

Enhanced Science 7: Solutions, Cells, and Microscopy

Science · Practice Test · 26 Questions

1. Which of the following is a simple measure to express the concentration of solutions quantitatively?

- A) Percent by mass
- B) Boiling point
- C) Density
- D) Viscosity

2. How does temperature generally affect the solubility of a solute in a given solvent?

- A) It increases solubility
- B) It decreases solubility
- C) It has no effect on solubility
- D) It can either increase or decrease solubility depending on the solute

3. What indicator can be used to classify common household solutions as acidic, basic, or neutral?

- A) Litmus paper
- B) Thermometer
- C) Magnifying glass
- D) pH meter

4. Which part of a compound microscope is used to adjust the amount of light passing through the specimen?

- A) Diaphragm
- B) Eyepiece
- C) Objective lens
- D) Stage clip

5. When using a microscope, what is the formula to calculate the total magnification?

- A) Eyepiece magnification x Objective lens magnification
- B) Eyepiece magnification + Objective lens magnification
- C) Objective lens magnification / Eyepiece magnification
- D) Eyepiece magnification - Objective lens magnification

6. What part of the cell is often referred to as the control center and contains genetic material?

- A) Cytoplasm
- B) Nucleus
- C) Cell membrane
- D) Organelle

7. Which scientist is credited with observing cork cells and coining the term 'cell'?

- A) Matthias Schleiden
- B) Theodor Schwann
- C) Robert Hooke
- D) Rudolf Virchow

8. An organism made up of only one cell is classified as:

- A) Multicellular
- B) Unicellular
- C) Prokaryotic
- D) Eukaryotic

9. A key structural difference between plant and animal cells is the presence of a:

- A) Nucleus
- B) Cytoplasm
- C) Cell wall
- D) Cell membrane

10. The cell membrane's function is to act as a semipermeable barrier that regulates:

- A) Cell division
- B) Energy production
- C) Movement of materials
- D) Protein synthesis

11. Which of the following is a quantitative measure of concentration: grams per milliliter?

- A) True
- B) False
- C) Sometimes
- D) Depends on the solute

12. What is the primary function of the cytoplasm in a cell?

- A) To control cell activities
- B) To provide structural support
- C) To hold organelles and be the site of many metabolic reactions
- D) To protect the cell from damage

13. Which scientist proposed that all cells arise from pre-existing cells?

- A) Robert Hooke
- B) Matthias Schleiden
- C) Theodor Schwann
- D) Rudolf Virchow

14. What is the typical role of a 'salt containing' solution when tested with litmus paper?

- A) Turns litmus red
- B) Turns litmus blue
- C) Has no effect on litmus paper
- D) Reacts vigorously

15. Proper handling of a microscope includes:

- A) Carrying it by the eyepiece
- B) Storing it in a dusty area
- C) Using both hands, one on the arm and one on the base
- D) Placing heavy objects on it

16. Observing specimens safely and accurately under a microscope involves:

- A) Looking directly at the light source
- B) Using the coarse adjustment knob on high power
- C) Starting with the lowest power objective and moving up
- D) Touching the lenses with fingers

17. Which of the following is a characteristic of multicellular organisms?

- A) Lack of specialized cells
- B) Simple structural complexity
- C) Levels of biological organization
- D) Single cell performs all functions

18. The nucleus of a cell contains:

- A) Ribosomes
- B) Genetic material
- C) Chloroplasts
- D) Vacuoles

19. What is the primary role of the objective lenses on a compound microscope?

- A) To magnify the image
- B) To control the light
- C) To hold the specimen
- D) To adjust focus

20. Which scientist is known for stating that all plants are made of cells?

- A) Robert Hooke
- B) Matthias Schleiden
- C) Theodor Schwann
- D) Rudolf Virchow

21. Percent by mass is a way to express the concentration of a solution by comparing the mass of the solute to the:

- A) Mass of the solvent
- B) Volume of the solvent
- C) Total mass of the solution
- D) Total volume of the solution

22. When classifying solutions with litmus paper, a basic solution will typically turn litmus paper:

- A) Red
- B) Blue
- C) Purple
- D) Colorless

23. To observe specimens clearly, it is important to use the correct technique for focusing under:

- A) Low-power objectives only
- B) High-power objectives only
- C) Both low- and high-power objectives
- D) No objectives

24. The cell theory states that all living things are composed of:

- A) Atoms
- B) Molecules
- C) Cells
- D) Organelles

25. A plant cell typically has a large central vacuole, which is responsible for:

- A) Photosynthesis
- B) Storing water and maintaining turgor pressure
- C) Protein synthesis
- D) Waste removal

26. Microscopy involves the use of specialized instruments to observe objects that are:

- A) Very large
- B) Invisible to the naked eye
- C) Only found in space
- D) Extremely hot