

NCERT QUESTIONS WITH SOLUTIONS

Thinking about the Text

1. Who had these opinions about Einstein?

- (i) He was boring.
- (ii) He was stupid and would never succeed in life.
- (iii) He was a freak.

Ans. (i) Einstein's playmates thought that he was boring.
(ii) Einstein's headmaster thought that he was stupid and would never succeed at anything in life.
(iii) Einstein's mother thought that he was a freak because he never behaved normally.

2. Explain what the reasons for the following are.

- (i) Einstein leaving the school in Munich for good.
- (ii) Einstein wanting to study in Switzerland rather than in Munich.
- (iii) Einstein seeing in Mileva an ally.
- (iv) What do these tell you about Einstein?

Ans. (i) Albert Einstein was not a bad pupil. He scored good marks in almost every subject. Einstein hated the regimented environment of his school in Munich, because of which he often had clashes with his teachers. At the age of 15, when he felt too stifled to continue studying, he left the school in Munich for good. His mind was not made for the normal strict and disciplined environment of a school. That is why he left school to enjoy his independence / hated the school's regimentation.

(ii) According to Einstein, German-speaking Switzerland was more liberal than Munich. Einstein must have hoped to find a less stifling environment in Switzerland compared to that in Munich. Hence, he wanted to study in Switzerland / more liberal city compared to Munich.

(iii) Einstein had a special interest in Mileva, who was his fellow student. Mileva was just opposite to Einstein's parents. Unlike them she used to appreciate arts and finer things of life. He thought that she was a very clever person. She had come to Switzerland because the University in Zurich was one of the few in Europe where women could get degrees. Einstein instantly realised that she was an ally against all the people he was at odds with. Her mindset matched with that of Einstein. So, Einstein saw a friend in Mileva.

(iv) All these instances indicate that Einstein was a visionary. He was clever and never hesitated in keeping his point of view in front of others. He never went with the tide and did things the way he wanted to. Once he knew that he was right, he was not afraid of being at odds with his teachers or for that matter anyone else. Even though he was doing well in school, he left it because he found it too stifling. He eventually moved to Zurich because he thought that this city was much more liberal than Munich. He liked to mix with people who had the same attitude as him. He was a strong man who stuck to his principles and ideas and was not afraid of bringing them into practice. He loved freedom.

3. What did Einstein call his desk drawer at the patent office? Why?

Ans. Einstein was working as a technical expert in the patent office in Bern. He called his desk drawer at the patent office the 'bureau of theoretical physics.' He called it so because while he was supposed to be assessing other people's inventions, he was actually developing his own ideas in secret and his drawer was where he stored these ideas.

4. Why did Einstein write a letter to Franklin Roosevelt?

Ans. When the Nazis came to power in Germany, Einstein emigrated to the United States of America. The American physicists were in an uproar because of the discovery of nuclear fission in Berlin. They were afraid that the Nazis could now build and use an atomic bomb. At the urging of a colleague, Einstein wrote a letter to Franklin Roosevelt to warn him of the consequences of an atomic explosion. The end result was the US made the nuclear bomb and used it against Japan. This led to large scale destruction and loss of lives in the cities of Hiroshima and Nagasaki.

5. How did Einstein react to the bombing of Hiroshima and Nagasaki?

Ans. Einstein was deeply shaken by the disaster in the Hiroshima and Nagasaki. He wrote a public missive to the United Nations urging the formation of a world government to stop the nuclear weapons.

However, his proposal was not paid any attention. Over the next decade, he got more involved in politics, trying to agitate people to bring an end to the arms race. He campaigned for peace and democracy till his last days.

6. Why does the world remember Einstein as a "world citizen"?

Ans. Einstein is remembered as a "world citizen" as much as a genius scientist because of his efforts towards world peace and democracy, and for his crusade against the use of arms.

7. Here are some facts from Einstein's life. Arrange them in chronological order.
- (1) Einstein publishes his special theory of relativity.
 - (2) He is awarded the Nobel Prize in Physics.
 - (3) Einstein writes a letter to U.S. President, Franklin D. Roosevelt, and warns against Germany's building of an atomic bomb.
 - (4) Einstein attends a high school in Munich.
 - (5) Einstein's family moves to Milan.
 - (6) Einstein is born in the German city of Ulm.
 - (7) Einstein joins a university in Zurich, where he meets Mileva.
 - (8) Einstein dies.
 - (9) He provides a new interpretation of gravity.
 - (10) Tired of the school's regimentation, Einstein withdraws from school.
 - (11) He works in a patent office as a technical expert.
 - (12) When Hitler comes to power, Einstein leaves Germany for the United States.

- Ans.**
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