Cell Specification vs. Determination in Cell Differentiation Test

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 specification specialized temporary permanent
stem cells differentiation muscle change 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.

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

Column A	**Column B**
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

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