

Markhor Junior Contest ®

Aspirant Level (Class IX & X, O/A Level's)

Science 2025

There are 25 questions, each carrying two marks.

1. **Which feature defines a strong, testable hypothesis?**
 - A. It is based on personal belief
 - B. It is vague and general
 - C. It predicts a measurable outcome**
 - D. It cannot be falsified
 - E. None of these
2. **Controlling multiple variables in an experiment ensures:**
 - A. Faster results
 - B. Reliability and validity of conclusions**
 - C. Higher statistical significance automatically
 - D. Larger sample size
 - E. None of these
3. **Which statistical method BEST represents variation in experimental data?**
 - A. Mean only
 - B. Median only
 - C. Standard deviation**
 - D. Mode only
 - E. None of these
4. **Which organelle is the site of oxidative phosphorylation?**
 - A. Nucleus
 - B. Mitochondria**
 - C. Ribosome

Markhor Junior Contest ®

- D. Chloroplast
- E. None of these
- 5. **During DNA replication, which enzyme synthesizes the new strand?**
 - A. DNA ligase
 - B. Helicase
 - C. DNA polymerase**
 - D. RNA polymerase
 - E. None of these
- 6. **In Punnett square analysis, a cross $AaBb \times AaBb$ produces offspring with which probability of being homozygous recessive for both traits?**
 - A. 1/16**
 - B. 1/4
 - C. 1/8
 - D. 1/2
 - E. None of these
- 7. **Adaptive immunity is primarily mediated by:**
 - A. Platelets
 - B. Red blood cells
 - C. Lymphocytes**
 - D. Neutrophils
 - E. None of these
- 8. **Which evolutionary mechanism increases allele frequency due to environmental advantage?**
 - A. Genetic drift
 - B. Natural selection**
 - C. Gene flow
 - D. Mutation only
 - E. None of these
- 9. **Which orbital shape corresponds to a p-orbital?**
 - A. Spherical

Markhor Junior Contest ®

- B. Dumbbell-shaped
 - C. Cloverleaf
 - D. Linear
 - E. None of these
10. In a reaction, if $\Delta H < 0$ and $\Delta S < 0$, spontaneity depends on:
- A. Temperature
 - B. Pressure
 - C. Catalyst
 - D. Concentration
 - E. None of these
11. A molecule with polar covalent bonds but symmetrical geometry is:
- A. Polar
 - B. Nonpolar
 - C. Ionic
 - D. Metallic
 - E. None of these
12. Le Chatelier's Principle predicts that increasing reactant concentration:
- A. Decreases product formation
 - B. Increases product formation
 - C. Stops reaction
 - D. Reverses reaction completely
 - E. None of these
13. Which is an example of an endothermic process?
- A. Combustion of gasoline
 - B. Respiration
 - C. Melting ice
 - D. Condensation
 - E. None of these

Markhor Junior Contest ®

14. Which quantity is conserved in a perfectly elastic collision?
- A. Kinetic energy and momentum**
 - B. Momentum only
 - C. Mass only
 - D. Velocity
 - E. None of these
15. Doppler effect is observed because:
- A. Wave amplitude changes
 - B. Wave speed changes
 - C. Relative motion between source and observer**
 - D. Wave frequency remains constant
 - E. None of these
16. In a series circuit, if one resistor fails, the current:
- A. Increases
 - B. Decreases
 - C. Stops**
 - D. Remains unchanged
 - E. None of these
17. An object in uniform circular motion experiences:
- A. Tangential acceleration
 - B. Centripetal acceleration**
 - C. No acceleration
 - D. Linear motion only
 - E. None of these
18. Photon energy is proportional to:
- A. Wavelength
 - B. Frequency**
 - C. Speed
 - D. Amplitude
 - E. None of these

Markhor Junior Contest ®

19. The uncertainty principle states that:
- A. Energy is conserved
 - B. Position and momentum cannot be measured simultaneously with arbitrary precision**
 - C. Velocity is constant
 - D. Mass varies with speed
 - E. None of these
20. The lithosphere floats on the:
- A. Outer core
 - B. Asthenosphere**
 - C. Mantle
 - D. Crust
 - E. None of these
21. A P-wave during an earthquake:
- A. Is a surface wave
 - B. Travels fastest through solids**
 - C. Cannot travel through the Earth
 - D. Causes most damage
 - E. None of these
22. Greenhouse gases trap:
- A. Shortwave radiation
 - B. Longwave infrared radiation**
 - C. UV light
 - D. Cosmic rays
 - E. None of these
23. The redshift of distant galaxies is evidence for:
- A. Static universe
 - B. Expanding universe**
 - C. Planetary motion
 - D. Black holes
 - E. None of these

Markhor Junior Contest ®

24. In stellar evolution, a star with mass > 8 solar masses ends as:
- A. White dwarf
 - B. Red giant
 - C. Neutron star or black hole**
 - D. Planet
 - E. None of these
25. Biomimicry in engineering is exemplified by:
- A. Solar panels
 - B. Velcro inspired by burrs**
 - C. Nuclear reactors
 - D. Smartphones
 - E. None of these