



A TRULY BEAUTIFUL MIND

INTRODUCTION

Albert Einstein was one of the greatest scientists in the world. This lesson throws a light on his life and his works in the field of science and world politics. He was born on March 14, 1879, in the German city of Ulm. He was a normal looking child. But he had some deficiencies as a child) He began to speak very late and when he spoke he repeated every word twice. His playmates made fun of him. His parents were not even so careful about him. But from his childhood, he had a big interest in science. He was good at studies. He always got good marks but he did not like the strict discipline of the school. So, he left the school for good. He agreed to study in Switzerland which has a liberal atmosphere. There he got interested in a fellow student Mileva Mark. Later he married her. He worked on different scientific theories. He was awarded the Nobel Prize for Physics in 1921. He was showered with honours and invitations from all over the world. When America dropped atom bombs over Hiroshima and Nagasaki he was deeply shaken. He proposed for the formation of the world government. He worked for the development of peace and democracy in the world until he died in 1955. He is remembered even today as a 'world's citizen)

(एल्बर्ट आइंस्टाइन संसार के महानतम वैज्ञानिकों में से एक था। एक अध्याय उसके जीवन तथा विज्ञान और राजनीति के क्षेत्र में उसके कार्यों पर प्रकाश डालता है। उसका जन्म 14 मार्च, 1879 को जर्मनी के उल्म नामक शहर में हुआ था। वह एक सामान्य-रंग सा दिखाई पड़ने वाला बालक था। लेकिन बचपन में उसमें कुछ कमियाँ थी। उसने काफी देरी से बोलना शुरू किया और जब उसने बोलना शुरू किया तो वह प्रत्येक शब्द को दो बार बोलता था। उसके खिलाड़ी साथी उसका मजाक उड़ाते थे। यहाँ तक कि उसके माता-पिता भी उसके बारे में अधिक परवाह नहीं करते थे। लेकिन बचपन से ही उसको विज्ञान में बहुत अधिक रुचि थी। पढाई में वह बहुत अच्छा था। यह हमेशा अच्छे अंक प्राप्त करता था, लेकिन उसे स्कूल का कठोर अनुशासन पसंद नहीं था। इसलिए उसने हमेशा के लिए ही स्कूल छोड़ दिया। वह स्विट्जरलैंड में पढाई करने पर सहमत हो गया। जहाँ पर स्वतंत्रतापूर्ण वातावरण था। वहाँ उसका अपनी एक सहपाठी मिलेवा मेरिक के साथ लगाव हो गया। बाद में उसने उसके साथ शादी कर ली। उसने विभिन्न वैज्ञानिक सिद्धांतों पर कार्य किया। 1921 में उसे भौतिकी के क्षेत्र में कार्य करने के लिए नोबेल पुरस्कार प्राप्त हुआ। उसे सारे विश्व से सम्मान और निमंत्रणपत्र प्राप्त हुए। जब अमेरिका ने हिरोशिमा और नागासाकी पर परमाणु बम गिराए तो वह बहुत अधिक विचलित हो गया। उसने विश्व सरकार के निर्माण का प्रस्ताव भी रखा। 1955 में अपनी मृत्यु के समय तक वह विश्व में शांति और लोकतंत्र की स्थापना के लिए कार्य करता रहा। उसे दुनिया में आज भी 'विश्व नागरिक' के रूप में जाना जाता है।

THEME

This brief sketch of the life and achievements of the great genius Albert Einstein, reveals that extraordinary personalities with exceptional intellectual capabilities are not necessarily noticed during the early years. The author focuses on two aspects of Einstein's personality – as a scientist and as a human being. As a scientist, his marvellous discoveries created a revolution and as a human being, he worked towards peace and democracy in the world.

TITLE

The title of this biographical feature “A Truly Beautiful Mind” is very appropriate as it encompasses both the intelligence of Einstein and his humanistic tendencies. As a genius, he made an immense contribution to the world of science by presenting startling theories and as a human being, he preached for peace and democracy. Thus, his mind was really beautiful and teeming with new ideas and human concerns.

MESSAGE

This account of the life and personality of the famous scientist Einstein gives us the message that a beautiful mind possesses not only innovative ideas but also makes sincere efforts to use these ideas for the well being of mankind. Science should be solely devoted to the promotion of worldwide peace and prosperity. If used for destructive purposes, the scientific inventions and discoveries can wreak havoc on the earth.

CHARACTER

Albert Einstein

Albert Einstein has been portrayed as a great intellectual genius and a peace-loving human being with liberal ideas. As an intellectual, he created a revolution in the field of science, particularly physics. As a human being, he spread the message of love, liberty and peace.

During his childhood, Einstein did not show any traces of intelligence. He was a slow child who started speaking very late. Even his mother considered him to be a freak and the headmaster of his school had such a negative opinion about him that he stated that Einstein would never achieve success in any career that he chose. However, Einstein proved to be a good student as he had a keen interest and skills in mathematics and physics and he also scored in all other subjects.

Einstein's love for freedom dated back to his school days. He felt suffocated in his school in Munich because of excessive discipline. He opted to study in Switzerland

in a school with a liberal environment. He left Germany for America when the dictatorial Nazis took over because he was averse to every type of authority.

Though a great scientist, Einstein was a lover of arts and literature. He was against philistinism (ignorance of or hostility towards art and culture). He fell in love with a Serbian girl Mileva Maric because she held similar ideas about art. As a scientist, his theories of relativity and gravity created a stir in the world of science. He was awarded the Nobel Prize and got numerous other honours.

Einstein was a great lover of mankind. He wanted a world government. He was perturbed by the destructive use of science when the atom bomb was dropped over Hiroshima and Nagasaki. He spent the rest of his life spreading the message of peace and democracy. Thus, Einstein's traits as a scientific genius and a peace-loving human being with a deep love for freedom are amply highlighted in this biographical account.

Short and Simple Summary of the lesson in English– (Lesson Name)/ Summary in simple Words/ Critical appreciation of the lesson – (Lesson Name)

Summary in ENGLISH

Albert Einstein was born on March 14, 1879, in the German city of Ulm. He was a normal looking child. His mother thought him an abnormal child. He began to

speak very late. And when he spoke he repeated each word twice. The other children made fun of him. So he used to play all alone. He loved to play with mechanical toys. When he was six years old, he learnt to play the violin.

Albert Einstein went to high school in Munich. He was a good student. He scored good marks in all subjects. But he did not like the strict discipline of the school. He often got clashed with his teachers. So he left the school for good.

After long discussions, he agreed to continue his study in Switzerland. He was highly gifted in mathematics and interested in physics. After passing high school, he joined Zurich University. There he got interested in a fellow student Mileva Marie. He found an ally in her. She was a young Serb. She was very intelligent. They fell in love and later they got married in 1903.

Albert graduated in 1900, at the age of 21. He was unemployed. He worked as a teaching assistant. In 1902, he got the job of a technical expert in a patent office in Bern. His job was to assess other people's discoveries. He was secretly developing his own ideas. He published his famous paper in 1905 on 'Special Theory of Relativity', according to which time and distance are not absolute.

Einstein's new personal chapter coincided with his rise to world fame. In 1915, he had published his 'General Theory of Relativity', which provided a new

interpretation of gravity. Einstein has correctly calculated in advance the extent to which the light from fixed stars would be deflected through the sun's gravitational field. Einstein received the Nobel Prize for Physics in 1921. He was showered with honours and invitations from all over the world and lauded by the press.

When the Nazis came to power in Germany in 1933, Einstein emigrated to the United States. Five years later, the discovery of nuclear fission in Berlin had American physicists in an uproar.

At the urging of a colleague, Einstein wrote a letter to the American president Franklin D. Roosevelt, on August 2, 1939, in which he warned against the danger of atom bombs. His words influenced Roosevelt. The Americans developed the atomic bomb in a secret project of their own and dropped it on the Japanese cities of Hiroshima and Nagasaki in August 1945.

Einstein was deeply shaken by the extent of the destruction. This time he wrote a long letter to the United Nations. In it, he proposed the formation of a world government. Einstein got ever more involved in politics using his popularity to campaign for peace and democracy. When Einstein died in 1955 at the age of 76, he was celebrated as a visionary and world citizen as much as a scientific genius.

LONG ANSWER QUESTIONS

Q1. Write a short note on Einstein's education from school to university.

Ans: As a young boy, Einstein did not show any symptoms of an intellectual genius. His headmaster had a very poor opinion about him and he even declared that Einstein would fail in any career that he chose. However, as he grew up and joined a school in Munich, he showed appreciable progress in studies scoring good marks in almost all the subjects. But the strict discipline of the school was not in accordance with the free spirit of Einstein. As a result, he frequently had scuffles with his teachers. Being a person of liberal ideas, he felt so suffocated that he ultimately left that school for good. He chose to complete his studies in a school in Switzerland where the environment was more liberal as compared to Munich. Highly gifted in mathematics and having a great interest in Physics, Einstein joined the university in Zurich after completing school and from where he graduated in 1900.

Q2. What researches and theories proved that Einstein was a true genius? How was he rewarded for his scientific achievements?

Ans: Einstein proved to be an intellectual and scientific genius after the completion of his university education. Although he was jobless for some time and gave private tuitions, he finally got a job of a technical expert in a patent office in Bern. Here, along with the job, he kept developing secretly his own ideas and came out with the publication of his famous research paper on 'Special Theory of Relativity', according to which time and distance are not absolute. His theory about the relationship between mass and energy was developed into the world famous formula $E = mc^2$, and this equation made him a renowned scientist. Einstein earned international acclaim with the publication of his General Theory

of Relativity which enabled him to calculate in advance the extent of the deflection of light from fixed stars as it passed through the gravitational field of the sun. The theory was declared as “a scientific revolution” by the newspapers. For his contribution to the development of science, Einstein was awarded the Nobel Prize for Physics in 1921. After this, a number of honours were bestowed upon him and he was invited by different countries in the world. Newspapers too hailed his scientific genius.

Q3. The author talks about two important letters that Einstein wrote -one to President Franklin D. Roosevelt and the other to the United Nations. What prompted Einstein to write these letters? What impact did they make?

Ans: At the insistence of a colleague, Einstein wrote a letter to the American President, Franklin D. Roosevelt in 1939 warning him that the atomic bomb, if made and used by Germany, could not only destroy the whole part on which it could be dropped but also the territory surrounding it. The impact of the letter was both deep and rapid as the Americans secretly developed their own atomic bombs which were dropped on Hiroshima and Nagasaki in Japan in 1945. As expected, these bombs caused terrible destruction. The large-scale damage caused by these bombings on Japan perturbed Einstein so much that this time he wrote a letter to the United Nations. In this letter, he proposed that there should be only one government in the world. This would put an end to the enmity between nations and hence stop the massacres caused in the name of wars. But this letter did not have any impact. Thus, unlike the letter to Roosevelt, Einstein’s letter to the United Nations failed to evoke any response.

Q4. Which values does the life of Einstein teach you?

Ans: Einstein was not only a great scientist but a man with love for peace. His life history contains in itself the moral lesson that one must love one's fellow beings and all the discoveries of science should be oriented towards the aim of establishing peace. Einstein had written a letter to the American President Roosevelt to warn him against the destructive atom bomb that Germany would build on the principle of nuclear fission. But Einstein was terribly shocked when America caused a large scale destruction in Japan by dropping an atom bomb on Hiroshima and Nagasaki. Einstein made sincere efforts to spread the message of peace. He even wrote a letter to the United Nations proposing that a world government should be established. He did not use his popularity for selfish or personal gains. Instead, he worked for furthering the cause of democracy and peace. He was never carried away by his achievements; on the contrary, the honours bestowed on him encouraged him to work more for the welfare of humanity. The life of Einstein thus inspires in us the values of sincere work, devotion to humanity, selfless service of mankind, and love of peace.

Q5. What important lessons can Educationists today learn from the biographical sketch of the great scientist, Einstein?

Ans: "A Truly Beautiful Mind" forms a powerful comment on the education system in many institutions. A brief life sketch of the great scientist reveals that Einstein was not a fast learner at the early stage of schooling. One of his teachers had remarked that he would not succeed in any course he took. But the reality proved to be otherwise. Einstein turned out to be an intellectual genius. Educationists today can learn several important lessons from his education career. First, teachers must encourage all the students all the times. Instead of

making negative remarks, they should discover the individual potential of students and try to develop it to the maximum. Second, students should be provided with a liberal and conducive environment, so that they feel encouraged to think originally and their ideas may find nourishment instead of being smothered. Einstein felt much suppressed in his school in Munich because of the stifling regimentation over there. Such strictness made him leave the school for good and move to Switzerland. His talent bloomed in the liberal environment of the university in Zurich. Third, all stakeholders of the education system today should be free from all kinds of biases and prejudices.

QUICK REVIEW OF THE CHAPTER

1. When was Albert Einstein born?

(A) March 14, 1878

(B) March 14, 1879

(C) March 14, 1880

(D) March 14, 1881

Ans. (B) March 14, 1879

2. In which country was Albert Einstein born?

(A) Germany

(B) England

(C) the U.S.A.

(D) Russia

Ans. (A) Germany

3.What field of life is Albert Einstein associated with?

(A) politics

(B) social service

(C) science

(D) economics

Ans. (C) science

4.What was Albert Einstein special feature when he was born?

(A) he had a small head

(B) he had a large head

(C) he had a shining face man

(D) all his features were of a great

Ans. (B) he had a large head

5. Why did Albert Einstein love to play all alone?

(A) he did not like anybody (B) the other child mimicked his stammering

(C) he always kept himself busy in a study (D) his parents did not allow him to play with other children

Ans. (B) the other child mimicked his stammering

6. What sort of toys did Albert Einstein love especially?

(A) wooden toys (B) toys made of clay

(C) mechanical toys (D) he did not like toys

Ans. (C) mechanical toys

7. The name of Einstein's sister was

(A) Maggie (B) Maja

(C) Sophia

(D) Alice

Ans. (B) Maja

8. What was the headmaster's opinion about Albert Einstein?

(A) he would be a great scholar one day
success in life

(B) he would never make a

(C) he would become a great mechanic one day (D) he would become a great
scientist

Ans. (B) he would never make a success in life

9. What did Einstein begin to play?

(A) violin

(B) tabla

(C) guitar

(D) none of these

Ans. (A) violin

10. How did Albert Einstein perform in violin playing?

(A) he had a complete failure in it performances (B) he could not give better

(C) he became a gifted amateur violinist (D) none of these

Ans. (C) he became a gifted amateur violinist

11. Why did Einstein leave the school?

(A) he was very poor in studies speaking method (B) his teachers often made fun of his

(C) he did not like the studies regimentation (D) he felt stifled in the school's

Ans. (D) he felt stifled in the school's regimentation

12. When Albert's parents moved to Milan where did they leave their son back?

(A) in New York

(B) in Munich

(C) in London

(D) in Oxford

Ans. (B) in Munich

13. In which country did Einstein agree to continue his studies?

(A) Switzerland

(B) France

(C) England

(D) Germany

Ans. (A) Switzerland

14. In what subject was Albert Einstein highly gifted?

(A) German languages

(B) English literature

(C) mathematics

(D) economics

Ans. (C) mathematics

15. Except for mathematics in what other subject was he interested?

(A) chemistry

(B) physics

(C) animal and plant life

(D) medicine

Ans. (B) physics

16. Which university did Albert Einstein get his degree?

(A) Oxford

(B) Milan

(C) Zurich

(D) London

Ans. (C) Zurich

17Einstein got married to.....

(A) Mileva Maria

(B) Alice

(C) Sophia

(D) Cecilia

Ans. (A) Mileva Maria

18.What is the invention of Einstein?

(A) Special theory of relativity

(B) Three laws of motion

(C) Theory of surface tension

(D) Principal of gravity

Ans. (A) Special theory of relativity

19. What did Einstein get the Nobel Prize in Physics?

(A) 1919

(B) 1920

(C) 1921

(D) 1922

Ans. (C) 1921

20. When did Einstein die?

(A) in 1955

(B) in 1956

(C) in 1957

(D) in 1958

Ans. (A) in 1955

21. When the Nazis came to power in Germany in 1933, Einstein emigrated to

(A) England

(B) France

(C) Switzerland

(D) the United States

Ans. (D) the United States

22. What was special about the University in Zurich?

(A) here only men could get a degree (B) only the citizens of Switzerland could get a degree

(C) women could get degrees in this university (D) all of these

Ans. (C) women could get degrees in this university

23. The principle produced by Einstein is :

(A) Special Theory of Relativity
Conductivity

(B) General Theory of

(C) General Theory of Relativity

(D) General Theory of Unrelativity

Ans. (C) General Theory of Relativity

24. Einstein's General Theory of Relativity provided a new interpretation of

(A) gravity

(B) weight

(C) volume

(D) speed

Ans. (A) gravity

25. In which subject Einstein got the Nobel Prize?

(A) Medicine

(B) Physics

(C) Economics

(D) Peace

Ans. (B) Physics

26. On August 2, 1939, Einstein wrote a letter to the American President :

(A) John E Kennedy

(B) Franklin D. Roosevelt

(C) Abraham Lincoln

(D) G.W. Bush

Ans. (B) Franklin D. Roosevelt

27. In August 1945 atom bomb was dropped on which city of Japan?

(A) Hiroshima

(B) Nagasaki

(C) Both A and B

(D) None of these

Ans. (C) Both A and B

SUMMARY IN HINDI

एल्बर्ट आइंस्टाइन का जन्म 14 मार्च , 1879 को जर्मनी के उल्म नामक शहर में हुआ था । वह एक सामान्य-सा दिखाई पड़ने वाला बालक था । उसकी माता तो उसे एक विचित्र बालक मानती थी । उसने बहुत देरी से बोलना शुरू किया । ओर जब वह बोलता था तो प्रत्येक शब्द को दो बार बोलता था । दुसरे बच्चे उसका मजाक उड़ाते थे । इसलिए वह अकेला ही खेलता रहता था । वह मैकेनिकल (यांत्रिक) खिलौनों के साथ खेलना पसंद करता था । जब वह मात्र 15 वर्ष का था तो उसने वायलिन बजाना सीख था ।

एल्बर्ट आइंस्टाइन को म्यूनिख में उच्च-विद्यालय में भेजा गया । वह एक अच्छा विद्यार्थी था । वह सभी विषयों में अच्छे अंक प्राप्त करता था । लेकिन उसे स्कूल का कठोर अनुशासन पसंद नहीं था । वह प्रायः अपने अध्यापकों के साथ झगड़ पड़ता था । इसलिए उसने हमेशा के लिए ही स्कूल को छोड़ दिया ।

लंबे वार्तालाप के पश्चात वह स्विट्जरलैंड में अपनी पढाई को जारी रखने के लिए सहमत हो गया । गणित में तो वह बहुत विशिष्टता प्राप्त था तथा भौतिकी में भी उसकी बहुत रुचि थी । हाई स्कूल की परीक्षा पास करने के पश्चात उसने ज्यूरिक विश्वविद्यालय में प्रवेश ले लिया । यहाँ उसकी अपनी एक सहपाठी मिलेवा मैरिक से लगाव हो गया । उसने उसमें एक साथी ढूंढ लिया । वह एक युवा सर्वियाई युवती थी । वह बहुत ही बुद्धिमान थी । उन दोनों में प्यार हो गया और बाद में दोनों ने 1903 में शादी कर ली ।

एल्बर्ट ने सन 1900 में 21 वर्ष की आयु में स्नातक की उपाधि प्राप्त की। वह बेरोजगार था। उसने एक सहायक शिक्षक की नौकरी कर ली। 1902 में, उसे बर्न में एक पेटेंट कार्यालय में नौकरी मिल गई। उसका कार्य दूसरे लोगों के अविष्कारों का मूल्यांकन करने का था। वह गुप्त रूप से अपने सिद्धांतों को भी विकसित कर रहा था। उसने 'सापेक्षता के विशेष सिद्धांत' पर 1905 में अपना विख्यात पत्र प्रकाशित किया, जिसके अनुसार समय और दूरी अपने आप में स्वतंत्र नहीं हैं।

आइंसटाइन के जीवन का नया अध्याय विश्व में उसके उदय से प्राप्त प्रसिद्धि से मेल खाता है। 1915 में उसने 'सापेक्षता के सामान्य सिद्धांत' का प्रकाशन किया, जिसने गुरुत्व-बल की एक नई व्याख्या की। आइंसटाइन ने सही-सही गणना कर ली थी कि स्थिर सितारों से कितने समय में सूर्य गुरुत्व-बल के कारण प्रकाश का अपवर्तन हो जाता है। 1921 में आइंसटाइन को

भौतिकी के क्षेत्र में नोबल पुरस्कार प्राप्त हुआ। उसे सारे विश्व में सम्मान और निमंत्रण – पत्र प्राप्त हुए और मीडिया के माध्यम से प्रसिद्ध हुआ।

जब 1933 ई. में जर्मनी में नाजीवादी पार्टी सत्ता में आई तो आइंसटाइन जर्मनी छोड़कर अमेरिका चला गया। पांच वर्ष बाद जब जर्मनी ने नाभिकीय विखंडन किया तो अमेरिका के भौतिकीशास्त्री परेशानी में आ गए। अपने एक सहकर्मी की सलाह पर आइंसटाइन ने अमेरिका के राष्ट्रपति फ्रिंकलिन डी. रूजवेल्ट को परमाणु बम के भारी खतरे के बारे में चेतावनी दे डाली। उसके शब्दों ने रूजवेल्ट को प्रभावित किया। अमेरिका वालों ने एक गुप्त योजना के अंतर्गत परमाणु बमों का विकास किया और अगस्त, 1945 में उन्हें जापान के हिरोशिमा और नागासाकी शहरों के ऊपर गिराया।

आइंसटाईन युद्ध को तबाही से बहुत अधिक विचलित हो उठा। इस बार उसने संयुक्त राष्ट्र के नाम एक लम्बा पत्र लिखा जिसमें उसने विश्व सरकार बनाने का प्रस्ताव रखा। आइंसटाईन राजनीति में और अधिक लेने लग गया और उसने ख्याति को शांति और लोकतंत्र की स्थापना में प्रयोग किया। जब 1955 में 76 वर्ष की आयु में आइंसटाईन की मृत्यु हुई तो लोगों ने उसे एक महान वैज्ञानिक के साथ-साथ एक भविष्य-द्रष्टा तथा विश्व नागरिक के रूप में भी याद किया।

MULTIPLE CHOICE QUESTIONS

Choose the correct answer :

1.What did the other children say about Einstein ?

(A) That he was ugly.

(B) That he was boring.

(C) That he was quarrelsome.

(D) That he was stupid.

2. What did Einstein's headmaster feel about him?

(A) That he was boring.

(B) That he was quarrelsome.

(C) That he was lazy.

(D) That he was stupid and would never succeed in his life.

3. What did Einstein's mother think about him?

(A) That he was very lovely.

(B) That he was boring.

(C) That he was stupid.

(D) That he was a freak.

4. Why did Einstein leave the Munich school for good?

(A) He disliked the building of that school.

(B) He disliked the regimentation of that school.

(C) He disliked the head teacher of that school.

(D) He disliked the teachers of that school.

5. Where did Einstein want to go to study after leaving the Munich school?

(A) To England.

(B) To America.

(C) To Frankfurt,

(D) To Switzerland.

6. Why did Einstein want to study in Switzerland rather than Munich?

(A) Because he disliked the regimentation in the Munich school.

(B) Because he liked the liberal atmosphere in Switzerland.

(C) Both A and B above.

(D) Neither A nor B above.

7. Why did Einstein see an ally in Mileva?

(A) Both of them were of the same age.

(B) Both of them were classmates.

(C) Both of them were intelligent and opposed to philistines.

(D) Both of them were opposed to the idea of making atomic

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

(A) The Bureau of freedom.

(B) The Bureau of patented inventions.

(C) The Bureau of theoretical physics.

(D) The Bureau of nuclear fission.

9. What discovery had the Nazis in Germany made?

(A) The discovery of atom.

(B) The discovery of physics.

(C) The discovery of bombs.

(D) The discovery of nuclear fission.

10. Who was Franklin Roosevelt?

(A) The President of America.

(B) The Prime Minister of America.

(C) The Chief Scientist of America.

(D) The Chief Commander of the American Air Force.

11. Why did Einstein write a letter to Roosevelt?

(A) To warn him how powerful the Nazis had become in Germany.

(B) To warn how destructive the atomic bomb could be.

(C) To tell him how the atomic bomb could be made.

(D) To tell him to throw the atomic bomb on Hiroshima and Nagasaki.

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

(A) He was shocked.

(B) He wrote a letter to the United Nations suggesting a world government.

(C) He started campaigning for peace and democracy.

(D) All the above.

13. Why does the world remember Einstein as a 'world citizen'?

(A) He supported peace and democracy.

(B) He was in favour of a world government.

(C) He wanted the world to function as one unit.

(D) All the above.

14. What type of toys did Einstein love to play with as a boy?

(A) Clay toys.

(B) Plastic toys.

(C) Mechanical toys.

(D) Electrical toys.

15. What did Einstein say when he looked at his newborn sister?

(A) That she had no eyes.

(B) That she had no legs.

(C) That she had no toys.

(D) That she had no wheels.

16. Who did Albert often clash with during his school days in Munich?

(A) With his classmates.

(B) With his teachers.

(C) With his head teacher.

(D) With his playmates.

17. How old was Einstein when he did his graduation?

(A) Twenty-one.

(B) Nineteen.

(C) Seventeen.

(D) Fifteen.

18. Who was Albert's first wife?

(A) Elsa.

(B) Mileva.

(C) Maria.

(D) Emily.

19. When was the atomic bomb dropped on Hiroshima and Nagasaki?

(A) In August 1940.

(B) In August 1945.

(C) In August 1947.

(D) In August 1950.

20. What was it that put the American physicists in an uproar?

(A) The discovery of the atomic bomb in Japan.

(B) The discovery of the atomic power in America.

(C) The discovery of nuclear fission in Berlin.

(D) The discovery of nuclear fission by Einstein.

Hints : 1.B 2.D 3.D 4.B 5.D 6.C 7.C 8.C 9.B 10.A 11.B
12.D 13.D 14.C 15.D 16.B 17.A 18.B 19.B 20. C.

EXTRACTS

At the age of two-and-a-half, Einstein still wasn't talking. When he finally did learn to speak, he uttered everything twice. Einstein did not know what to do with other children, and his playmates called him "Brother Boring".

(a) Why does the writer point out that Einstein wasn't talking till the age of two-and-a-half?

The writer points out that Einstein wasn't talking till the age of two-and-a-half to clarify that outwardly his growth parameters were slower as compared to other children of his age.

(b) How did Einstein speak when he finally started talking?

When Einstein finally started talking, he used to utter everything twice. This indicated that his speech pattern was unlike what is usually found in young children.

(c) Why was Einstein called "Brother Boring" by his playmates?

Einstein's playmates called him "Brother Boring" because he was shy, slow, introvert and did not know the art of interacting with others.

(d) Which other word has been used for 'speak' in this extract?

The other word used for 'speak' is 'utter'. Einstein hated the school's regimentation and often clashed with his teachers. At the age of 15, Einstein felt so stifled there that he left the school for good.

(a) What did Einstein hate about his school in Munich?

Einstein hated the strict military-like regimentation in his school in Munich. It suppressed his, inquisitive mind.

(b) Why did Einstein clash with his teachers?

The strict regimentation in the school demanded complete surrender before the teachers. But Einstein had a curious mind and he would not accept things unquestioningly. Hence he often clashed with his teachers.

(c) When did Einstein leave his school in Munich and why?

Einstein left his school in Munich when he was fifteen years of age. He left because he felt completely suffocated by the rigid atmosphere there.

(d) Where did Einstein go after leaving his school in Munich?

Einstein went to the German-speaking part of Switzerland, in a more liberal city than Munich. He worked as a teaching assistant, gave private lessons and finally secured a job in 1902 as a technical expert in the patent office in Bern. While he

was supposed to be assessing other people's inventions, Einstein was actually developing his own ideas in secret.

(a) What did Einstein do before securing a job?

Before securing a job, Einstein gave private lessons and worked as a teaching assistant.

(b) When did Einstein secure a job? What was the nature of this job?

Einstein secured a job in 1902. This job was in a patent office and Einstein worked here as a technical assistant. In this job, he was supposed to give appraisal and assessment of the inventions of other people.

(c) Why did Einstein develop his ideas in secret?

Einstein had secured a job for monetary stability. Actually, his sole passion was science. So he developed his ideas in secret while his job required him to assess the inventions of other people.

(d) Which word in the passage means the same as 'evaluating'?

In the passage the word 'assessing' means the same as 'evaluating'. From this followed the world's most famous formula which describes the relationship between mass and energy.

(a) What does 'this' refer to?

This refers to Einstein's Specific Theory of Relativity, according to which time and distance are not absolute.

(b) Which formula was framed from Einstein's theory of relativity?

The formula that was framed from Einstein's theory of relativity is $E=mc^2$,

(c) What is described by this formula?

The relationship between mass and energy is described by this formula. In this formula, 'E' stands for energy, 'm' for mass and 'c' for the speed of light in a vacuum.

(d) How did this formula establish Einstein as a scientific genius?

This formula, having been proved to be accurate, had become the most famous formula of the world and therefore, Einstein's reputation as a scientific genius was established. Many of them had fled from Fascism, just as Einstein had, and now they were afraid the Nazis could build and use an atomic bomb.

(a) Who does 'they' refer to in the above lines?

In the above lines 'they' refers to the American Physicists who had escaped from dictatorship in their parent countries.

(b) When and where had they all fled to?

They all had fled to America when the Nazis came to power in Germany.

(c) Why did they have to flee their country?

They had to flee their country because they feared suppression of their liberal ideas by the dictatorial Nazis.

(d) What were they afraid of and why?

They were afraid that the discovery of nuclear fission could be developed by Germany to build and use an atomic bomb. If it happened, the Nazis would misuse it to cause massive destruction and gain supremacy over the entire world. Einstein was deeply shaken by the extent of the destruction. This time he wrote a public missive to the United Nations.

(a) Which destruction is referred to here?

The destruction referred to here is the massive damage caused by the atom bombs dropped in the Japanese cities of Hiroshima and Nagasaki in 1945 by America.

(b) What was the impact of this destruction on Einstein?

The large-scale devastation caused by the dropping of atom bombs in Japan by America shook deeply the peace-loving Einstein.

(c) What is a 'missive'?

A missive is a long, official, public letter, like the one written by Einstein to the United Nations.

(d) What did Einstein write in the missive to the United Nations?

Einstein proposed the formation of a world government, to counter the destruction of acts like the use of atom bombs, in the missive that he wrote to the United Nations. Unlike the letter to Roosevelt, this one made no impact. But over the next decade, Einstein got ever more involved in politics – agitating for an end to the arms buildup and using his popularity to campaign for peace and democracy.

(a) Who was Roosevelt?

Roosevelt was the president of America during the Second World War.

(b) Who had written a letter to Roosevelt and why?

Einstein had written a letter to President Roosevelt to warn him against the atom bomb that Germany could make on the principle of nuclear fission.

(c) Which letter did not make any impact?

The letter written by Einstein to the United Nations after the atomic attack on Hiroshima and Nagasaki did not make any impact. In this letter, Einstein had proposed the formation of a world government to counter destructive acts like the use of atom bombs.

(d) Why did Einstein get more involved in politics?

Einstein got more involved in politics because he was a supporter of world peace and harmony. Through politics, he launched an agitation to end arms buildup and campaigned for peace and democracy.

IMPORTANT

PASSAGE

Albert Einstein was born on March 14, 1879) in the German city of Ulm, without any indication that he was destined for greatness. On the contrary, his mother thought Albert was a freak. To her, his head seemed much too large.

At the age of two-and-a-half, Einstein still wasn't talking. When he finally did learn to speak, he uttered everything twice. Einstein did not know what to do with other children, and his playmates called him "Brother Boring." So the youngster played by himself much of the time. He especially loved mechanical toys. Looking at his newborn sister, Maja, he is said to have said: "Fine, but where are her wheels?"

Questions :

(i) When was Albert Einstein born?

(ii) Where was Albert Einstein born?

(iii) What problem did arise in Einstein in his childhood?

(iv) What did Einstein love in his childhood?

(v) Who was Maja?

Answers :

(i) Einstein was born on March 14, 1879.

(ii) Einstein was born in the German city of Ulm.

(iii) He uttered every word twice.

(iv) In his childhood, he loved Mechanical toys.

(v) Maja was Einstein's younger sister.

PASSAGE

The previous year, Albert's parents had moved to Milan, and left their son with relatives. After prolonged discussion, Einstein got his wish to continue his education in German-speaking Switzerland, in a city which was more liberal than Munich.

Einstein was highly gifted in mathematics and interested in physics, and after finishing school, he decided to study at a university in Zurich. But science wasn't the only thing that appealed to the dashing young man with the walrus moustache.

Questions :

(i) From which place they had moved to Milan?

(ii) About what thing did prolonged discussion take place?

(iii) Where did Einstein want to study?

(iv) Why did he not want to study in Munich?

(v) Which two subjects were Einstein's favourite?

Answers :

(i) They had moved to Milan from Munich.

(ii) The prolonged discussion took place about where Einstein should study

(iii) He wanted to study in Switzerland.

(iv) He did not want to study in Munich because the atmosphere in Munich was very much stifled. (v) His two favourite subjects were mathematics and physics.

PASSAGE

Einstein's new personal chapter coincided with his rise to world fame. In 1915, he had published his General Theory of Relativity, which provided a new interpretation of gravity. An eclipse of the sun in 1919 brought proof that it was accurate. Einstein had correctly calculated in advance the extent to which the light from fixed stars would be deflected through the sun's gravitational field. The newspapers proclaimed his work as "a scientific revolution."

Einstein received the Nobel Prize for Physics in 1921. He was showered with honours and invitations from all over the world and lauded by the press.

Questions :

- (i) What did he publish in 1915?
- (ii) What did the theory published in 1915 interpret?
- (iii) When was Einstein given Nobel Prize and in what field?
- (iv) Why was he showered with honours and invitations all over the world?
- (v) Find a word from the passage which means 'declared'.

Answers :

(i) In 1915, he published his General Theory of Relativity.

(ii) This theory gave a new interpretation of gravity.

(iii) He was given the Nobel Prize in 1921 for working in the field of Physics.

(iv) For winning Nobel Prize.

(v) 'Proclaimed'.

PASSAGE

At the urging of a colleague, Einstein wrote a letter to the American president, Franklin D. Roosevelt, on August 2, 1939, in which he warned: "A single bomb of this type..... exploded in destroy the whole port together with some of the surrounding territory " His words did not fail to have an effect. The Americans developed the atomic bomb in a secret project of their own, Japanese cities of Hiroshima and Nagasaki in August 1945.

Questions :

(i) Name the lesson from which this passage has been taken.

(ii) What was Franklin D. Roosevelt?

(iii) About what did he write a letter to Franklin D. Roosevelt?

(iv) What did America develop?

(v) When did America drop atom bombs over Hiroshima and Nagasaki?

Answers :

(i) 'A Truly Beautiful Mind',

(ii) The President of the United State at the time of the Second World War in 1939.

iii) About the dangers of the atom bomb.

(iv) They' developed atom bombs.

(v) In August 1945.

PASSAGE

Einstein was deeply shaken by the extent of the destruction. This time he wrote a public missive to the inked Nations. In it he proposed the formation of a world government. Unlike the letter to Roosevelt. this me made no impact. But over the next decade, Einstein got ever more involved in politics-agitating toran and to the arms buildup and using his popularity to campaign for peace and democracy.

When Einstein died in 1955 at the age 76, he was celebrated as visionary and world citizen as much as scientific genius.

Questions :

(i)What was Einstein deeply shaken by?

(ii) What did he propose in his letter to the United Nations?

(iii) For what purpose did he get more involved in politics?

(iv) When did Albert Einstein die?

(v) how was Albert Einstein celebrated after his death?

Answers :

(i) Einstein was deeply shaken by the great destruction caused by atom bombs in Hiroshima and Nagasaki.

(ii) The formation of a world government.

(iii) He got more involved in the politics for the end of arms and the development of peace and democracy.

(iv) He died in 1955 at the age of 76 years.

(v) He was celebrated as a visionary and a world citizen.

PASSAGE

In 1900, at the age of 21, Albert Einstein was a university graduate and unemployed. He worked as a teaching assistant, gave private lessons and finally secured a job in 1902 as a technical expert in the patent office in Bern. While he was supposed to be assessing other people's inventions, Einstein was actually developing his own ideas in secret. He is said to have jokingly called his desk drawer at work the "Bureau of theoretical physics."

Questions :

When did Einstein pass his graduation?

2. What job did he get in 1902?

3. What was supposed to be his duty?

4. What did he call his desk-drawer?

5. Name the chapter from which this passage has been taken.

PASSAGE

One of the famous papers of 1905 was Einstein's Special Theory of Relativity, according to which time and distance are not absolute. Indeed, two perfectly accurate clocks will not continue to show the same time if they come together again after a journey if one of them has been moving very fast relative to the other. From this followed the world's most famous formula which describes the relationship between mass and energy.

Questions :

1. What paper did he publish in 1905?

2. What did this theory reveal?
3. What formula follow this theory?
4. Find a word from the passage which means 'correct'.
5. Name the chapter.

PASSAGE

But Albert Einstein was not a bad pupil. He went to a high school in Munich, where Einstein's family had moved when he was 15 months old, and scored good marks in almost every subject. Einstein hated the school's regimentation and often clashed with his teachers. At the age of 15, Einstein felt so stifled there that he left the school for good.

Questions

1. How can you say that Albert was not a bad pupil?
2. Which school did he go to?

3. Since when had his family been living in Munich ‘?
4. What did Albert hate about his school?
5. Who did he often clash with ‘?
6. What did he do when he was fifteen?
7. Why did he leave the school that was in Munich?
8. Which word in the passage means ‘extremely strict discipline’?

Answers

1. He was not a bad pupil because he scored good marks in almost every subject.
2. He went to a high school in Munich.
3. They had been there since Albert was 15 months old.
4. He hated the school’s regimentation.
5. He often clashed with his teachers.
6. He left his school in Munich for good.
7. He did not like the school’s regimentation.

8. regimentation = extremely strict discipline.

PASSAGE-

While Einstein was solving the most difficult problems in physics, his private life was unravelling. Albert had wanted to marry Mileva right after finishing his studies, but his mother was against it. She thought Mileva, who was three years older than her son, was too old for him. She was also bothered by Mileva's intelligence. "She is a book like you," his mother said. Einstein put the wedding off.

Questions

1. What problems was Einstein solving?
2. Who did he want to marry?
3. What plan did he have of his marriage?
4. Who opposed Einstein's marrying Mileva? Why?
5. What did Einstein's mother think about Mileva?
6. What did Einstein's mother think about Mileva's intelligence?
7. What did Einstein's mother compare Mileva with?
8. Why did Einstein have to put off his wedding?

PASSAGE 10

(Page 49) The pair finally married in January 1903 and had two sons. But a few years later, the marriage faltered. Mileva, meanwhile, was losing her intellectual

ambition and becoming an unhappy housewife. After years of constant fighting, the couple finally divorced in 1919. Einstein married his cousin Elsa the same year.

Questions

1. What pair has been referred to in these lines?
2. When did they marry?
3. Did they have any children?
4. Who was Mileva? What was she losing?
5. When did the couple divorce and why?
6. Who was Elsa?
7. When did she marry Einstein?
8. Find in the passage a word that means 'lost strength or became unsteady'?

PASSAGE 10

(Page 49) When the Nazis came to power in Germany in 1933, Einstein emigrated to the United States. Five years later, the discovery of nuclear fission in Berlin had American physicists in an uproar. Many of them had fled from Fascism, just as Einstein had, and now they were afraid the Nazis could build and use an atomic bomb.

Questions

1. When did the Nazis come in power in Germany?
2. What did Einstein do when the Nazis came in power?

3. What disturbing thing had happened in Berlin?
4. How did the American physicists feel about it?
5. Where had many of the American physicists come from and why?
6. What did they fear the Nazis could do?
7. Find in the passage words that mean—
 - (a) left his country to live in another country.
 - (b) The splitting of an atom, resulting in the release of tremendous energy.

Answers

1. They came in power in 1933.
2. He emigrated to the United States.
3. The Nazis had discovered nuclear fission.
4. They were terribly upset.
5. They had fled from Germany because they were afraid of the Nazis.
6. They feared the Nazis could make an atom bomb and use it.

7. (a) emigrated = left his country to live in another country. (b) fission = the splitting of an atom. resulting in the release of tremendous energy.

Additional Very Short Answer Type Questions

1. When was Albert Einstein born?

Ans. Albert Einstein was born on 14 March, 1879.

2. Where was Albert Einstein born ?

Ans. Albert Einstein was born in the German city of Ulm.

3. What problem did develop in Albert when he learnt to speak?

Ans. He uttered everything twice.

4. What did the playmates call Einstein?

Ans. They called him "Brother Boring".

5. What type of toys did Einstein love especially?

Ans. He especially loved mechanical toys.

6. At what age did Einstein learn to play the violin?

Ans. He learnt to play the violin at the age of six.

7. At what age did Albert leave the school?

Ans. He left the school at the age of 15.

8. In what subject was Einstein highly gifted?

Ans. He was highly gifted in mathematics.

9. In what subject was Einstein much interested?

Ans. He was much interested in physics.

10. Who did Einstein marry with?

Ans. He married with Mileva Maric.

11. Which country did Mileva Marie belong?

Ans. She belonged to Serbia.

12. In which year did Einstein pass his graduation?

Ans. He passed his graduation in 1900 at the age of 21.

13. What was Einstein's first job that he got in 1902?

Ans. He got the job of a technical expert in the patent office in Bern.

14. When did Einstein present his famous papers on special Theory of Relativity?

Ans. He presented his famous papers on special Theory of Relativity in 1905.

15. Why was Albert's mother against his marriage with Mileva?

Ans. She was against this marriage because Mileva was three years older than her son.

16. In which year Albert was married to Mileva?

Ans. Albert was married to Mileva in 1903.

17. When did Einstein divorce Mileva?

Ans. He divorced Mileva in 1919.

18. With whom did Einstein marry the second time?

Ans. The second time he married his cousin Elsa.

19. When did Einstein get a noble prize?

Ans. He got the noble prize for Physics in 1921.

20. When did Einstein die?

Ans. He died in 1955 at the age of 76.

SHORT ANSWER QUESTIONS

Q1. Who is a 'freak'? Why did Einstein's mother think him to be a 'freak'?

Ans: A 'freak' is a word used disapprovingly for a person who is unusual in looks and behaviour. Einstein's mother thought him to be a 'freak' because his head seemed too large to her. This made him look different from the other children of his age.

Q2. During his childhood, Einstein did not show any traces of becoming a genius one day. How?

Ans: As a child, Einstein had a large head and did not start to speak till he was two-and-a-half years old. Finally, when he did speak, he used to utter everything twice. He could not interact freely with his playmates either. All this showed the absence of any traces in him of becoming a genius one day.

Q3. Why did Einstein's playmates call him "Brother Boring"?

Or

Why did Einstein play all alone when he was a child?

Ans: Einstein did not know what to do with other children. His shy and introvert nature made his company boring to his playmates. So, they teased him as "Brother Boring" and did not include him in their games. Therefore, he played all alone when he was a child.

Q4. What kind of toys attracted the attention of Einstein when he was a child?
Why?

Ans: Einstein could not enjoy the company of playmates because of his introvert nature. Instead as a child, he was attracted only by mechanical toys. It showed his scientific temperament since mechanical toys work on some kind of scientific principles.

Q5. Why did Einstein try to look for wheels on the body of his newly born sister?

Ans: Einstein was much too interested in mechanical toys and had scientific inclinations. When his sister was born, he thought her to be a new toy; that is why he tried to search for wheels on her body.

Q6. What was the opinion of the school headmaster about Einstein?

Ans: The school headmaster considered Einstein to be a good-for-nothing boy. He was of the opinion that Einstein would never succeed in any profession. Therefore, choice of profession would not make any difference in the results of his efforts.

Q7. Which musical instrument did Einstein begin to learn? Why?

Ans: Einstein began to learn to play upon the violin at the young age of six. He kept this interest alive throughout his life and became a gifted amateur violinist. He began learning the violin because his mother wanted him to.

Q8. How did Einstein perform in various subjects while studying in Munich?

Ans: Although as a young child Einstein was very slow, still while studying in Munich, he showed great progress in almost all the subjects and scored very good marks. He showed a special interest in Physics and Mathematics.

Q9. Why did Einstein leave the school in Munich?

(Textual)

Ans: Einstein left the school in Munich because of the stifling environment that suppressed his scientifically curious mind. The excessively stern discipline and rigid rules in that school led to frequent clashes with his teachers. He thus began to feel that such a place was inappropriate for a liberal person like him.

Q 10. Why did Einstein shift to Switzerland to continue his education?

(Textual)

Ans: Einstein shifted to the German-speaking part of Switzerland to continue his education because he had left his school in Munich midway. This new place was more liberal than Munich and Einstein's curious and free temperament got a favourable environment over here.

Q11. Why did Einstein see an ally in Mileva Maric?
(Textual)

Ans: Einstein saw an ally in his Serbian fellow student Mileva Maric because, like him, she too was against philistines – the people who have disregard for art and culture. As both shared similar tastes, Einstein developed a liking for her and they both fell in love.

Q12. What did Einstein call his desk drawer at the patent office? Why?
(Textual)

Ans: Einstein jokingly called his desk drawer at the patent office as “Bureau of theoretical physics”. He did so because his office job required him to assess the inventions of other people while he secretly developed his own ideas regarding his keen interest in Physics.

Q13. Why did Einstein's mother not want him to marry Mileva?

Ans: There were two reasons for Einstein's mother not wanting him to marry Mileva. Firstly, the girl was three years older than Einstein and secondly, she was much too intelligent – 'a book' just like him, in his mother's opinion.

Q14. Why did Einstein's marriage with Mileva not survive long?

Ans: Although Einstein and Mileva had been in love, still their marriage did not survive long because Mileva gradually lost her intellectual vigour and aspirations. She became a frustrated housewife. There were frequent scuffles between the couple which resulted in their ultimate divorce in 1919.

Q15. What was the new personal chapter in Einstein's life? How did it coincide with his fame?

Or

"Einstein's new personal chapter coincided with his rise to world fame". What new personal chapter in Einstein's life is the author talking about here?

Ans: The new personal chapter in Einstein's life was his marriage to his cousin Elsa in the year 1919 immediately after his divorce from Mileva. This chapter coincided with his rise to world fame when his paper on General Theory of Relativity, published in 1915, was found to be accurate due to the proof that came through the eclipse of the sun in 1919.

Q16. When and for what did Einstein gain international fame?

Ans: Einstein gained international fame when his paper on General Theory of Relativity was found to be accurate in 1919. As per this theory, the calculations made by Einstein in advance about the deflection of light in the solar gravitational field during the eclipse were proven true. This theory was treated as "a scientific revolution."

Q17. How was Einstein honoured for his achievements?

Ans: Honours came pouring in for Einstein after his theories proved him to be a scientist with exceptional abilities. He was awarded the prestigious Nobel Prize for Physics in 1921. Honours and invitations were conferred on him from all over the world. The newspapers too applauded his genius.

Q18. Why did Einstein leave Germany and emigrate to America?

Ans: Einstein had always been a lover of freedom and liberal ideas. The Nazi government, which came to power in 1933, was very suppressive and autocratic. Therefore, Einstein left Germany and emigrated to America.

Q19. Why did the discovery of nuclear fission in Berlin disturb the American physicists?

Or

‘The discovery of nuclear fission in Berlin had American physicists in an uproar’.
Why?

Ans: The American physicists were disturbed by the discovery of nuclear fission in Berlin because they were afraid that Germany would make an atom bomb and use it for destructive purposes.

Q20. Why did Einstein write a letter to Franklin Roosevelt?
(Textual)

Ans: Einstein wrote to the American president, Roosevelt, because he wanted to forewarn him regarding the massive destructive power of the atom bomb which the Germans were expected to build after the discovery of nuclear fission. If

dropped on a port, the bomb could destroy the whole port as well as the area around it.

Q21. What was the effect of Einstein's letter on Roosevelt?

Ans: The warning sounded by Einstein in his letter to Franklin D. Roosevelt about how dangerous an atom bomb made by German)' could be, had a lightening effect on the Americans. They at once rose to action and secretly developed an atom bomb of their own.

Q22. How did Einstein react to the bombing of the Japanese cities Hiroshima and Nagasaki by America?

(Textual)

Ans: Einstein was completely shaken by the immense destruction caused due to the bombing of the Japanese cities Hiroshima and Nagasaki by America. As a reaction to this tragic event, he wrote a letter to the United Nations proposing the establishment of a world government that could counter such fierce enmity among nations.

Q23. What did Einstein campaign for after he got involved in politics?

Ans: After getting involved in politics, Einstein made earnest efforts for world peace and harmony. He campaigned against the race for armaments and supported the cause of peace and democracy.

Q24. Why does the world remember Einstein as a “world citizen”?

Ans: The world remembers Einstein as a world citizen because, towards the later part of his life, he strived for the peace and well-being of the entire world and not just his own country. He -was no longer solely a scientific genius but a visionary as well, who felt that the solution to enmity between countries was a world government.