

CBSE test Paper 02
Chapter 1 Physical World

1. Hypothesis
 - a. assumptions that cannot be tested
 - b. assumptions made to explain a phenomenon and can be tested
 - c. assumptions that cannot be verified
 - d. assumptions that are self evident

2. What is the correct sequence of events technology gives rise to new science or new science gives rise to technology?
 - a. technology and science are independent
 - b. Both can happen. Science can give rise to technology and technology can give rise to new science
 - c. Science can give rise to technology only
 - d. technology can give rise to new science only

3. Technology started with
 - a. invention of power loom
 - b. invention of printing press
 - c. The conversion of natural resources into simple tools
 - d. invention of steam engine

4. Albert Einstein was awarded the Nobel Prize for his work on
 - a. Explanation of photoelectric effect
 - b. Theory of relativity
 - c. scattering of light
 - d. $E = mc^2$

5. Scientists strategy in general is to
 - a. Focus first on the essential features of a phenomenon and remove its less

significant aspects.

- b. Focus first on the complex features of a phenomenon and remove its less significant aspects
- c. Focus first on the complex features of a phenomenon and add its less significant aspects from the start
- d. keep building complicated theories

6. Name that branch of science which deals with the study of earth.

7. Name that branch of science which deals with the study of stars.

8. Name the forces found between two protons inside the nucleus of an atom.

9. How is the temperature of a gas which is its macroscopic property is related with a microscopic property of its molecules?

10. Name three conservation laws from nature.

11. Name four fundamental forces in nature.

12. Name the contribution made by the following physicists:

- (a) S. N. Bose
- (b) J.C. Maxwell
- (c) Paul Dirac
- (d) Max Planck

13. No physicist has ever "seen" an electron. Yet, all physicists believe in the existence of electrons.

An intelligent but superstitious man advances this analogy to argue that 'ghosts' exist even though no one has 'seen' one. How will you refute his argument?

14. The industrial revolution in England and Western Europe more than two centuries ago was triggered by some key scientific and technological advances. What were these advances?

15. Name four important conservation laws which are always valid.

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Answer

1. b. assumptions made to explain a phenomenon and can be tested

Explanation: In science, a hypothesis is an idea or explanation that you then test through study and experimentation.

2. b. Both can happen. Science can give rise to technology and technology can give rise to new science

Explanation: Technology is often a consequence of science and engineering, although technology as a human activity precedes the two fields. For example, science might study the flow of electrons in electrical conductors by using already-existing tools and knowledge. This new-found knowledge may then be used by engineers to create new tools and machines such as semiconductors, computers, and other forms of advanced technology.

3. c. The conversion of natural resources into simple tools

Explanation: The history of technology is the history of the invention of tools and techniques and is similar to other sides of the history of humanity. Technology can refer to methods ranging from as simple as language and stone tools to the complex genetic engineering and information technology that has emerged since the 1980s.

4. a. Explanation of photoelectric effect

Explanation: The Nobel Prize in Physics 1921 was awarded to Albert Einstein "for his services to Theoretical Physics, and especially for his discovery of the law of the photoelectric effect". Albert Einstein received his Nobel Prize one year later, in 1922.

5. a. Focus first on the essential features of a phenomenon and remove its less significant aspects.

Explanation: It is not practical to take into account all the complexities of a phenomenon in one go.

A good and scientific strategy is to focus first on the essential features, discover the basic principles and then introduce corrections to build a more refined theory of the phenomenon by removing its less significant aspects.

6. Geology.
7. Astronomy.
8. The forces found between two protons inside the nucleus of an atom are:
 - i. Nuclear Force or Strong Force
 - ii. Electrostatic Force
9. The temperature is the average kinetic energy of all molecules in the gas. In fact, $T \propto E$ where E is the average K.E. of all gas molecules at a temperature T .
10. Three important laws of conservation from nature are:
 - Law of conservation of energy.
 - Law of conservation of momentum.
 - Law of conservation of angular momentum.
11. Four fundamental forces present in nature are:
 - i. Gravitational force
 - ii. Electromagnetic force
 - iii. Weak nuclear force
 - iv. Strong nuclear force
12. (a) S.N. Bose - Quantum statistics
(b) J.C. Maxwell - Electromagnetic theory
(c) Paul Dirac - Relativistic theory of electron
(d) Max planck - Quantum theory
13. Many phenomena which depend upon the existence of electrons have been predicted and actually observed in everyday life. There is no phenomenon which can be explained on the basis that ghosts exist though they are not seen. So, obviously, the comparison between two situations does not make any sense.

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14. Some of the key advances during that period in science and technology include the application of heat and thermodynamics to form the steam engine. Discovery of electricity helped in designing dynamos and motors. Study of gravitation led to the study of motion and making guns and cannons. This gave power in the hands of western countries and they ruled over rest of the world. The discovery of explosives not only helped army but also mineral exploration. These are some examples of scientific and technological advances which helped England and Europe to have their prominent positions in the world. In fact, the progress in chemistry, physics and natural sciences brought the industrial revolution in England and Western Europe.
15. The four important conservation laws which are always valid are:
- i. The Conservation of law of energy.
 - ii. The Conservation of law of linear momentum.
 - iii. The Conservation law of angular momentum.
 - iv. The Conservation law of electric charge.

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