AQA GCSE Biology | 8461

SPECIFICATION POINT 4.5.3.4

Hormones in human reproduction

Mark schemes and examiner comments

Tier	**Foundation**
Question groups	**10**
Available paper years	**2007–2023**

Using this booklet

1. Booklet answer numbers match the question booklet.
2. Use the original question number within marking tables.
3. Examiner comments are included where available.

Name: _____ **Date:** _____

Where a precise marking extract is unavailable, the full source document is included in an appendix. Any missing mark scheme is explicitly identified.

4.5.3.4 Hormones in human reproduction

Answer 01 · Mark scheme June 2007 | BLY1A | Original Q4 | Legacy

Four	**A**	eggs	**2**
	B	ovaries	**3**
	C	pituitary gland	**1**
	D	womb	**4**

Answer 02 · Mark scheme June 2010 | BLY1AP | Original Q5 | Legacy

Five	**A**	embryo	2
	B	ovary	1
	C	pituitary gland	3
	D	womb	4

	A	**B**	**C**	**D**

Answer 03 · Mark scheme November 2010 | BLY1AP | Original Q4 | Legacy

Four	**A**	5	**2**
	B	11	**3**
	C	15	**1**
	D	28	**4**

Answer 04 · Mark scheme March 2011 | BLY1AP | Original Q5 | Legacy

Five	**A**	liver	**4**
	B	pituitary gland	**1**
	C	kidney	**3**
	D	skin	**2**

	A	**B**	**C**	**D**

Answer 05 · Mark scheme June 2011 | BLY1AP | Original Q5 | Legacy

Five	**A**	kidney	4
	B	liver	1
	C	ovary	3
	D	pituitary gland	2

	A	**B**	**C**	**D**

4.5.3.4 Hormones in human reproduction

Answer 06 · Mark scheme

June 2011 | BLY1F | Original Q6 | Legacy

Question 6

question	answers	extra information	mark
6(a)	any **two** from: • FSH • LH • oestrogen	 do **not** accept FHS do **not** accept LSH allow progesterone as alternative to any hormone	2
6(b)	egg(s) / egg cell(s) / ova	do **not** accept ovaries do **not** accept fertilised eggs	1
6(c)(i)	any **one** from: • don't have to take (pill) every day • can't forget to take • more reliable • lasts 3 years / lasts longer • hormone level in blood more constant	ignore faster ignore side effects ignore cost	1
6(c)(ii)	any **one** from: • eg painful (to insert) / uncomfortable / causes rash • woman can't take it out • more difficult to stop treatment • needs to be removed if woman decides to become pregnant	ignore cost ignore side effects unqualified allow have to wait three years to become pregnant	1
Total			**5**

4.5.3.4 Hormones in human reproduction

Answer 06 · Mark scheme

June 2011 | BLY1F | Original Q6 | Legacy

BLY1F

4.5.3.4 Hormones in human reproduction

Answer 07 · Mark scheme June 2016 | BL1FP | Original Q4 | Legacy

Question	Answers	Extra information	Mark	AO / Spec. Ref.
4(a)(i)	follicle stimulating hormone / FSH		1	AO1 1.2.2c/d
4(a)(ii)	oestrogen		1	AO1 1.2.2c/d
4(b)(i)	any **one** from: • to help them have a baby / get pregnant • to stimulate egg production / release / maturation • own levels of FSH / LH / hormone (too) low	ignore to make them fertile allow to increase hormone / FSH / LH levels do not allow to increase oestrogen levels	1	AO1 1.2.2e
4(b)(ii)	through the bloodstream		1	AO1 1.2.2b
4(c)	oestrogen progesterone		1 1	AO1 1.2.2e
Total			**6**	

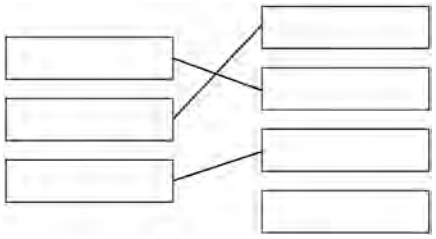
4.5.3.4 Hormones in human reproduction

Answer 07 · Mark scheme

June 2016 | BL1FP | Original Q4 | Legacy

4.5.3.4 Hormones in human reproduction

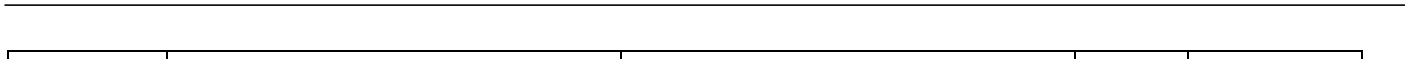
Answer 08 · Mark scheme June 2018 | 8461/2F | Original Q2

Question	Answers	Extra information	Mark	AO / Spec. Ref.
02.1	to allow implantation of the embryo		1	AO1 4.5.3.4
02.2	oestrogen		1	AO1 4.5.3.4
02.3	13 / 14 / 15 / 16	allow any number in range 13 to 16 allow any range within these values eg 14–16	1	AO3 4.5.3.5
02.4		extra line from a method cancels the mark	1 1 1	AO1 4.5.3.5
02.5	more reliable than diaphragm / spermicidal cream low chance of pregnancy no side effects	allow fewer pregnancies than diaphragm / spermicidal cream allow only 1 more pregnancy than the pill (per 100 women per year) allow almost as good as the pill allow reference to one named example allow easy to get / buy allow easy to use allow prevent / reduce spread of STDs / gonorrhoea / HIV ignore cost	1 1 1	AO3 4.5.3.5
Total			**9**	

4.5.3.4 Hormones in human reproduction

Answer 08 · Mark scheme

June 2018 | 8461/2F | Original Q2



4.5.3.4 Hormones in human reproduction

Answer 09 · Mark scheme

June 2022 | 8461/2F | Original Q5

Question 5

Question	Answers	Extra information	Mark	AO / Spec. Ref.
05.1	oestrogen progesterone		1 1	AO1 4.5.3.4

Question	Answers	Extra information	Mark	AO / Spec. Ref.
05.2	FSH causes an egg to mature in the ovary		1	AO1 4.5.3.4

Question	Answers	Extra information	Mark	AO / Spec. Ref.
05.3	(from day) 9 (to day) 15	do **not** accept (from day) 15 (to day) 9	1	AO2 4.5.3.5

4.5.3.4 Hormones in human reproduction

Answer 09 · Mark scheme

June 2022 | 8461/2F | Original Q5

Question	Answers	Mark	AO / Spec. Ref.
05.4	**Level 3:** Relevant points (reasons/causes) are identified, given in detail and logically linked to form a clear account.	5–6	AO1 4.5.3.4 4.5.3.5
	Level 2: Relevant points (reasons/causes) are identified and there are attempts at logical thinking. The resulting account is not fully clear.	3–4	
	Level 1: Points are identified and stated simply, but their relevance is not clear and there is no attempt at logical thinking.	1–2	
	No relevant content	0	
	Indicative content • oral contraceptive / the 'pill' ○ (contains hormones / oestrogen / progesterone) to prevent egg / follicle maturing **or** prevents ovulation • injection / implant / skin patch ○ (contains hormones / oestrogen / progesterone) to prevent egg / follicle maturing **or** prevents ovulation • condom / femidom ○ prevents sperm reaching egg or prevents sperm entering woman's body / vagina • diaphragm ○ prevents sperm reaching egg / womb / oviduct • IUD ○ prevents implantation **or** releases hormone / progesterone to prevent ovulation **or** (releases copper ions to) thicken mucus and prevent sperm passage • spermicide ○ kills sperm • sterilisation / vasectomy / tubular ligation ○ prevents passage of sperm / egg • rhythm method ○ no egg available for fertilisation		

Total Question 5		**10**

4.5.3.4 Hormones in human reproduction

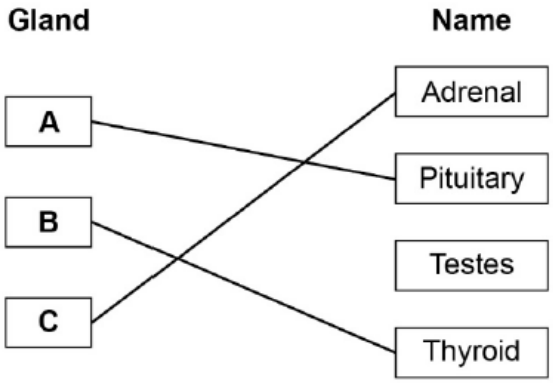
Answer 10 · Mark scheme

June 2023 | 8461/2F | Original Q1

Question 1

Question	Answers	Extra information	Mark	AO / Spec Ref.
01.1	the endocrine system		1	AO1 4.5.3.1

Question	Answers	Extra information	Mark	AO / Spec Ref.
01.2	by the blood		1	AO1 4.5.3.1

Question	Answers	Mark	AO / Spec Ref.
01.3	 do **not** accept more than one line from a box on the left	1 1 1	AO1 4.5.3.1

Question	Answers	Extra information	Mark	AO / Spec Ref.
01.4	D		1	AO1 4.5.3.1 4.5.3.2

Question	Answers	Extra information	Mark	AO / Spec Ref.
01.5	the liver		1	AO1 4.5.3.2

4.5.3.4 Hormones in human reproduction

Answer 10 · Mark scheme

June 2023 | 8461/2F | Original Q1

Question	Answers	Extra information	Mark	AO / Spec Ref.
01.6	any **one** from: • lowers (blood) glucose • (makes) cells / liver / muscles take in glucose • (changes) glucose to glycogen	allow sugar for glucose allow controls (blood) glucose allow makes glycogen	1	AO1 4.5.3.2

Question	Answers	Extra information	Mark	AO / Spec Ref.
01.7	follicle stimulating hormone (FSH)		1	AO1 4.5.3.4

Question	Answers	Extra information	Mark	AO / Spec Ref.
01.8	oestrogen progesterone		1 1	AO1 4.5.3.4

Question	Answers	Extra information	Mark	AO / Spec Ref.
01.9	any **two** from: • oral contraceptive • injection • implant • (skin) patch • (some) IUDs	allow the pill allow contraceptive rod allow IUS allow named methods allow coil with hormone	2	AO1 4.5.3.5

Total Question 1	13

4.5.3.4 Hormones in human reproduction

Answer 09 · Examiner comments — June 2022 | 8461/2F | Original Q5

Question 5

This question was about the menstrual cycle and methods of contraception.

05.1 Almost two-thirds of students correctly selected *oestrogen* and *progesterone* as the female reproductive hormones. One in eight students included testosterone in their selection.

05.2 The role of FSH in causing eggs to mature in the ovary was known by almost two-thirds of students, although many thought it caused the breakdown of the uterus lining.

05.3 Given that a sperm cell could survive inside a woman's reproductive organs for five days and an egg for one day, with ovulation on day 14, the range of days when intercourse could result in fertilisation (i.e. 9 to 15) was correctly calculated by only one in twenty students. A wide range of suggestions was made, many of which bore little resemblance to the correct answer and it was difficult to understand how they had been arrived at.

05.4 Students who showed sufficient knowledge to get to Level 3 (about a quarter of students) frequently referred to condoms and the pill and how each of these works. Reference to the patch, an implant or the diaphragm were commonly made. Some students went somewhat over the top and suggested that castration (often in the vernacular) was an appropriate method of contraception and although this would be effective, the method was not credited. Weaker students often gave a list of methods but were unable to explain how they work. The most commonly understood method was the use of the condom, often described as stopping sperm from reaching the woman's body, the vagina or the egg.

Answer 10 · Examiner comments — June 2023 | 8461/2F | Original Q1

Question 1

This question was about human hormones.

01.1 Almost two-thirds of students correctly selected the endocrine system as the name of the system with glands that produce hormones.

01.2 Two-thirds of students also chose the blood as the means of transport of hormones around the body.

01.3 Recognition of the hormone-producing glands in Figure 1 was less secure, with fewer than half of students able to assign all three names correctly to their positions in the body.

01.4 More than two-thirds of students recognised that gland D in Figure 1 was the source of insulin.

01.5 A large majority of students selected the liver as insulin's main target organ.

01.6 Around one-third of students were able to describe an effect of insulin in terms of lowering blood glucose or causing it to be taken in by cells or turned into glycogen.

Questions 01.7 to 01.9 related to the female reproductive hormones.

01.7 The vast majority of students selected FSH as the hormone that causes an egg to mature in the ovary.

4.5.3.4 Hormones in human reproduction

Answer 10 · Examiner comments June 2023 | 8461/2F | Original Q1

01.8 The vast majority of students were able to select the name of at least one hormone that helped to maintain the lining of the uterus, and almost two-thirds correctly selected two: oestrogen and progesterone.

01.9 Two methods of contraception that use hormones were required here and, although over three-quarters of students knew at least one, fewer than a half could give two. The most common answers were ‘the pill’, ‘injections’ or ‘patches’. A surprising number of students could offer no suggestions, and ‘condoms’ were a common incorrect suggestion.