Question Number	Answer	Acceptable answers	Mark
1 (a)(i)	**A** ☒ FSH		**(1)**

Question Number	Answer	Acceptable answers	Mark
1(a)(ii)	**An explanation linking two of the following** more than one egg {released / fertilised }(1) multiple birth / pregnancy (1) increased risk of complications for mother/babies (1) OR women affected by side effects (1) treatment has to be stopped reducing chance of pregnancy (1)	accept headaches, mood swings, nausea, abdominal pain, diarrhoea, weight gain ignore references to cost	**(2)**

Question Number	Answer	Acceptable answers	Mark
1 (a)(iii)	**D** ☒ progesterone		**(1)**

Question Number	Answer	Acceptable answers	Mark
1(b)(i)	**An explanation linking three from the following** urine sample (1) coloured bead attached to a (mobile monoclonal) antibody (1) antibody {specific to/detects/binds to} { hormone/hCG} (1) immobile antibody at test strip (1) colour accumulates in positive test window (1)	accept named female sex hormones	**(3)**

Question Number	Answer	Acceptable answers	Mark
1(b)(ii)	**An explanation linking two of the following** chemotherapy/radiotherapy drug attached to the monoclonal antibody (1) less use of the drug (1) only binds to cancer cells/doesn't target normal cells (1) reduces side effects/named side effects (1)	monoclonal antibody binds to {**tumour markers/cancer antigens**} (1)	**(2)**

Question Number	Answer	Acceptable answers	Mark
1(b)(iii)	hybridoma (cell)		**(1)**

Total for Question 1 = 10 marks

Question number	Answer	Mark
2(a)(i)	• person 2 had a slightly higher blood glucose level than person 1 after fasting (by up to 0.2 mmols/l) (1)	(1)

Question number	Answer	Mark
2(a)(ii)	• person 3 had a much higher blood glucose level than person 1 two hours after taking glucose (up by up to 5.6 mmols/l) (1)	(1)

Question number	Answer	Mark
2(a)(iii)	Insulin	(1)

Question number	Answer	Mark
2(b)(i)	An answer that combines points of interpretation/evaluation to provide a logical description: • levels remain low up until day 14 then rise (1) • they continue to rise to day 23 and drop at day 24 (1)	(2)

Question number	Answer	Mark
2(b)(ii)	An explanation that combines identification – understanding (1 mark) and reasoning/justification – understanding (1 mark): • as ovulation occurs (1) • the levels of progesterone released from the corpus luteum increases to maintain the lining of the uterus (1)	(2)

Question number	Answer	Mark
2(b) (iii)	An explanation that combines identification via a judgment (1 mark) to reach a conclusion via justification/reasoning (1 mark): • progesterone levels fall after day 23 to 17.11 (1) • so uterus wall thickness is not maintained and therefore pregnancy has not occurred (1)	(2)

(Total for question 2 = 9 marks)

Question Number	Answer	Acceptable answers	Mark
3(a)	An explanation linking **four** of the following points: • (dehydration detected by) osmoreceptors/hypothalamus (1) • pituitary gland (1) • (releases more) ADH (1) • ADH acts on the nephron/collecting duct/tubules (1) • making the {collecting duct/tubules/nephron} more permeable (1) • so **more** water is reabsorbed (by the body/blood) (1)	ignore brain accept {small amount/concentrated} urine produced	**(4)**

Question Number	Answer	Acceptable answers	Mark
3(b)(i)	**A** corpus luteum		**(1)**

Question Number	Answer	Acceptable answers	Mark
3(b)(ii)	• uterus lining remains thick/uterus lining continues to grow (1)		**(1)**

Question Number		Indicative Content	Mark
QWC	**3(b)(iii)***	A explanation to include some of the following points Stages and hormones • menstrual cycle consists of menstruation, uterus lining thickening and ovulation • hormones involved in the menstrual cycle are oestrogen, progesterone, FSH and LH Role of the hormones • FSH stimulates the follicles to mature • FSH stimulates the production of oestrogen • follicles secrete oestrogen • oestrogen is responsible for the repair of the uterus wall • high levels of oestrogen stimulate the release of LH • LH triggers ovulation • corpus luteum produces progesterone • progesterone maintains the lining of the uterus Control mechanisms • oestrogen inhibits the production of FSH • progesterone inhibits the production of LH • progesterone inhibits the production of FSH • menstruation is triggered by low levels of oestrogen and progesterone • Low progesterone levels cause FSH to be released	**(6)**
Level	**0**	No rewardable content	
1	**1 - 2**	• A limited explanation of the menstrual cycle which might include at least one of the stages **or** some of the hormones involved **or** the role of one of the hormones involved • the answer communicates ideas using simple language and uses limited scientific terminology • spelling, punctuation and grammar are used with limited accuracy	
2	**3 - 4**	• A simple explanation of the menstrual cycle including some of the stages **and** the role of at least two of the hormones involved • the answer communicates ideas showing some evidence of clarity and organisation and uses scientific terminology appropriately • spelling, punctuation and grammar are used with some accuracy	
3	**5 - 6**	• A detailed explanation of the menstrual cycle including most of the hormones involved, their roles **and** at least one control mechanism • the answer communicates ideas clearly and coherently uses a range of scientific terminology accurately • spelling, punctuation and grammar are used with few errors	

(Total for question 3 = 12 marks)