ALBERTA DISTANCE LEARNING CENTRE

Science 10 Online

SCN1270

Midterm Review Assignment

Units A and B

Student's Questions and Comments

FOR STUDENT USE ONLY

Student ID: _____

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Assigned to: _____

Marked by: _____

Date received: _____

	Total	Total Possible
Unit A		40
Unit B		30
TOTAL		**70**

Teacher's Comments:

_____

Teacher's Signature

NEW September 2018

CANADIAN CATALOGUING IN PUBLICATION DATA

SCN1270
Science 10
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SCIENCE 10 Online

Midterm Review Assignment
Units A and B

General Instructions

Total Marks: 70

This is a formative assessment. This means that this assignment is not part of your overall grade; however **it MUST be completed before you can write your midterm exam**. The point of this assignment is to help you check to make sure you are on the right track with Units A and B, and that you are prepared for your midterm exam. Your teacher will review this assignment before you write your midterm exam.

Once you have downloaded and completed this assignment, please upload it as a PDF and follow the online instructions on how to submit it.

Total 40

Unit A Review Questions

(7) 1. For each scientist, write down the advancement they made that contributed to the discovery of the cell theory.

Scientist	Advancement
Robert Hooke	
Antoni van Leuwenhoek	
Schleiden and Schwann	
Rudolf Virchow	
Francesco Redi	
Louis Pasteur	
Robert Brown	

(3) 2. How does a dog fulfill the three points of the cell theory?

Use the following diagram to answer question 3.

In 1745, an English clergyman named John Needham tried to prove that living things could be produced from non-living matter. He boiled chicken broth and put it in a flask to seal it. It was generally accepted that boiling the broth would remove all microorganisms from it. Needham left the broth for a few days. When he checked on it, he found that microorganisms were growing in the broth. It was generally accepted that this proved spontaneous generation.

A few years later, an Italian priest named Lazzaro Spallanzani tried to refute Needham's results. He suggested that there were microorganisms in the air that was sealed in the flask with the broth. These microorganisms then fed off the broth and grew. To test this, Spallanzani used the same set up as Needham, but in one of his flasks, he drew off all the air before sealing it. This meant he had one flask with air sealed inside with broth and one flask with no air present. He found that microorganisms grew in the flask that had air sealed in it, and no microorganisms grew in the flask with no air.

(3) 3. What were the manipulated, responding, and one controlled variable from Spallanzani's experiment?

(3) 4. Complete the following table on the different types of microscopes.

Type of Microscope	Image Source	Advantage
compound light		
scanning electron microscope (SEM)		
confocal laser scanning microscope (CLSM)		

(10) 5. Complete the chart below by writing the function of each organelle in the space provided.

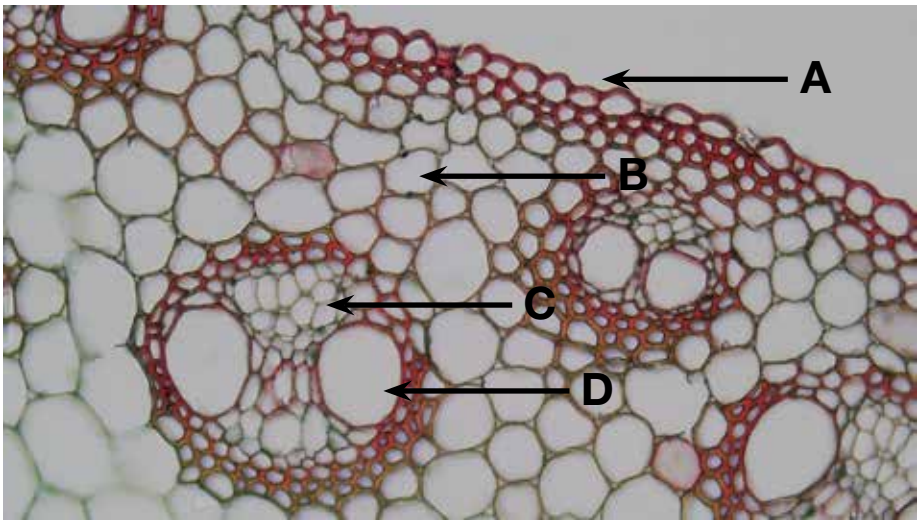
Organelle	Function
Nucleus	
Golgi apparatus	
Mitochondria	
Vacuole	
Ribosomes	
Endoplasmic reticulum	
Lysosome	
Cell membrane	
Cell wall	
Chloroplast	

(3) 6. For each type of cell transport, describe how it helps the cell reach equilibrium. Make sure you discuss concentration gradients in your answer.

Type of Transport	How it Helps
Diffusion	
Osmosis	
Facilitated diffusion	

(3) 7. A single cell is placed in each of the following solutions: hypertonic, isotonic, and hypotonic. Describe what each cell will look like in each solution and the direction of water movement into or out of the cell.

(4) 8. Label the parts of the stem using the arrows provided.



For each structure indicated in the diagram, identify its name and function in the stem system.

	Structure Name	Function
A		
B		
C		
D		

(2) 9. Compare the function of phototropism to the function of gravitropism. How does each of these tropisms work?

(2) 10. What is a stoma and what is its function?

Total 30

Unit B Review Questions

(4) 11. Outline the main points of each of the following theories that lead to our modern understanding of the atom.

Theory	Main Points
Dalton	
Thomson	
Rutherford	
Bohr	

(3) 12. Identify **three** safety rules that should be followed in a laboratory setting. Explain why each rule should be followed.

(2) 13. State what the following WHMIS symbols represent.

a.  _____

b.  _____

c.  _____

d.  _____

(1) 14. An ion contains 54 electrons after its atom gained 1 electron to form a stable electron structure. Write the name and symbol of the ion.

(6) 15. Identify each of the following compounds as ionic or molecular and write the correct formula.

IUPAC Name	Classification (Ionic/Molecular)	Formula
dinitrogen tetrasulfide		
lead(IV) oxide		
calcium fluoride		
sodium hydrogen carbonate		

(6) 16. Identify each of the following compounds as ionic or molecular and, using IUPAC rules, name the compounds.

Formula	Classification (Ionic/Molecular)	IUPAC Name
PCl_3		
$Fe_2(CO_3)_3$		
Ni_2S_3		
K_3N		

Use the following information to answer question 17.

Some physical properties

1. Ionic
2. Molecular
3. Relatively high melting point
4. Relatively low melting point
5. Very soluble in water
6. Low solubility in water
7. Conductive when dissolved in water
8. Non-conductive when dissolved in water

(1) 17. The properties above that apply to cobalt(II) iodide are numbered _____, _____, _____, and _____.

Use the following information to answer questions 18 to 21.

The skeleton equation for a reaction between calcium hydroxide and nitric acid is

$Ca(OH)_2(s) + HNO_3(aq) \longrightarrow Ca(NO_3)_2(aq) + HOH(l) + heat$

(1) 18. The lowest whole number coefficients to balance the above equation would be _____, _____, _____, and _____.

Use the following additional information.

1. Physical change
2. Chemical change
3. Endothermic reaction
4. Exothermic reaction
5. Single replacement
6. Double replacement
7. Formation
8. Decomposition

(1) 19. The descriptions above that can be used to classify the reaction given _____, _____, and _____.

(2) 20. Calculate the molar mass of calcium hydroxide, $Ca(OH)_2(s)$. Write your answer using proper units. Show all work.

(3) 21. There are 2.4 g of calcium hydroxide reacted with nitric acid. Calculate the number of moles of calcium hydroxide used. Write your answer using proper significant digits and units. Show all your work. (you can still receive full marks for this question if you get question 20 incorrect.)

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