

Penang Sangam High School

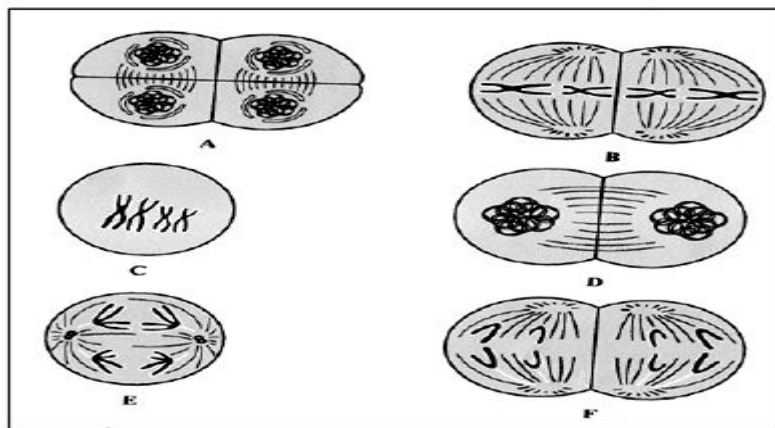
Year 11

Biology

Worksheet 3

Questions

1. In specialized cells of the human body cells divide to produce gametes. The following images (A - F) illustrate different stages of cell division in the cell.



- i. Name the type of cell division shown above.
- ii. Indicate the order in which the stages of cell division occur by listing the letters in order of occurrence beginning with the earliest stage.
- iii. DRAW in the circle below the chromosomes expected in one cell of the final phase of this cell division.
2. Which of the following is a function of meiosis?
- A. Repair cuts and abrasions of the skin.
 - B. Form the cells for sexual reproduction.
 - C. Form new red blood cells to replace the ones that are worn-out.
 - D. Replace the epithelial cells of the small intestine that are shed daily.

3. A fish and chips restaurant slices potatoes into strips several hours before the chips are cooked. During this time the amount of water in the potato chips must be kept constant. To keep the water in the chips constant the chips are soaked in salt solution.

A group of Year 11 students carried out an investigation to study the effect of different concentrations of salt solutions on the mass of five chips.

Outlined below are the steps taken during the investigation.

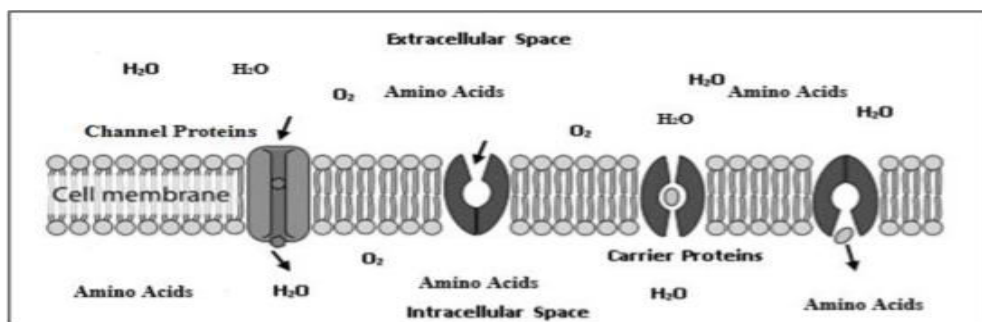
- Each one of the five chips was weighed.
- Each chip was then placed into a different concentration of salt solution.
- After one hour the chips were removed from the salt solutions and then reweighed.

The table below shows the results of the investigation.

	Concentration of salt solution				
	0.0 M	0.5 M	1.0 M	2.0 M	3.0 M
Mass of chip at start (grams)	2.4	2.6	2.6	2.3	2.4
Mass of chip after one hour(grams)	2.5	2.6	2.5	2.1	1.9

NOTE: M = unit of concentration

- In which concentration of salt solution did the chip gain mass?
 - Explain why the chip gained mass in this solution.
 - In which concentration of salt solution should the chips be kept in the restaurant? Give a reason for your answer.
 - Identify the term used to describe the type of salt solution of 0.5 M concentration that shows the relationship between the salt solution and the cell solution of the potato chips.
 - Suggest one way in which the above investigation could be improved.
4. Study the diagram of the phospholipid bilayer given below and use it and your knowledge to answer the questions that follow.



- Name the structures which are hydrophobic and hydrophilic in the phospholipid bilayer.
- Explain one difference between the roles of channel proteins and carrier proteins.
- Identify the molecule from the diagram that will require active transport for movement across the bilayer.

Extended Response Questions

Mitosis and Meiosis are the two main types of cell division in living organisms.

- ✓ State the **significance** of mitosis
- ✓ List **three** differences between mitosis and meiosis