

Question 7

Maximum mark

- (a) (i) Produced {on / by} {ribosomes / rough endoplasmic,reticulum} ; 1 marks
- (ii) Transported by the (smooth) ER (to Golgi bodies) ; [accept rough ER]
Correct reference to vesicles ;
Correct reference to (vesicles) fuse with (cell) membrane /(protein secreted by) exocytosis ; 2 marks
- (b) (i) These cells (from the embryo) are {undifferentiated / unspecialised / able to develop into other types of cells / eq} ;
[do not credit references to pluripotent / totipotent unqualified] 1 mark
- (ii) Can differentiate / become specialised / so able to develop into beta cells ; 1 mark

(c)

Against:

Amounts to killing an unborn child / abortion / murder ;

Interfering in nature / may have unforeseen consequences ;

Example e.g. may have genetic consequences for future generations / may lead to wider abuses in future / may get out of control / technology may be used in eugenics ;

Example e.g. pressure to harvest human eggs purely for medical use ;

The money could be better used for other types of research ;

For:

'Spare embryos' from IVF would be destroyed anyway ;

The potential to relieve human suffering is too great to ignore; unethical *not* to allow the research ;

You can't 'undiscover' something / it's going to happen anyway ;

Better that the research stays {in UK / Europe / N America / eq} ;

where it can be regulated ;

3 ma

(d)

For one mark:

Must have something to do with genetics *and* something to do with {environmental / other} factors / mixture of genetic and environmental factors ;

For two marks:

The {susceptibility / predisposition / eq} is {hereditary / genetic / genotype} / there is a genetic component ;

AND

It is {triggered off / also influenced by / eq} environmental {factor / factors} ;

2 ma

Total 10 ma