

Q1. (2018)

11		A ✓	1	1.1	
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Q2. (2018)

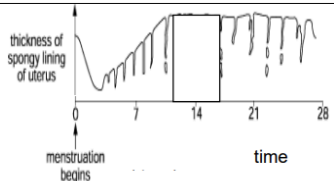
20	(a)	in the blood(stream)✓	1	1.1	
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Q3. (2018) – 20b

	(b)	brain✓ egg✓ oestrogen✓ progesterone✓	4	4 x 1.1	ALLOW estrogen
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Q4. (2018) – 20c

A)

	(c)	(i)	letter E marked on day 14✓	1	2.1	 <p>21400032</p> <p>tolerance area inside white box</p>
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B)

		(ii)	lining breaks down / is shed✓	1	1.1	<p>ALLOW menstruation / a period occurs</p> <p>ALLOW unthickens/thickness reduces/gets thinner/decreases</p>
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Q5. (2018) – 20d

	(d)*	<p>Please refer to the marking instructions on page 5 of this mark scheme for guidance on how to mark this question.</p> <p>Level 3 (5–6 marks)</p> <p>Applies knowledge of hormonal and one non-hormonal method of contraception.</p> <p>AND</p> <p>Interprets data to explain more than one difference in effectiveness between hormonal and non-hormonal contraceptives.</p>	6	<p>2 x 2.1</p> <p>2 x 3.1a</p> <p>2 x 3.2a</p>	<p>AO2.1 Apply knowledge and understanding of methods of contraception.</p> <ul style="list-style-type: none"> • Sterilisation prevents the release of sperm • Hormonal methods prevent ovulation • Diaphragm / condom prevent sperm meeting egg / are barrier methods <p>AO3.1a Analyse information and ideas to interpret the data to explain differences between effectiveness of contraceptives.</p>
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		<p>AND Makes at least one judgement to explain why the pill is a popular method of contraception. <i>There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.</i></p> <p>Level 2 (3–4 marks) Any two of: Applies knowledge of hormonal and one non-hormonal method of contraception. OR Interprets data to explain one difference in effectiveness between hormonal and non-hormonal contraceptives. OR Makes at least one judgement to explain why the pill is a popular method of contraception. <i>There is a line of reasoning presented with some structure. The information presented is relevant and supported by some evidence.</i></p> <p>Level 1 (1–2 marks) Applies knowledge of at least one hormonal and one non-hormonal method of contraception. OR Interprets data to explain at least one difference in effectiveness between hormonal and non-hormonal contraceptives. OR Makes at least one judgement to explain why the pill is a popular method of contraception.</p> <p><i>There is an attempt at a logical structure with a line of reasoning. The information is in the most part relevant.</i></p>			<ul style="list-style-type: none"> hormonal methods more reliable than non-hormonal barrier methods due to (named) hormonal methods being easy to use/less awkward in use (named) non-hormonal barrier methods less reliable as awkward in use non-hormonal methods show more variation in reliability <p>AO3.2a Analyse information and ideas to make judgements to explain why the pill is a popular method.</p> <ul style="list-style-type: none"> pill is easier to use than the patch/injectable so preferable to the safer injection much more reliable than condom/diaphragm but easier to reverse decision than sterilisation
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Q6. (2019) – 19c

A)

19	(c)	(i)	FSH ✓ follicle ✓ progesterone ✓	3	1.1	
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B)

19	(c)	(ii)	Days 3 – 6 ✓	1	2.2	
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Q7. (2019)

A)

20	(a)	(i)	insulin ✓	1	1.1	
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B)

20	(a)	(ii)	Any two from: secreted / released from glands/endocrine cells ✓ travel in blood(stream) ✓ affect target organs / cells ✓	2	1.1	ALLOW named gland ALLOW hormones bind to specific receptors
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C)

20	(b)		kidney ✓	1	1.1	
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D)

20	(c)		Any two from: drugs shape is same as substrate ✓ blocks the active site ✓ denature the enzyme ✓ change (shape of) active site ✓	2	2.1	ALLOW drug is competitive/non-competitive inhibitor ALLOW competes with enzyme for active site NOT kill the enzyme ALLOW drug deforms enzyme/active site ALLOW substrate doesn't fit the active site/not complimentary ALLOW key doesn't fit the lock
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Q8. (2020)

9			B ✓	1	2.1	
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Q9. (2020)

A)

19	(a)	(i)	Oestrogen AND Progesterone ✓	1	1.1	
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B)

	(b)		method 2 because less women get pregnant (in a year) ✓	1	3.2a	ALLOW rate of pregnancy for method 2 is lower / ORA ALLOW Method 2 because there are more pregnancies in Method 1
			idea that method 1 has failures due to incorrect usage / ideas about medically supervised implants remove user error ✓	1	3.2b	ALLOW you do not have to remember to take the pill in method 2 / ORA

Q10. (2021)

A)

19	(a)		Pancreas ✓	1	1.1	
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B)

	(b)	(i)	Cells in pancreas that make insulin are destroyed ✓	1	2.1	ALLOW symptoms developed quite quickly
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C)

		(ii)	Injection of insulin ✓	1	1.1	ALLOW insulin pump
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Q11. (2021)

A)

21	(a)	(i)	Progesterone ✓	1	1.1	
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B)

		(ii)	Maintains lining of uterus / stops the lining of the uterus breaking down ✓	1	2.1	ALLOW higher level responses e.g. inhibits the release of FSH hormone / inhibits the development of follicle in ovary ALLOW slows down the rate of egg production IGNORE thickens the lining of the uterus
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Q12. (2022)

9		A ✓		1	1.2	
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Q13. (2022)

	(b)	(i)	Any two from: Scientists can replicate/reproduce/further develop the work ✓ To check/prove results ✓ To allow recognition for their work ✓	2	2 x 1.1	IGNORE scientists' review ALLOW comment/feedback on work / identify mistakes/misinformation ALLOW can see the value of the research
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Q14. (2022)

	(e)		Type 1 diabetes treated with insulin ✓ Type 2 diabetes controlled through diet/exercise ✓	2	2 x 1.1	ALLOW medication to lower blood glucose/sugar ALLOW reduce sugar/glucose intake ALLOW lose weight IGNORE causes of diabetes throughout
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Q15. (2022)

A)

24	(a)	(i)	All 3 bars correctly drawn ✓ Both scales correctly completed ✓	2	2 x 2.2	ALLOW +/- 1/2 small square ALLOW correct heights even without scale on Y axis IGNORE absence of 'tick' marks on axis if scale is clear IGNORE width of bar
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B)

		(ii)	3 of the (six) readings are over 30 / half/50% of the readings are over 30 ✓	1	1 x 3.2a	ALLOW the named three months IGNORE only two months stated ALLOW the mean reading is over 30
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C)

		(iii)	Any two from: Idea that needs to take readings over a longer time ✓ Readings need to be more consistent/less fluctuations ✓ Readings could be more precise (not rounded) ✓ Measure progesterone/LH/oestrogen levels ✓ Some measure of the frequency/change of periods ✓	2	2 x 3.3a	IGNORE just more readings IGNORE reference to hot flushes / mood swings / bone strength
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D)

		(b)	Any three from: It depends how bad her symptoms are / if she has hot flushes/mood swings/weak bones / idea that it reduces the symptoms of menopause ✓ She needs to balance up the benefits versus risks ✓ HRT would reduce the risk of her bones breaking / it would maintain the strength of her bones ✓	3	3 x 3.1a	IGNORE references to weak bones unqualified
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Q16. (2024)

A)

	(d)	(i)	13:00/1pm/o'clock ✓	1	3.1b	ALLOW any time/range between 12-1pm DO NOT ALLOW 12am
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B)

		(ii)	Glucose (from food) ✓ PLUS Pancreas (detects) ✓ OR Increase insulin (levels) ✓	2	2.1 3.2a	Assume answer refers to insulin unless stated ALLOW sugar IGNORE carbohydrate DO NOT ALLOW glucose from food decreases DO NOT ALLOW other named nutrients ALLOW produce insulin
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Q17. (2024)

A)

20	(a)	<p>Please refer to the marking instructions on page 4 of this mark scheme for guidance on how to mark this question.</p> <p>Level 3 (5–6 marks)</p> <p>Explanation of when pregnancy is most likely to occur AND Explanation of when pregnancy could possibly occur using the information AND Justified using detailed information provided by the doctor, graph and scientific knowledge included.</p> <p><i>There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.</i></p> <p>Level 2 (3–4 marks)</p> <p>Explanation of when pregnancy is most likely to occur. OR Explanation of when pregnancy could possibly occur. AND Justified using some information provided by at least two from: doctor, graph and scientific knowledge</p> <p><i>There is a line of reasoning presented with some structure. The information presented is relevant and supported by some evidence.</i></p> <p>Level 1 (1–2 marks)</p> <p>Basic explanation of when pregnancy is most likely to occur OR Basic explanation of when pregnancy could possibly occur.</p>	6	<p>2 x 1.1 1 x 3.1a 3 x 3.2a</p>	<p>AO1.1 Demonstrates knowledge and understanding of scientific ideas to explain hormonal control of ovulation.</p> <ul style="list-style-type: none"> Ovulation is the release of the egg (from the ovary) egg is released/ovulate when the hormone is high/middle of the cycle LH is the hormone LH stimulates ovulation <p>AO3.1a Interprets information from the graph to explain when ovulation occurs</p> <ul style="list-style-type: none"> states that the hormone/LH is highest on day 13 hormone/LH increases /peaks during middle of the cycle ovulation/egg released on day 13 accept annotation from the graph to demonstrate when hormones are increasing/middle of the cycle/peaks <p>AO3.2a Makes judgements on when sex could result/is most likely to result in pregnancy.</p> <p>most likely get pregnant:</p> <ul style="list-style-type: none"> have sex around day 13 (allow range 11-14)/middle of the cycle (due to ovulation)
		<p>AND Justified using limited information provided by either the doctor, graph or scientific knowledge</p> <p><i>There is an attempt at a logical structure with a line of reasoning. The information is in the most part relevant.</i> 0 marks <i>No response or no response worthy of credit.</i></p>			<ul style="list-style-type: none"> pregnant from day 11/2 days before ovulation/egg released (because most sperm can survive for 2 days) <p>possibly get pregnant:</p> <ul style="list-style-type: none"> have sex between days 8 to 14 pregnant from day 8/five days before ovulation/egg released (because some sperm could survive for 5 days) pregnant up to day 14/ one day after ovulation/egg released (because egg can survive for 24hrs/1 day)

B)

	(b)	<table><tr><th></th><th>Hormonal</th><th>Non - hormonal</th><th>Stops sperm entering the uterus</th><th>Stops ova (eggs) being released</th></tr><tr><td>Condom</td><td></td><td>✓</td><td>✓</td><td></td></tr><tr><td>Diaphragm</td><td></td><td>✓</td><td>✓</td><td></td></tr><tr><td>IUD</td><td></td><td>✓</td><td></td><td></td></tr><tr><td>Combined pill</td><td>✓</td><td></td><td></td><td>✓</td></tr></table>		Hormonal	Non - hormonal	Stops sperm entering the uterus	Stops ova (eggs) being released	Condom		✓	✓		Diaphragm		✓	✓		IUD		✓			Combined pill	✓			✓	4	4 x 1.1	One mark for each correct row ALLOW Hormonal and non-hormonal together for IUD, but not Hormonal on its own.
	Hormonal	Non - hormonal	Stops sperm entering the uterus	Stops ova (eggs) being released																										
Condom		✓	✓																											
Diaphragm		✓	✓																											
IUD		✓																												
Combined pill	✓			✓																										

22	(a)	<p>Any three from:</p> <p>Use a (measuring) balance ✓</p> <p>Measure the mass of the beetroot cube at the start of the experiment ✓</p> <p>Measure the mass of the beetroot cube at the end of the experiment ✓</p> <p>Reference to blotting/drying the outside of the cubes ✓</p>	3	3 x 3.3a	<p>ALLOW use scales</p> <p>ALLOW weight for mass</p> <p>ALLOW weight for mass</p> <p>IGNORE any references to measuring concentrations/volumes or making the cubes the same mass</p> <p>ALLOW one mark for simply measuring the mass/weight of the cubes, if no other mark scored</p>
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