

# Cell Specification vs. Determination in Cell Differentiation Test

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**Part I - Multiple Choice:** *Choose the best answer for each question.*

1. What is cell specification?
  - A. A cell permanently becomes one type of cell
  - B. A temporary stage where a cell may become specialized
  - C. The death of a cell
  - D. Cell division
2. What is cell determination?
  - A. A reversible stage of development
  - B. A process only found in plants
  - C. A stage where a cell is permanently committed to a function
  - D. The movement of cells
3. During specification, a cell:
  - A. Cannot change its fate
  - B. Is permanently specialized
  - C. Can still become another type of cell
  - D. Has no nucleus
4. Determined cells are best described as:
  - A. Unspecialized and flexible
  - B. Permanently committed to a cell type
  - C. Dead cells
  - D. Identical to stem cells
5. Which type of cell has the greatest ability to become different cell types?
  - A. Muscle cell
  - B. Nerve cell
  - C. Stem cell
  - D. Bone cell
6. Which occurs first in cell differentiation?
  - A. Determination
  - B. Specification
  - C. Specialization
  - D. Mitosis
7. A determined muscle cell will most likely become a:
  - A. Nerve cell
  - B. Blood cell
  - C. Muscle cell
  - D. Skin cell
8. Which statement about specification is TRUE?
  - A. It is always permanent
  - B. Cells can still change developmental paths
  - C. It only occurs in adult organisms
  - D. Cells stop dividing completely
9. Which process leads to cells developing unique structures and functions?
  - A. Photosynthesis
  - B. Respiration
  - C. Cell differentiation
  - D. Digestion
10. What happens after determination?
  - A. The cell becomes less specialized
  - B. The cell begins specialization
  - C. The cell divides into bacteria
  - D. The cell loses genetic material

**Part II - Fill in the Blank:** Use the word bank to complete the sentences.

**Word Bank**

Determination  
stem cells

specification  
differentiation

specialized  
muscle

temporary  
change

permanent  
committed

11. Cell \_\_\_\_\_ is the process by which cells become different types.
12. During \_\_\_\_\_, cells can still switch to another developmental pathway.
13. Cell \_\_\_\_\_ is a permanent commitment to a cell type.
14. A determined cell is fully \_\_\_\_\_ to a future role.
15. Specification is considered a more \_\_\_\_\_ stage.
16. Determined cells usually cannot \_\_\_\_\_ into another cell type.
17. \_\_\_\_\_ can develop into many different cell types.
18. A determined \_\_\_\_\_ cell will continue developing into muscle tissue.
19. Differentiation leads to \_\_\_\_\_ cells with unique functions.
20. Determination is generally considered a \_\_\_\_\_ stage.

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**Part III - Matching:** Match the term with the correct description.

**Column A**

**Column B**

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|----------------------|---|
| 21. Specification    | A. Cells with the ability to become many cell types |
| 22. Determination    | B. Process where cells become specialized           |
| 23. Stem Cells       | C. Permanent commitment to a cell type              |
| 24. Differentiation  | D. Temporary stage where fate can still change      |
| 25. Specialized Cell | E. Cell with a unique structure and function        |