Al Amal Learning Center

Class 9 Chemistry Chapter 1 MCQ Quiz Online | Level 2

Class 9 Chemistry · Chapter 1: Nature of Science in Chemistry

Name: _____ Date: _____ Score: _____ / 30

---

1. A forensic team finds an unknown white powder at a crime scene and uses instruments to find out what it contains. Which branch of chemistry is mainly involved?

A) Geochemistry
B) Analytical chemistry
C) Polymer chemistry
D) Astrochemistry

2. Sodium carbonate contains carbon, yet it is studied in inorganic chemistry. Why?

A) Carbonates are excluded from organic chemistry
B) It does not contain any element
C) It is a living substance
D) It is a polymer

3. Scientists study how factory waste pollutes a river and harms the people living nearby. This work belongs to:

A) Industrial chemistry
B) Physical chemistry
C) Environmental chemistry
D) Nuclear chemistry

4. A researcher designs a new molecule that can bind to a specific enzyme in the body to treat a disease. This is an example of:

A) Geochemistry
B) Astrochemistry
C) Industrial chemistry
D) Medicinal chemistry

5. Which statement correctly differentiates biochemistry from organic chemistry?

A) Biochemistry studies changes in living organisms, while organic chemistry studies carbon-containing substances
B) Biochemistry studies rocks, while organic chemistry studies stars
C) Biochemistry studies atomic nuclei, while organic chemistry studies polymers only
D) Both study exactly the same thing

6. How does geochemistry differ from astrochemistry?

A) Geochemistry studies stars, while astrochemistry studies soil
B) Geochemistry studies the Earth's crust, rocks and water, while astrochemistry studies stars, planets and comets
C) Geochemistry studies drugs, while astrochemistry studies polymers
D) There is no difference between them

7. A plant produces fertilizer in tonnes every day. Which branch of chemistry is concerned with this kind of work?

A) Industrial chemistry
B) Analytical chemistry
C) Biochemistry
D) Nuclear chemistry

8. Which of the following is a question that physical chemistry would explore?

A) How are drugs designed for a therapeutic purpose?
B) How do different types of bonds (ionic, covalent, metallic) form and function?
C) How do human activities contribute to air pollution?
D) What types of reactions occur in comets?

9. Why is chemistry described as having many interdisciplinary areas?

A) Because it only studies one type of substance
B) Because it cannot be applied to other fields
C) Because it has no sub-fields
D) Because its sub-fields connect with areas such as biology, medicine, the environment and Earth science

10. A student says that studying rusting is part of science, not technology. Why is this correct?

A) Rusting is a machine
B) Science seeks to understand natural processes like the reaction of iron with water and oxygen
C) Science only builds tools
D) Rusting is a large-scale industrial process

11. In the solar energy example, which activity is best described as technology?

A) Studying how photovoltaic cells convert sunlight into electricity
B) Understanding the principles behind the conversion of light
C) Developing solar panels based on scientific principles
D) Asking why sunlight exists

12. Which activity is an example of engineering?

A) Discovering the chemical reactions that cause rust
B) Designing and implementing a large-scale renewable energy system
C) Recognizing the fundamental principles of nature
D) Naming a new chemical element

13. Which sequence best shows how science, technology and engineering work together?

A) Engineering builds first, then science explains
B) Technology is discovered before science and engineering
C) Science explains principles, technology applies them, and engineering builds large-scale systems
D) All three are the same thing

14. In a water filtration project, what is the role of chemical engineers?

A) Developing processes to remove contaminants from water
B) Only studying atoms
C) Producing drugs only
D) Replacing mechanical engineers

15. In the plastic bag example, who studies monomers and how they combine into polymers?

A) Engineers and technicians
B) Scientists
C) Shoppers
D) Mechanics

16. How has technology helped chemists in their work?

A) It has made research and analysis less efficient
B) It has removed the need for experiments
C) It has made research and applications more efficient, including analyzing and identifying substances
D) It has stopped the development of new materials

17. How does green chemistry help reduce pollution?

A) By using more hazardous substances
B) By designing products and processes that reduce the use of hazardous substances
C) By increasing industrial waste
D) By avoiding the study of pollution

18. Sedimentation, filtration and disinfection are used to protect water. Which branch of chemistry applies these methods?

A) Environmental chemistry
B) Astrochemistry
C) Nuclear chemistry
D) Polymer chemistry

19. Which of the following would still be studied under inorganic chemistry?

A) Carbon dioxide, an oxide of carbon
B) Proteins
C) Carbohydrates
D) Lipids

20. What does the overlap of science, technology and engineering in the Venn diagram show?

A) They are completely unrelated
B) Science is the same as engineering
C) Technology has no use for science
D) They are interconnected and depend on one another

21. Experiments are carried out to find which factors affect rusting so that rust can be prevented. Which part of the process is this?

A) Science, because it investigates and tests how a process works
B) Engineering, because it builds a large factory
C) Technology, because it sells products
D) None of these

22. Which statement about polymer chemistry is correct?

A) It studies only metals
B) It studies polymers, their types, properties, uses and types of polymerization
C) It studies only rocks
D) It studies only atomic nuclei

23. Forensic chemistry is an application of analytical chemistry because it:

A) Designs batteries
B) Studies stars
C) Examines physical traces such as body fluids, fibers and drugs to identify unknown compounds
D) Produces chemicals on a large scale

24. What mainly distinguishes nuclear chemistry from other branches of chemistry?

A) It studies changes that occur in atomic nuclei
B) It studies only living cells
C) It studies only compounds of carbon
D) It studies only the atmosphere

25. A student wants to learn what types of chemical reactions take place on comets. Which branch should the student study?

A) Biochemistry
B) Medicinal chemistry
C) Astrochemistry
D) Industrial chemistry

26. Why is understanding the fundamental concepts of chemistry important?

A) It helps explain natural phenomena and apply them to form new substances, drugs and technologies
B) It prevents the discovery of new materials
C) It only helps in memorizing names
D) It is useful only inside laboratories

27. Why are Li-ion batteries in phones and electric vehicles linked to inorganic chemistry?

A) They are made of living cells
B) They are made only of carbon compounds from plants
C) They are produced only by astrochemistry
D) They depend on elements and their compounds, which inorganic chemistry studies

28. Which pair of branch and topic is matched correctly?

A) Geochemistry – radioisotopes in medicine
B) Environmental chemistry – greenhouse gases and climate change
C) Analytical chemistry – design of new drugs
D) Biochemistry – chemistry of stars

29. A chemist wants to know why carbon can form the basis of so many different compounds. Which branch's essential question is this?

A) Inorganic chemistry
B) Astrochemistry
C) Organic chemistry
D) Nuclear chemistry

30. Which statement best explains why science and technology are not the same thing?

A) Science seeks to understand the natural world, while technology applies that knowledge to create tools and systems
B) Science builds machines, while technology studies nature
C) Both only study chemical reactions
D) Technology comes before science in every case

Answer key

1-B 2-A 3-C 4-D 5-A 6-B 7-A 8-B 9-D 10-B

11-C 12-B 13-C 14-A 15-B 16-C 17-B 18-A 19-A 20-D

21-A 22-B 23-C 24-A 25-C 26-A 27-D 28-B 29-C 30-A