3 In the 1990s, a scientist called Woese suggested a new way of grouping organisms into domains.

(a) The table below shows Woese's three domains and gives some of the characteristics of each domain.

Domain	Some characteristics of each domain
P	True nucleus absent Small (70S) ribosomes present Smooth endoplasmic reticulum absent RNA polymerase made up of 14 subunits
Q	True nucleus present Large (80S) ribosomes present Smooth endoplasmic reticulum present RNA polymerase made up of 14 subunits
R	True nucleus absent Small (70S) ribosomes present Smooth endoplasmic reticulum absent RNA polymerase made up of 4 subunits

(i) Place a cross ☒ in the box which shows the two domains which are most **distantly related**.

(1)

☒ **A** P and Q

☒ **B** P and R

☒ **C** Q and R

(ii) Place a cross ☒ in the box which shows the domain that represents eukaryotic organisms.

(1)

☒ **A** P

☒ **B** Q

☒ **C** R
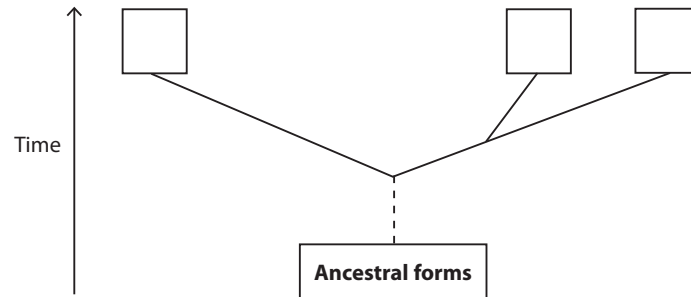
(iii) The diagram below represents the phylogenetic tree for the three domains.

Place a cross (×) in the box on the diagram that correctly identifies the eukaryotic domain.

(1)

Time →

Ancestral forms

(iv) Give the name of **one** of the other two domains.

(1)

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(b) One domain includes the plants and these have cells with a cell wall.

*(i)   Describe the structure of a plant cell wall.

(4)

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(ii) A student studied the cell wall arrangement between two adjacent plant cells. He noticed several features which he could not name. Two of these are described in the table below.

Complete the table by writing in the name of each feature described.

(2)

Feature described	Name of feature
Site where there was no cell wall and the cytoplasm linked the two adjacent cells	
Dark line that is the boundary between one cell and the next cell	

(Total for Question 3 = 10 marks)