clear from the extract that Ebright wanted to tag the butterflies. His mother bought him a book whose author asked the students to tag butterflies for him to research. Hence, (c) is the right answer.

- (C) (d) butterfly season lasts only six weeks in Reading

Explanation: It is clear from the extract that butterfly season lasts for only six weeks in Reading so 'he couldn't catch many by chasing them one by one'. Hence, (d) is the right answer.

- (D) (a) Monarch

Explanation: It is clear from the extract that Ebright caught Monarch to raise its eggs in the basement. Hence, (a) is the right answer.

- (E) (d) wasp

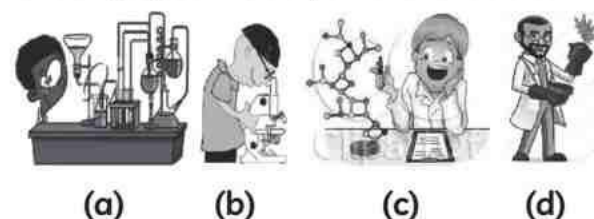
Explanation: It is clear from the extract that Ebright raised "from egg to caterpillar to pupa to adult butterfly." He raised a butterfly not a wasp. Hence, (d) is the right answer.

3. Read the extract given below and answer the questions that follow:

When he saw those photos, Ebright didn't shout, 'Eureka!' or even, 'I've got it!' But he believed that, along with his findings about insect hormones, the photos gave him the answer to one of biology's puzzles: how the cell can 'read' the blueprint of its DNA. DNA is the substance in the nucleus of a cell that controls heredity. It determines the form and function of the cell. Thus, DNA is the blueprint for life. Ebright and his college room-mate, James R. Wong, worked all that night drawing pictures and constructing plastic models of molecules

to show how it could happen. Together they later wrote the paper that explained the theory.

- (A) Choose the option that shows the picture of the type of task Ebright and Wong were engaged in, as per the extract:



- (B) Ebright was perhaps expected to shout 'Eureka!' because he had:
- (a) realised that he needed a partner to work with to finalise his findings.
 - (b) discovered something new and 'Eureka!' was a cry to announce it.
 - (c) worked hard and was relieved at nearing the end of his project.
 - (d) given shape to the teachings of his teachers by choosing this field of science.
- (C) "Thus, DNA is the blueprint for life", is another way of saying that the DNA contains a genetic
- (a) experiment (b) ultimatum
 - (c) takeaway (d) plan
- (D) Four newspapers published a headline about Ebright and Wong. Choose the option that published a factually correct headline, as per the extract:

<p>Newspaper 1 WONG DENIES CONTRIBUTING TO EBRIGHTS THEORY</p>	<p>Newspaper 2 EBRIGHT COLLABORATES WITH ROOM-MATE WONG</p>
<p>Newspaper 3 WONG AND EBRIGHT EXAGGERATE THEIR THEORY-DEFY LOGIC</p>	<p>Newspaper 4 EBRIGHT AND WONG'S THEORY PROVED WRONG</p>

- (a) Newspaper 1
 - (b) Newspaper 2
 - (c) Newspaper 3
 - (d) Newspaper 4
- (E) Compound words are those words which are formed by joining two separate words to create a new word with an entirely different meaning.
- Choose the option that lists the compound words from the above extract:
- (1) determines
 - (2) blueprint
 - (3) nucleus

- (4) heredity
 (5) room-mate
 (a) (1) & (3) (b) (2) & (4)
 (c) (1) & (4) (d) (2) & (5)

Ans. (A) (c)

Explanation: It is clear from the extract that Ebright and his college mate constructed a plastic model for the DNA of cell hormones. Hence, (c) is the right answer.

(B) (b) *discovered something new and 'Eureka!'* was a cry to announce it.

Explanation: 'Eureka' is a term that refers to a cry to announce a new discovery. Hence, (b) is the right answer.

(C) (d) *plan*

Explanation: DNA contains a genetic plan that remains the same forever. Hence, (d) is the right answer.

(D) (b) *Newspaper 2*

Explanation: It is clear from the extract that Ebright worked on his theory with the help of his room-mate Wong. Hence, (b) is the right answer.

(E) (d) (2) & (5)

Explanation: The words (2) blueprint and (5) roommate are made up of two separate words, i.e., 'blue+print' and 'room+mate'. Hence, (d) is the right answer.

SUBJECTIVE Type Questions

Short Answer Type-I Questions (SA-I) [2 marks]

Answer the following questions in 20-30 words:

4. What did Ebright learn in the county science fair? [Delhi Gov. 2021]

Ans. In the county science fair, Ebright learned that in order to win the prize, he needed to show a real experiment rather than a neat display of research. He failed in the fair as he just showed the slides of the frog tissues and no real experiment.

5. Do you think Richard's mother was too indulgent when she bought him things like cameras, telescopes, microscopes? Give two reasons to support your answer.

Ans. No, I think that Richard's mother wasn't too indulgent. She supported and encouraged Richard in everything that he did. She helped him with all his experiments by buying him the things that he needed. She wasn't a too indulgent mother but an encouraging one.

6. Why did Ebright lose interest in tagging butterflies? [CBSE 2020]

Ans. Ebright lost his interest in tagging butterflies as it was a less rewarding job. Also, out of all the butterflies that he tagged, only two could be recaptured. So, ultimately, he lost his interest in it.

7. What did Ebright like to do since childhood? [Delhi Gov. 2021]

Ans. Since childhood, Ebright used to collect objects. His passion was to collect butterflies, rock fossils and coins.

8. Suggest two ways by which you feel scientific temperament can be developed in a child.

Ans. There are certain ways in which scientific temperament can be developed in a child. It can be developed by making a child read books about interesting scientific discoveries and encouraging her/him to learn about science through experiments.

9. What are the qualities that go into the making of a scientist?

10. Do you think we always need sophisticated instruments for all science experiments? Why/ Why not? [CBSE Question Bank 2021]

Ans. No, one does not always require sophisticated instruments for all experiments in science. Some experiments require a deep study and understanding of the details of the subject.

11. Apart from science research what else was Richard interested in?

Ans. Apart from being a scientist, Richard was also a champion debater, orator, good canoeist and an all-around outdoor-person. He was also an expert photographer, particularly of nature and scientific exhibits.

12. Richard's mother was his companion and spent a lot of time with him. A parent should try to be a companion to a child. Justify.

[CBSE Question Bank 2021]

Ans. A parent should always be a companion to a child. Ebright's mother was not only his moral support but also his learning partner. She encouraged Ebright to study new aspects of science and for that, she bought him many books.

13. How had Ebright's mother tried to keep his interest in butterflies?



Short Answer Type-II Questions (SA-II)

[3 marks]

Answer the following questions in 40-50 words:

14. The will to win, for the right reasons, was a quality that Richard had. Do you think this quality alone can help us accomplish great feats? Why/ Why not?

Ans. The will to win for the right reason can alone help us accomplish great feats. Determination, perseverance and the urge to learn something new even after failing at it, make us achieve the aim finally.

15. ② Hobbies play a very important role in one's life. Elaborate this with reference to "The Making of a Scientist". [CBSE 2016]

16. Which book did Ebright's mother get for him? How did it change his life? [CBSE 2019]

Ans. Ebright's mother got him a children's book titled 'The Travels of Monarch X'. The book described how Monarch butterflies migrate to Central America. This book opened the world of science to the young and an enthusiastic butterfly collector, Ebright.

17. ② Richard Ebright's mother was his greatest support. Expound.

18. Dr. Urquhart made Ebright win International science fair. Comment.

Ans. Ebright failed in his previous attempts at the county science fair. So, he decided to ask Dr. Urquhart for the ideas and suggestions to work on 'insects' for his second trial at the fair. Dr. Urquhart gave Ebright several ideas and Ebright eventually won the prize at the International Science Fair by working on those ideas.

19. ② Richard's mother had been invited to a talk show after Richard's graduation from Harvard with the highest honours. Write the most memorable thing she spoke and what you think it reveals about her.

[CBSE Question Bank 2021]

Long Answer Type Questions (LA)

[5 marks]

Answer the following questions in 100-120 words:

20. ② Read the following quote.

"Mother is the first teacher of a child."

Justify the quote given above in the light of contribution of Richard Ebright's mother in 'making' him 'a scientist'. [Delhi Gov. 2021]

21. Ebright had nothing really to do in his hometown Reading when he was young. His mother kept him busy with new books and equipment.

Imagine yourself as the writer of the story "The Making of a Scientist" and write an imaginary conversation between Ebright and his mother when Ebright gets bored.

Ans. Ebright: Mom...I have nothing to do. This town is devoid of interesting things!

Ebright's mother: Why Richie? Don't you have to collect colourful butterflies and rock fossils tomorrow? Also, I will buy you some new books on butterflies by Dr. Urquhart. I have heard they are extremely good.

Ebright: Oh great! I can also click pictures of the natural objects. I need a telescope for gazing stars at night. Can you buy me one mom?

Ebright's mother: Sure Richie. You also need to finish up your school project at the earliest. I will help you with that. Your friends might come over the weekend to stay with you.

Ebright: Thanks mom!

22. Imagine Richard wrote a letter to his mother when he was studying at Harvard University for motivating him and being a constant source of support throughout his growing up years. Write that letter of gratitude as Richard.

You may begin like this:

Harvard University

Cambridge

Massachusetts

20 September 19XX

Mrs. Ebright

Reading

Pennsylvania

Dear Mom

It's been long since I've written to you.

..... [CBSE Question Bank 2020]

Ans. Harvard University

Cambridge

Massachusetts

20 September 1981

Mrs. Ebright

Reading

Pennsylvania

Dear Mom

It's been long since I've written to you. I miss you a lot here. You have always been my pillar of strength and morale. I couldn't imagine

being a scientist without your unconditional support. I remember when dad passed away I was in third grade, my world was shattered as he was my biggest support and my best friend. But the way you managed me with your love and support, I can never be enough thankful for that. You became my best friend, my teacher and my guardian angel. I will always be grateful to you. You have developed the enthusiasm of learning about butterflies in me since childhood. Today I am who I am only because of your hard work and guidance. I love you so much.

Love,
Richie.

- 23.** ② Ebright was a bright student. He always got good grades at school.

Imagine yourself as the writer of the story "The Making of a Scientist" as write an imaginary conversation between Ebright's teacher and his mother when Ebright gets good grade in the class.

- 24.** "Richard was competitive," Mr. Weiherer continued, "but not in a bad sense." He explained, "Richard wasn't interested in winning for winning's sake or winning to get a prize. Rather, he was winning because he wanted to do the best job he could. For the right reasons, he wants to be the best."

Richard Ebright's journey to become a scientist shows that Mr. Weiherer was right about him. Explain with the help of examples from the text. [Delhi Gov. 2021]

Ans. Mr. Weiherer was right about Richard Ebright when he said that Ebright "wants to win for the right reasons, he wants to be the best." In the story, "The Making of a Scientist", Ebright lost in the first county science fair that he participated in. However, after losing the prize, Ebright became determined to win it at all costs the next time. He wanted to win because he wanted to be the best of all. He wanted to prove his theory right. He was competitive in the right way. When he lost at the county fair,

he didn't get disheartened or angry. Rather, he learned that to win the prize, a real experiment is required and not just a neat display. He took advantage of his learning and the next time, he came first. He participated in several fairs and won several prizes to prove himself and his theories right.

- 25.** ② Ebright's mother was his greatest support. She always boosted Ebright's morale and encouraged him to never lose interest in his subject.

Imagine yourself as the writer of the story "The Making of a Scientist" and write an imaginary conversation between Ebright and his mother when Ebright loses his first entry at the county science fair.

- 26.** Albert Einstein said, 'The important thing is to never stop questioning.' Richard was a genius who proved this quote true. Justify. [CBSE Question Bank 2020]

Ans. Richard Ebright was a brilliant student. He had an urge to discover something new always. Albert Einstein's quote 'The important thing is to never stop questioning' suits Ebright perfectly. Since childhood, Ebright was a curious child. He used to read a lot of books and research on several theories. When he lost in his first entry at the county science fair, he didn't stop trying. He learned that to win, he had to do a real experiment and not just a display. Then he asked Dr. Urquhart about the ideas to work on 'insects to win the fair. Finally, he won the first prize in his second attempt. Later, he worked on Monarch pupa's gold spots and how cells read their DNA. He never satisfied himself after accomplishing his task. Nor did he stop trying after failing at his attempt. He was determinant student who kept trying.

- 27.** ② Compare Ebright and his mother's characteristics on the basis of the power of not giving up in any case and write down the similarities you find in the mother-son duo.

