AS Level Biology A

H020/01 Breadth in Biology

Question Set 18

1. The photomicrographs shown in Fig. 23 below are taken from an animal cell undergoing mitosis.

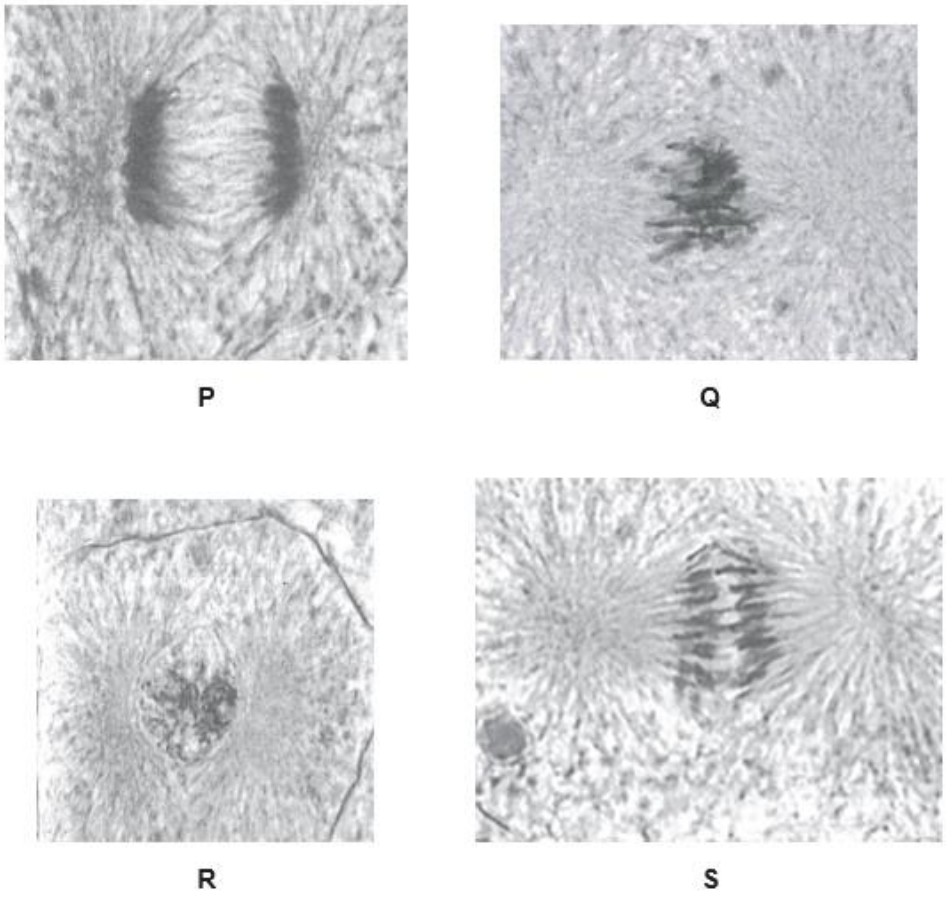


Fig. 23

(a) **(i)** Write the letters of the images, **P** to **S**, in the correct mitotic sequence.

R Q S P

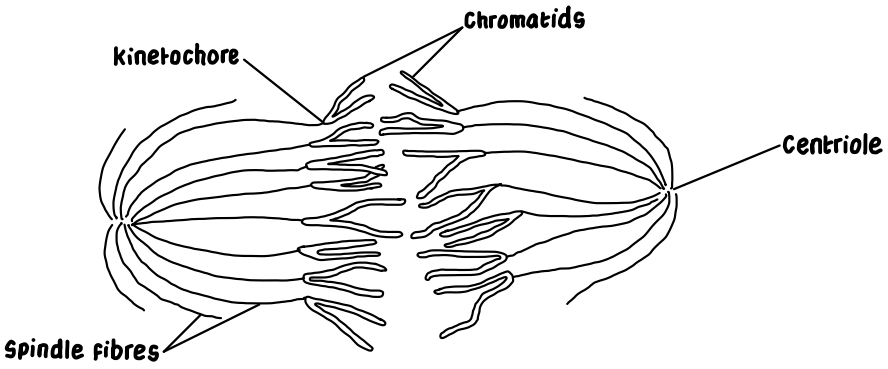
[1]

(ii) Describe in detail what is happening in image **Q**.

[2]

In image Q the cell is in metaphase. Spindle fibres attach to the centromere on each chromosome and the chromosomes are pulled to the cell equator.

(b) In the space below produce a **labelled** diagram of the cell in image **S** from Fig. 23.



[3]

(c) A student observed a prepared slide of an onion root tip under a microscope.The total number of cells in the field of view was 265.

The number of cells at the different stages of the cell cycle are shown in Table 23.

Stage of cell cycle	Number of cells
interphase	207
prophase	42
metaphase	4
anaphase	6
telophase	6

Table 23

The cell cycle takes 20 hours. The number of cells visible at each stage is proportional to howlong each stage of the cell cycle lasts.

Calculate the time taken for prophase to occur.

Give your answer in minutes to the nearest whole number.

20 hours x 60 = 1200 mins

$\frac{1200}{265} \times 42 = 190$ mins

time taken = ……190……..min **[2]**

Total Marks for Question Set 18: 8