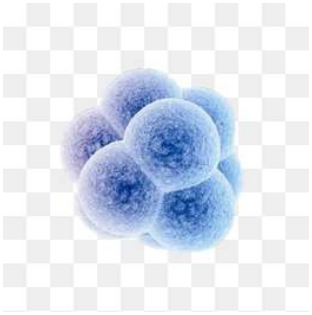
Name: Class:

Total Possible Marks: 42

Cell Differentiation and Specialisation



____ 4

1. Match the definitions to the appropriate titles:

A. ____ Sperm cells	a. These cells are specialised for contraction, they are long so that they have lots of space to contract.
B. ____ Nerve cells (in animals)	b. These cells are specialised for rapid signalling, their function being to carry electrical signals from one part of the body to another.
C. ____ Muscle cells (in animals)	c. These cells are found on the surface of plant roots and are specialised for the absorption of water and minerals.
D. ____ Root hair cells (in plants)	d. These are specialised to reproduction, and their function is to get the male DNA to the female DNA.

____ 10

2. A (a)_____ cell is one that performs a specific (b)_____. Most cells in an (c)_____ are specialised, and a cells structure, for example its (d)_____ and the parts it contains helps it to carry out its function. For the cell to become specialised it undergoes a process known as (e)_____. Once a cell has become specialised (in (f)_____ cells) the ability to differentiate his lost, however many (g)_____ cells do not lose this ability. Cells that differentiate in mature animals are mainly used to (h)_____ or replace cells such as (i)_____ and (j)_____ cells.

specialised	plant	blood	shape	skin
repair	organism	animal	function	differentiation

____ 1

3. Some types of differentiated cells are called stem cells, is this true or false?

(A) True

(B) False

____ 3

4. Phloem and xylem cells are specialised for transporting substances. Explain, in a short paragraph how the cells achieve their function (hint: think of pipes)

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14

5. (a)_____ are organised as follows. Cells are the basic (b)_____ (c)_____ that make up all living organisms. (d)_____ cells carry out a particular (e)_____ and the process by which they become specialised for a particular job is called (f)_____. Differentiation occurs during the (g)_____ of a multicellular organism. Specialised cells are (h)_____ to form (i)_____, which form (j)_____, which form organs (k)_____. Large (l)_____ organisms have different systems inside them for (m)_____ and (n)_____ materials.

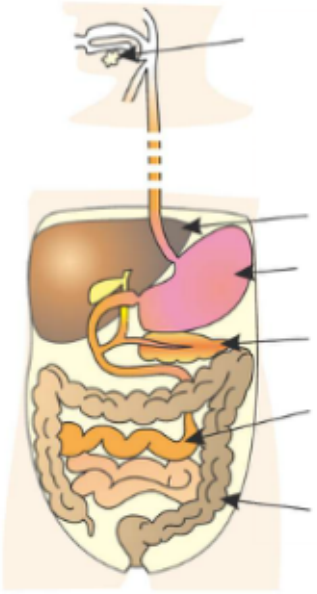
tissues	Specialised	exchanging	building	organs
development	transporting	organised	Cells	function
systems	multicellular	differentiation	blocks	

____
10

6. Tissues group together to form organs and organs group together to form organ systems.

One such organ system being the digestive system which is the system that breaks down food in human and other mammals.

Label the diagram with the name of the appropriate organ, and write down below the function of each.



A. Glands such as the pancreas and salivary glands. _____

B. Stomach _____

C. Liver _____

D. Small intestine _____

E. Large intestine _____