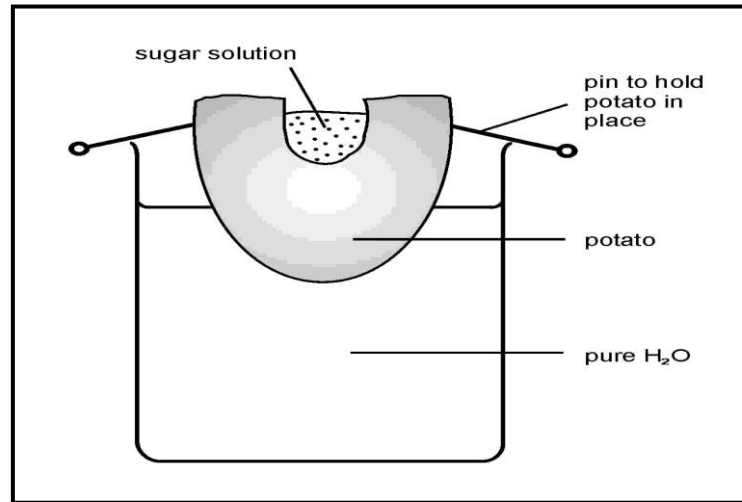


QUESTION 2

2.1 Alfred sets up an experiment. He peels a potato and hollows it out as shown in the diagram below. In the hollowed-out section he places a sugar solution. He puts pure water in the beaker. He leaves the experiment for a few hours.



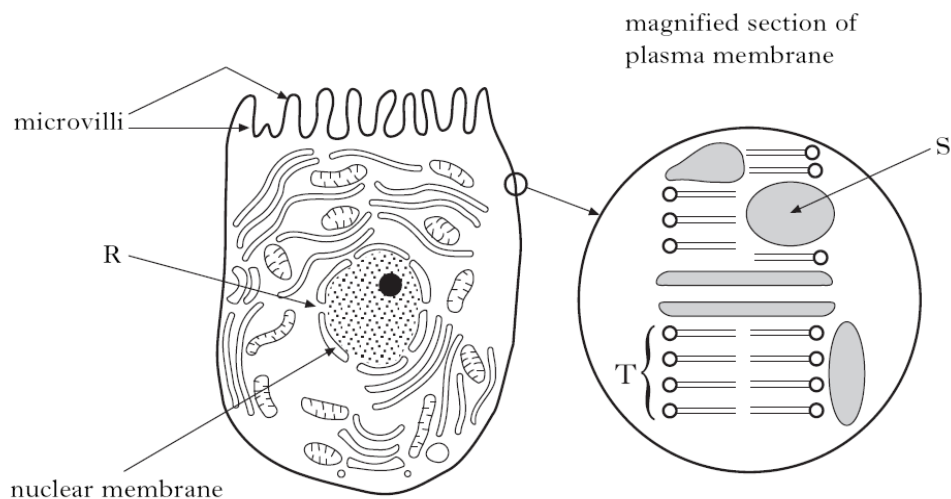
2.1.1 What will happen to the level of the sugar solution in the hollowed-out section after a few hours? (1)

2.1.2 Name the process by which the water molecules move. (1)

2.1.3 Define the process mentioned in 2.1.2. (3)

[5]

2.4. The diagram shows a human liver cell and a magnified section of its plasma membrane.



2.4.1 Identify molecules S and T. (2)

2.4.2 A pore in the nuclear membrane is shown by label R. Describe the importance of these pores in protein synthesis. (2)

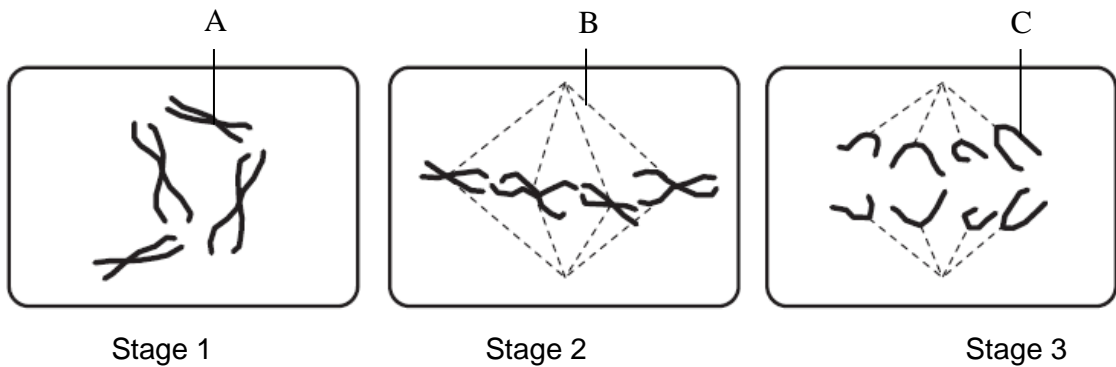
2.4.3 What evidence in the diagram suggests that this cell produces large quantities of ATP? (2)

2.4.4 Some liver cells take up glucose from the blood by the process of diffusion. Describe this process. (3)

2.4.5 Suggest a reason for the presence of microvilli in liver cells as shown in the diagram. (2)

2.4.6 Glucose taken up by liver cells can be converted into a storage carbohydrate. Name this carbohydrate. (1)
(12)

2.5 Stages of mitosis are shown in their correct order in the diagrams below.



2.5.1 Which part is the spindle Fibre. (2)

2.5.2 Stage 3 would be followed by stage 4. Describe what would happen in stage 4 (5)

2.5.3 Typical timings of the stages of mitosis are shown in the table below.

Stage	1	2	3	4
Time (minutes)	88	33	25	54

What percentage of the total time for mitosis is taken by stage 3? (2)

2.5.4 The drawing below indicates the appearance of a chromosome at early prophase of mitosis.



a) Identify structure A. (1)

b) Explain why the two chromatids are identical. (2)

c) What happens with the two chromatids during cell division (1)