

Markhor Junior Contest ®

Pioneer Level (Class VII & VIII) Science 2024

There are 25 questions, and each question carries two marks.

1. What is the term for the process by which genetic information is passed from an organism's DNA to the ribosomes, which then build proteins based on that information?
 - a) Transcription
 - b) Translation**
 - c) Mutation
 - d) Gene expression
2. Which process occurs when an organism's DNA is altered by environmental factors?
 - a) Mutation**
 - b) Genetic drift
 - c) Gene expression
 - d) Heredity
3. During sexual reproduction, what is the role of meiosis?
 - a) Creates an exact copy of the parent organism
 - b) Produces genetically diverse offspring**
 - c) Involves cell division only once
 - d) Creates body cells for growth and repair
4. The large intestine in the human digestive system is primarily responsible for:
 - a) Breaking down complex food molecules
 - b) Absorbing nutrients into the bloodstream
 - c) Storing and eliminating waste products**
 - d) Producing digestive enzymes
5. A sound wave with a high frequency will have a:
 - a) Low pitch and long wavelength
 - b) High pitch and short wavelength**
 - c) Low pitch and short wavelength
 - d) High pitch and long wavelength
6. Which of the following is NOT considered a chemical reaction?
 - a) Burning of wood
 - b) Digestion of food
 - c) Rusting of iron
 - d) Boiling water**

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7. Which of the following is a synthetic fiber, human-made rather than naturally occurring?
- a) Cotton
 - b) Wool
 - c) **Polyester**
 - d) Silk
8. Stars generate energy through a powerful process. What is this process called?
- a) Chemical reactions
 - b) **Nuclear fusion**
 - c) Photosynthesis
 - d) Burning of fossil fuels
9. Vaccinations work by exposing the body to a weakened or inactive form of a virus or bacteria. What is the purpose of this exposure?
- a) To directly kill the virus or bacteria
 - b) **To stimulate the immune system to develop antibodies**
 - c) To provide immediate protection against the disease
 - d) To eliminate all pathogens from the body
10. In the process of photosynthesis, what is the main source of energy for plants?
- a) Heat from the Sun
 - b) **Light energy from the Sun**
 - c) Chemical energy stored in soil
 - d) Electrical energy from the environment
11. Which of the following is NOT a type of electromagnetic wave?
- a) Radio waves
 - b) Microwaves
 - c) X-rays
 - d) **Sound waves**
12. What is the powerhouse of the cell?
- a) Nucleus
 - b) Ribosome
 - c) **Mitochondrion**
 - d) Chloroplast

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13. Which of the following best describes the function of chlorophyll in plants?

- a) Absorbs water
- b) Provides support
- c) Traps sunlight**
- d) Transports nutrients

14. Which of the following properties is most important for a material used in electrical wiring?

- a) High density
- b) High thermal conductivity
- c) High electrical conductivity**
- d) High melting point

15. What is the pH of a neutral solution at 25°C?

- a) 0
- b) 7**
- c) 14
- d) 1

16. Which part of the electromagnetic spectrum has the longest wavelength?

- a) Gamma rays
- b) X-rays
- c) Ultraviolet light
- d) Radio waves**

17. Which subatomic particle determines the identity of an element?

- a) Proton**
- b) Neutron
- c) Electron
- d) Photon

18. Which type of chemical bond involves the sharing of electron pairs between atoms?

- a) Ionic bond
- b) Covalent bond**
- c) Metallic bond
- d) Hydrogen bond

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19. Which of the following best describes an ecosystem?

- a) A group of the same species living in an area
- b) A community of organisms and their physical environment**
- c) The place where an organism lives
- d) The role an organism plays in its habitat

20. You've been accidentally mutated and crave pure energy. To survive, which part of the electromagnetic spectrum would you need to absorb most efficiently?

- a) Gamma rays**
- b) Visible light
- c) Microwaves
- d) Radio waves

21. A mysterious white powder is found at a crime scene. You perform a chemical test and observe a dramatic color change from red to blue. What is the MOST LIKELY property of the powder?

- a) Flammable
- b) Acidic
- c) Basic**
- d) Sweet-smelling

22. Legend says a spoon can bend in a strong magnetic field. But can it bend on its own?

- a) Yes, due to special spoon metal.
- b) Yes, by focusing mental energy.
- c) No, spoons are not magnetic.**
- d) No, but forks can!

23. You're trapped in a room with a laser security system. If you shine a red laser pointer at a blue filter, what color light will pass through?

- a) Red
- b) Blue
- c) Purple
- d) No light will pass.**

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24. You're on a mission to classify a strange creature discovered in a remote jungle. It has fur, sharp claws, and glides from tree to tree. But here's the twist: it also has a leathery membrane between its toes for swimming and a long, prehensile tail! Based on its characteristics, to which class would this creature MOST LIKELY belong?

- a) Mammal
- b) Reptile
- c) Bird
- d) Amphibian**

25. You're making popcorn and notice that the kernels explode when heated. But why?

- a) The popcorn kernels are filled with tiny aliens who get mad when hot.
- b) The popcorn kernels contain water that expands rapidly as it boils, creating pressure that bursts the kernel.
- c) The popcorn kernels are magical and transform when heated.
- d) The popcorn kernels are like miniature volcanoes that erupt with heat.**