

1. (a) Day 20 - 22;  
follicle is largest prior to ovulation; 2
- (b) Another follicle develops;  
corpus luteum degenerates; 2
- (c) (i) oestrogen; 1  
(ii) High hormone X (oestrogen) prevents follicles  
developing as no FSH released; 1

[6]

2. (a) Production of FSH/LH/pituitary hormones;  
Stimulate ovary/follicle development;  
Producing oestrogen;  
Oestrogen stimulating breast development;  
Oestrogen stimulating pelvic girdle growth;  
Androgen secretion;  
Androgens responsible for growth spurt/pubertal hair development;  
Growth hormone also involved; max 6
- (b) (i) Negative feedback;  
Inhibits FSH secretion;  
Follicles do not develop  
No ovulation; max 3
- (ii) Oestrogen secreted by follicles;  
Therefore no oestrogen/low concentration of oestrogen;  
Oestrogen secretion will not be cyclical;  
Not available to inhibit pituitary gland;  
Therefore high concentration of FSH; max 3

[12]

3. (a) Ensures sex organs mature before conception can occur; 1  
*Do not credit answers relating to emotional or psychological maturity*
- (b) (i) April 1995; 1  
(ii) Coincides with rise in progesterone;  
Progesterone produced by corpus luteum;  
Corpus luteum formed after ovulation; max 2

[4]

4. change in base/nucleotide (in DNA);  
change in base sequence of mRNA/change in codons/idea of  
frameshift following deletion or addition;  
incorrect tRNA/anticodon;  
incorrect amino acids/ different primary structure/fomation of new  
stop codon;  
different tertiary structure/different 3D structure/different  
polypeptide/shortened polypeptide;  
different shape of active site/no active site present;

5 max

**[5]**