

Name of the Student: _____

Max. Marks : 20 Marks

Time : 20 Minutes

Q1.

(a) (i) fertilisation 1

(ii) in sequence:
accept 1 next to gene, 2 next to chromosome and 3 next to nucleus in box

1 gene
2 chromosome
3 nucleus
*allow 1 mark for smallest **or** largest in correct position*

2

(iii) DNA 1

(b) (i) On diagram:
tick drawn next to **X** and / or **Y** from Parent 1
tick(s) must be totally outside grid squares
allow ticks around "parent "
extra ticks elsewhere cancel 1

(ii) 0.5 / $\frac{1}{2}$ / 50% / 1:1 / 50:50 / 1 in 2
allow 2/4 / 2 in 4 / 2 out of 4 / 'even(s)' / 'fifty – fifty'
*do **not** allow 1:2 or '50 / 50' or '50 – 50'* 1

2 (out of 4) boxes are **XX**

or

half of the sperm contain an **X**-chromosome
*allow **XY** is male and 2 (out of 4) boxes are **XY***

1

[7]

Q2.

- (a) (i) A = (cell) membrane

1

B = cytoplasm

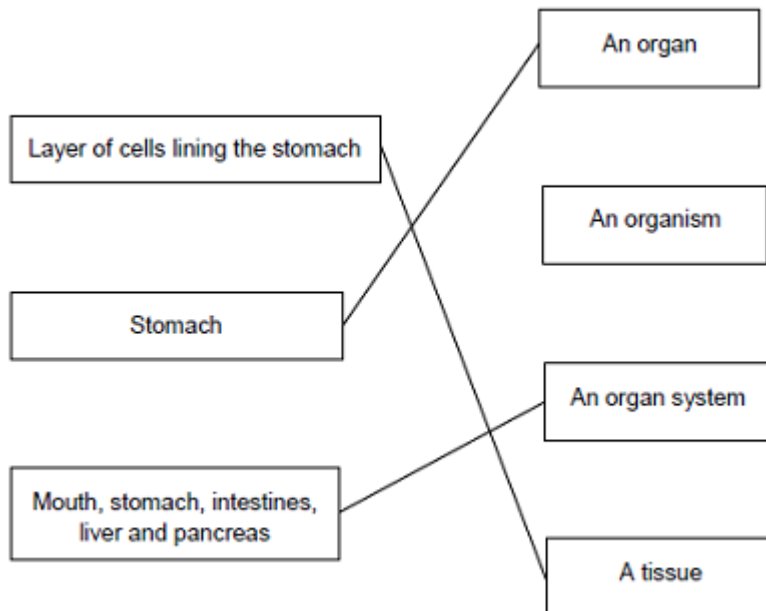
do **not** accept cytoplasm

1

- (ii) To control the activities of the cell

1

(b)



extra lines cancel

3

[6]

Q3.

(a) osmosis

1

partially permeable

1

(b) (i) any **two** from:

allow correct answers in terms of A

- vacuole is small(er)
- cytoplasm has shrunk
allow cytoplasm is smaller
- gap between cytoplasm and cell wall
- cell wall curves inwards
allow cell B is flaccid or cell A is turgid
- the (cell) membrane has moved away from the wall

2

(ii) any **one** from:

- water will move / diffuse in
- (cells) will swell
- (cells) will burst
ignore turgid

1

(c) villi give the small intestines a large surface area

1

villi have many blood capillaries

1

[7]