

Answers

TASK 1 (20 MARKS)

1.

- (a) New dimensions of Cube A: **It increases in size (slightly larger than $2\text{ cm} \times 2\text{ cm} \times 2\text{ cm}$)**
- (b) New dimensions of Cube B: **It decreases in size (smaller than $2\text{ cm} \times 2\text{ cm} \times 2\text{ cm}$)**

2.

(a) Process: **Osmosis**

(b) Definition:

Osmosis is the movement of water molecules from a region of high concentration (dilute solution) to a region of low concentration (concentrated solution) through a semi-permeable membrane.

3.

(a) Cube A becomes **firm and swollen**, while Cube B becomes **soft and shrunken**.

(b) Explanation:

Cube B was placed in a strong salt solution, which is a hypertonic solution. Water moved out of the potato cells by osmosis, causing loss of turgor pressure. This made the cube shrink and become soft.

4.

(a)

D: **Cytoplasm**

A: **Nucleus**

F: Sap Vacuole

(b) **Cell membrane**

5. Matching

- i) Nucleus → **B. Controls all cell activities**
- ii) Mitochondria → **A. Site of respiration/energy production**
- iii) Chloroplast → **D. Site of photosynthesis**
- iv) Cell membrane → **C. Controls movement of substances in/out**

6.

Starch



TASK 2 (10 MARKS)

1.

(a) Physical change

Reason: The wax melts and can solidify again without forming a new substance.

(b) Two observations:

- i. Sugar changes colour to black
- ii. A new substance (char/ash) is formed

2.

Compound

3.

(a) **Class B Fire (flammable liquids fire)**

(b) Reason:

Water spreads ethanol instead of putting out the fire, making it worse and increasing the risk of spreading flames.

4.

(a) **Iron(III) oxide (rust)**

(b) **Oxygen and moisture (water)**

