AQA GCSE Combined Science - Trilogy | 8464

SPECIFICATION POINT 4.5.3.4

Contraception

Mark schemes and examiner comments

Tier	**Foundation**
Question groups	**3**
Available paper years	**2020–2025**

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 Contraception

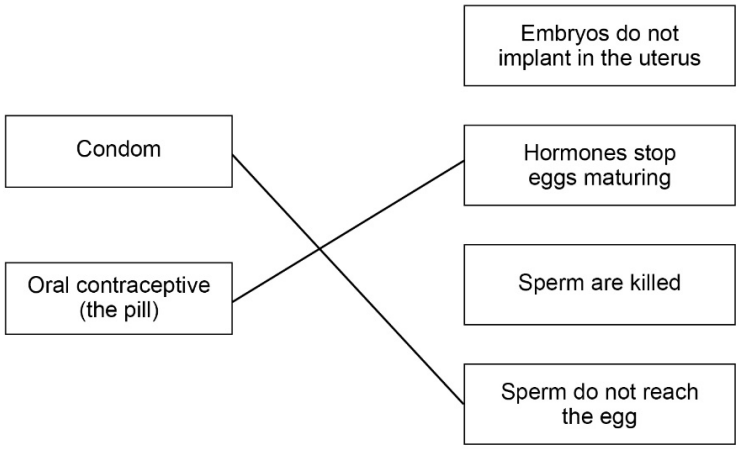
Answer 01 · Mark scheme

November 2020 | 8464/B/2F | Original Q1

Question	Answers	Extra information	Mark	AO / Spec. Ref.
01.1	gametes are formed sperm and egg fuse		1 1	AO1 4.6.1.1
01.2	Y gamete for father **Mother**: X, X **Father**: X → XX, **XX**; **Y** → **XY**, **XY**	all derivations correct = 2 marks 1 or 2 correct = 1 mark allow correct derivations from incorrect gamete	1 2	AO2 4.6.1.6
01.3	rings drawn around all XY	allow one ring drawn around both XY ignore ring drawn around father's genotype ecf any letter for Y, except X	1	AO2 4.6.1.6
01.4	**Hormone** / **Change that hormone causes at puberty** Oestrogen → Breasts develop Oestrogen → Skin turns lighter Testosterone → Voice becomes deeper Wisdom teeth appear If more than one line from a hormone no mark for that hormone		1 1	AO2 4.5.3.3

4.5.3.4 Contraception

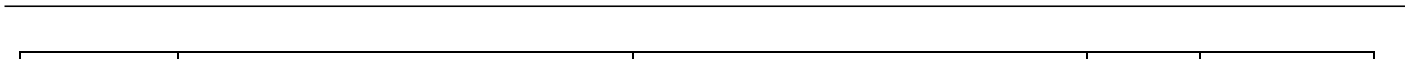
Answer 01 · Mark scheme

01.5	**Method of contraception** / **How the method prevents pregnancy**  If more than one line from a method of contraception no mark for that method		1 1	AO1 4.5.3.4
01.6	advantage – any **one** from: • very reliable • easy to take • do not have to rely on partner • helps to treat acne or period pain disadvantage – any **one** from: • may cause side effects • may affect her fertility later • have to remember to take it (every day) • does not protect against STIs	ignore you do not get pregnant allow described eg headaches, nausea, putting on weight allow you have to take it every day	1 1	AO3 4.5.3.4
Total			**12**	

4.5.3.4 Contraception

Answer 01 · Mark scheme

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Answer 02 · Mark scheme

Question	Answers	Extra information	Mark	AO / Spec. Ref.
06.1	endocrine (system)	ignore hormonal (system)	1	AO1 4.5.3.1
06.2	D		1	AO1 4.5.3.1 4.5.3.2
06.3	A		1	AO1 4.5.3.1
06.4	(in / through / via) blood	allow (in / through / via) bloodstream allow (in / through / via) plasma allow (in / through / via) blood vessels **or** named blood vessel	1	AO1 4.5.3.1
06.5	ovary / ovaries testis / testes	in either order allow testicle(s) allow placenta if no other mark awarded allow gonad(s) for **1** mark	1 1	AO1 4.5.3.1 4.5.3.3
06.6	luteinising hormone (LH)		1	AO2 4.5.3.3

4.5.3.4 Contraception

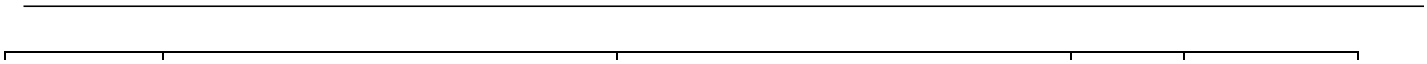
Answer 02 · Mark scheme

Question	Answers	Mark	AO / Spec. Ref.
06.7	**Level 3:** A judgement, strongly linked and logically supported by a sufficient range of correct reasons, is given.	5–6	AO3 4.5.3.4 4.3.1.9
	Level 2: Some logically linked reasons are given. There may also be a simple judgement.	3–4	
	Level 1: Relevant points are made. They are not logically linked.	1–2	
	No relevant content	0	
	Indicative content Advantages • non-permanent like condom / diaphragm / IUDs / spermicides / abstinence **or** unlike surgical sterilisation • longer lasting than condom / diaphragm / IUDs / spermicides • no need to remember unlike oral contraceptive • one injection rather than surgery for sterilisation • surgery (for sterilisation) has risks, for example, infection • no other method of long-lasting contraception (rather than sterilisation) relies on men Disadvantages • no protection from sexually transmitted diseases unlike barrier methods **or** named barrier method • not as long lasting as (surgical) sterilisation • at clinical / drug trial stage, so unknown side effects • at clinical / drug trial stage, so unknown efficacy • do not know how long it will last (as info only states 'up to 13 years') • can stop taking a pill **or** using a condom if you change your mind / want to get pregnant, whereas have to wait 13 years with the injection • (minor) risk of infection posed with an injection compared to no risk with the oral contraceptive For **Level 3** references to advantages **and** disadvantages of the new drug compared to named existing methods are required.		
Total		**13**	

4.5.3.4 Contraception

Answer 02 · Mark scheme

November 2021 | 8464/B/2F | Original Q6



4.5.3.4 Contraception

Answer 03 · Mark scheme

June 2025 | 8464/B/2F | Original Q6

Question 6

Question	Answers	Extra information	Mark	AO / Spec. Ref.
06.1	oestrogen	allow phonetic spelling allow other correct named hormone eg progesterone do **not** accept FSH / LH	1	AO1 4.5.3.3

Question	Answers	Extra information	Mark	AO / Spec. Ref.
06.2	any **one** from: • (stimulates / causes) sperm production • (stimulates / causes male) secondary sexual characteristics	 allow (stimulates / causes) puberty allow (stimulates / causes) named male secondary sexual characteristic(s) eg muscle growth	1	AO1 4.5.3.3

4.5.3.4 Contraception

Question	Answers	Extra information	Mark	AO / Spec. Ref.
06.3	any **one** from: • protection / prevention against sexual transmitted diseases(s) • fewer / no side effects • immediate • (may) contain a chemical to kill sperm • (more) easily accessible • described disadvantage of hormonal method(s) eg (contraceptive) pill could be forgotten	allow converse if clearly referring to hormonal methods allow protects / prevents against STD(s) / STI(s) allow protects / prevents against named STD / STI allow do not affect menstrual cycle allow fewer / no named (possible) side effects of hormonal contraceptives eg fewer / no headaches / nausea / acne ignore do not affect hormones ignore safer allow quicker to use ignore temporary allow (may) contain spermicide	1	AO3 4.5.3.4

4.5.3.4 Contraception

Answer 03 · Mark scheme

Question	Answers	Mark	AO / Spec. Ref.
06.4	**Level 2:** Scientifically relevant facts, events or processes are identified and given in detail to form an accurate account.	4–6	AO1 4.5.3.3 4.5.3.4
	Level 1: Facts, events or processes are identified and simply stated but their relevance is not clear.	1–3	
	No relevant content	0	
	Indicative content **Method** • oral contraceptive **or** pill **Detail of how the contraception is used** ○ taken daily **or** taken every 21/28 days **or** taken in a monthly cycle ○ containing progesterone ○ containing oestrogen ○ (hormones) absorbed into the blood **Method** • injection • patch • implant • intrauterine system / device **or** IUD **or** IUS **or** coil **Detail of how the contraception is used** ○ last several weeks / months ○ containing progesterone ○ slow release of progesterone / hormone ○ into blood **Detail (that can apply to all hormonal contraceptive methods)** ○ to inhibit / reduce / prevent FSH (release) ○ (lack of FSH) so no eggs mature / develop ○ to inhibit / reduce / prevent LH (release) ○ (lack of LH) so no eggs released (from ovary) **or** so prevents ovulation ○ (progesterone) thickens (cervical) mucus ○ (mucus) prevents / reduces sperm movement (to uterus) ○ (oestrogen / progesterone) changes the thickness of the uterus lining ○ (uterus lining thickening / thinning) makes implantation less likely For **Level 2**, answers must give details for the method(s) described.		

Total Question 6	9

4.5.3.4 Contraception

Answer 02 · Examiner comments

November 2021 | 8464/B/2F | Original Q6

Question 6 (standard demand)

This question was about hormones and contraception. Early parts of the question requiring recall of correct terms such as ‘endocrine’ were not answered well. Common incorrect answers were digestive system, respiratory system or attempts to name the organs. The vast majority knew that hormones travel in the blood. Some students knew the hormones were likely to be in the plasma, which was creditworthy. Inaccuracies in responses such as ‘in red blood cells’ did not gain the mark. Confusion was seen regarding the term ‘glands’ in **06.5** in this context, with a wide range of other parts of the reproductive system being named.

There was a generally a good attempt at evaluating a new contraceptive method with existing methods in **06.7**. In this question students needed to consider both advantages and disadvantages compared with named existing methods of contraception to access 5 or 6 marks. Clear guidance relating to the command words used in AQA GCSE Sciences examinations is available. Students were not given information regarding the efficacy of the new contraceptive, but some students attempted to compare the efficacy with existing contraceptive methods.

4.5.3.4 Contraception

Answer 03 · Examiner comments

June 2025 | 8464/B/2F | Original Q6

Question 6 (Standard demand)

06.1 The most common answer was oestrogen, with many alternative spellings. The usual rule regarding phonetic spelling was applied. See page 5 of the mark scheme for an explanation of how this is applied. Progesterone was less frequently given, and testosterone was given by a few students and was also correct.

Incorrect responses included FSH / LH / other varied combination of letters. The reference to something being 'produced in the ovaries' led some students to respond with 'eggs' instead of a hormone. Glucagon, adrenaline and insulin were occasionally offered as an answer.

06.2 Many students gave correct answers to this question, the responses being evenly split between the two points listed in the mark scheme.

Puberty was often named in relation to bullet point 2 and various secondary sexual characteristics were suggested, the most frequent being 'muscle growth'.

Incorrect answers often arose from not reading the question and giving the name of the hormone released from the testes as testosterone.

Credit was not gained for statements that:

- were too vague such as – 'hair growth', 'helps males develop' or 'sperm' without qualification
- named the hormone rather than its function
- referred to functions of sperm cells rather than of the hormone
- suggested adaptations of sperm cells instead.

06.3 Students generally gave appropriate answers here, the most commonly seen correct response being 'protection from sexually transmitted infections'. A significant number also identified the lack of side effects or the accessibility of condoms. Credit was not given for responses which focused only on either how condoms acted as a method of contraception or their relative efficacy.

06.4 This was a levelled, extended response question based on hormonal methods of contraception. On the Foundation tier paper, students found it a challenge to include relevant detail about hormonal contraception.

The indicative content covered both the naming of methods and the key details of those methods.

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4.5.3.4 Contraception

Answer 03 · Examiner comments June 2025 | 8464/B/2F | Original Q6

Students achieving a Level 1 mark had to correctly give at least one point from the indicative content. This could be a named hormonal method, or relevant detail as demonstrated by the indicative content. Students were most often able to list one, or several hormonal methods, but did not give any detail and therefore could not be awarded a mark within Level 2.

Frequently seen aspects of answers that did not gain credit included:

- inclusion of non-hormonal methods such as the condom / sterilisation / spermicides
- consideration of IVF as a method of contraception
- details of the normal roles of hormones and of their interactions without relating to their significance in contraception
- statements that were too vague such as 'it makes the body believe it is pregnant' / 'it has an effect on' (e.g. eggs being released) or 'it controls' (e.g. FSH production) without any specific creditworthy detail
- evaluation of the efficacy rather than a description of methods as was asked for in the question.

There were a few misconceptions with students stating that the hormones killed the sperm or stopped the sperm entering the egg. Others responded that the contraceptive pill makes the body produce oestrogen / progesterone, rather than 'containing' those hormones. Some students also thought the hormones had a 'rebalancing' effect on the body or gave insufficient answers such as 'the body is tricked into thinking it is pregnant'.

0 6 . 4 Describe how **hormones** are used in different methods of contraception.

[6 marks]

hormones are typically used in the contraceptive pills and the implant. They release hormones into the blood stream and the hormone stops the release of the egg and also thickens the lining of the uterus, by doing this it helps to prevent the sperm reaching the egg. In condoms no hormones are used as they act as a barrier to stop the sperm reaching the egg and prevents STIs too.

This student has given two methods of hormonal contraception (pill and implant) and three details (hormones released into bloodstream, hormones stopping release of the egg, and thickens the lining of the uterus). This exceeds the requirements to enter Level 2, so 5 marks were awarded. The reference to a non-hormonal method (condom) has no impact on the mark awarded.

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4.5.3.4 Contraception

Answer 03 · Examiner comments

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Contact us

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