Combined Science (foundation). Cycle 3 week 1 **Name_____**

Q1.

(i) One complete cell cycle in an onion cell takes 24 hours. Mitosis takes up 30% of this time. The remainder of the time is spent in interphase.

Calculate the length of time, in minutes, an onion cell spends in interphase.

(3)

interphase ..... minutes

(ii) Describe the events that take place in the onion cell during interphase.

(2)

.....

.....

.....

.....

(Total for question = 5 marks)

Q2.

Figure 3 shows micrographs of the different stages of mitosis in the root tips of an onion. The stages are not in the correct order.

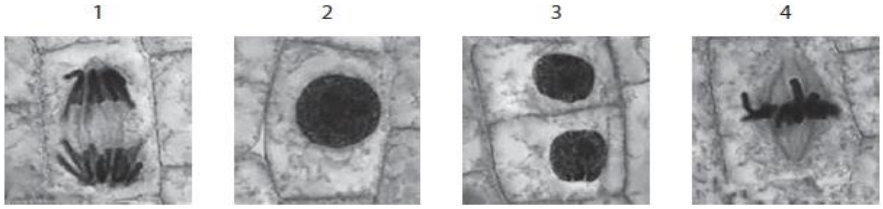

Figure 3

(i) Which order of micrographs shows the correct sequence of stages in mitosis?

(1)

☒ **A** 2, 3, 1, 4

☒ **B** 2, 3, 4, 1

☒ **C** 2, 1, 4, 3

☒ **D** 2, 4, 1, 3

(ii) Figure 4 shows a magnified onion cell.

The actual width of this onion cell is 100 μm.

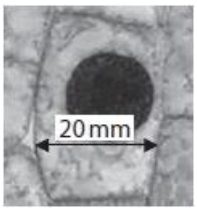

Figure 4

Calculate the magnification of this onion cell.

(2)

magnification = ...

(iii) Describe the importance of mitosis in the root tips of plants.

(2)

.....

.....

.....

(Total for question = 5 marks)

Q3.

Figure 7 shows mitosis occurring in some plant cells.

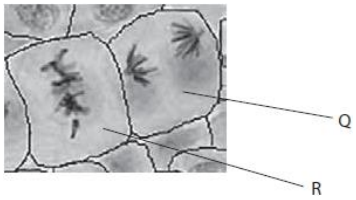

Figure 7

(i) The cells in Figure 7 were taken from a rapidly growing part of a plant.

Which part of a plant has rapidly dividing cells?

(1)

- ☒ **A** chloroplast
- ☒ **B** epithelium
- ☒ **C** meristem
- ☒ **D** vacuole

(ii) Which stage of mitosis is shown in cell R?

(1)

- ☒ **A** prophase
- ☒ **B** metaphase
- ☒ **C** anaphase
- ☒ **D** telophase

(iii) Describe **two** genetic similarities of the new cells that would be produced by cell Q in Figure 7.

(2)

1 .....

.....

2 .....

.....

(Total for question = 6 marks)