

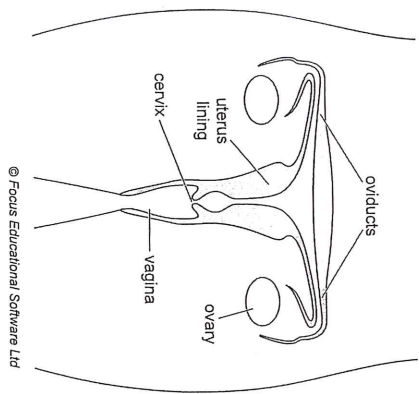
B2.3 Reproduction, Fertility & Contraception ~ Test

Name: _____

Date: _____

Score: 173 %

1. (a) The diagram below shows part of the female reproductive system.



(i) On the diagram, draw an X to show where a sperm nucleus fuses with an egg nucleus. [1]

(ii) Name the process that occurs when a sperm nucleus fuses with an egg nucleus. [1]

After a sperm nucleus fuses with an egg nucleus, a zygote is formed. This divides to form a ball of cells.

(iii) Name the type of cell division which occurs to form a ball of cells. [1]

Development of a ball of cells is followed by implantation.

(iv) Name the structure, labelled on the diagram, where implantation occurs. [1]

Examiner Only
Marks Remark

After implantation, the placenta develops. The placenta allows substances to pass across from the mother to the foetus and from the foetus to the mother.

(v) Name two substances, needed by the foetus, that pass across the placenta from the mother to the foetus.

1. _____
2. _____

Harmful substances like alcohol can also pass across the placenta from the mother to the foetus.

(vi) Suggest one harmful effect of alcohol on the development of the foetus. [1]

(vii) Suggest one way that the government could encourage pregnant women not to drink alcohol. [1]

(b) A sex hormone in females causes secondary sexual characteristics to develop.

Complete the table by naming this hormone, naming the organ where it is produced and describing two secondary sexual characteristics that it causes to develop.

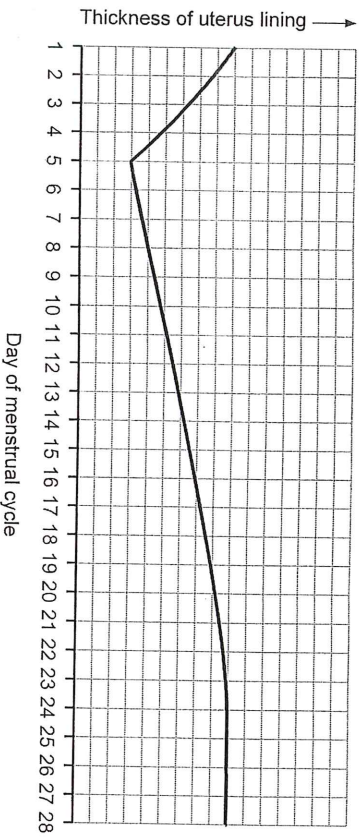
Name of female sex hormone	Organ where produced	Secondary sexual characteristics developed
		1. _____
		2. _____

[4]

Examiner Only
Marks Remark

2.

The graph shows how the thickness of the uterus lining varies during a woman's menstrual cycle of 28 days. The woman is not pregnant.



Source: Principal Examiner

(a) Use the graph to give the days when menstruation is occurring.

_____ to _____ [1]

(b) Name and describe the event that takes place on day 14 of this menstrual cycle.

Name _____

Description _____

_____ [2]

(c) Suggest what you would expect to happen to the uterus lining after day 28 if the woman became pregnant.

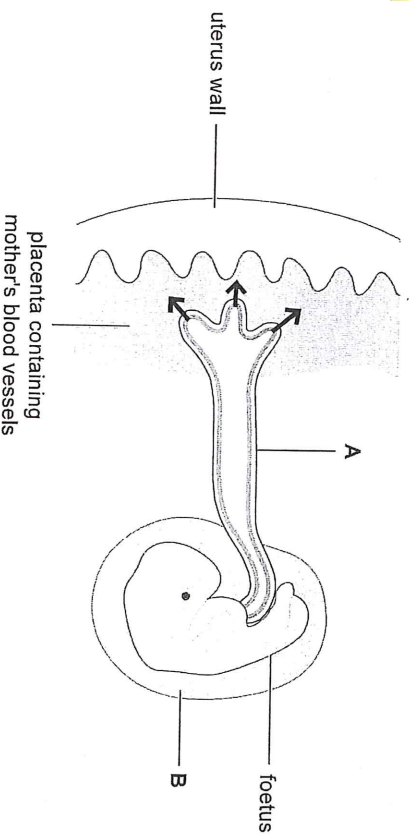
_____ [1]

[Turn over

10145

3.

The diagram shows a foetus and structures that form in the uterus during pregnancy.



© GCSE Biology for CCEA, 2nd Edition by James Napier, (ISBN: 9780340983805)
"Reproduced by permission of Hodder Education".

(a) Name structure A that links the placenta to the foetus.

_____ [1]

(b) (i) Give the function of the placenta and describe how it is adapted for its function.

Function _____

Adaptation _____

_____ [2]

(ii) Name one substance that passes in the direction shown by the arrows on the diagram.

_____ [1]

(c) Name structure B shown on the diagram.

_____ [1]

10145

(a) The table shows some secondary sexual characteristics that develop during puberty.

Some of these characteristics develop in males, some in females and some in both males and females.

(i) Complete the table by placing a tick (✓) to show if the characteristic develops in males only, females only or both.

Secondary sexual characteristics	Males only	Females only	Both
Growth of breasts			
Growth of pubic hair			
Voice deepens			
Hips widen			

[4]

Secondary sexual characteristics are controlled by sex hormones.

(ii) Name the sex hormone produced by the testes.

ovaries. _____

[2]

(iii) Sperm cells are produced in the testes.

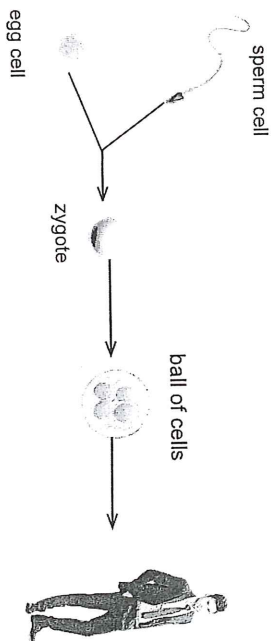
Describe and explain **one** way in which a sperm cell is adapted for its function.

Adaptation _____

Explanation _____ [2]

Examiner Only
Marks Remark

The diagram shows the role of a sperm cell in human reproduction.



Images 1, 2, 4 & 5 (c) iStock / Thinkstock and Image 4 (c) Seipon / Science Photo Library

(b) Complete the passage below about reproduction, using the most appropriate terms from the following list.

- mitosis placenta foetus vagina amniotic fluid
haploid uterus female oviduct meiosis

Fertilisation takes place in the _____. In this process a sperm and egg fuse to form a zygote. The zygote divides by _____ and grows into a ball of cells as it travels to the _____ where it implants and develops into a _____. As this grows, it is cushioned by the _____ and receives dissolved nutrients across the _____. [6]

Examiner Only
Marks Remark

(c) Name three methods of contraception and describe how each prevents pregnancy.

In this question you will be assessed on your written communication skills, including the use of specialist scientific terms.

_____ [6]

Examiner Only
Marks Remark

5.

Infertility in women can have several causes.

(a) Give two causes of infertility in women.

1. _____

2. _____
_____ [2]

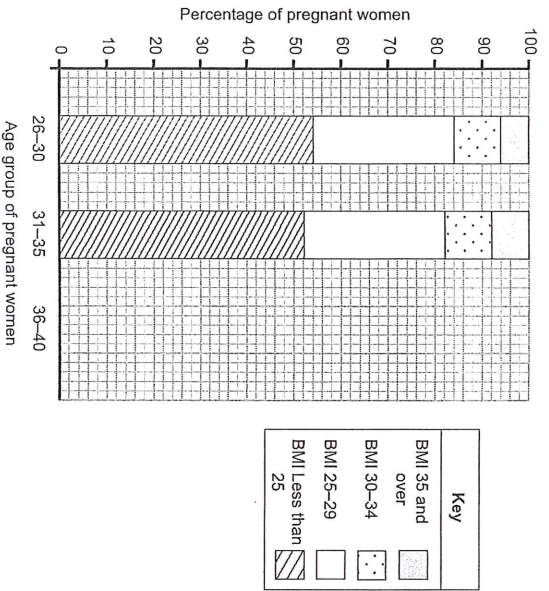
(b) In vitro fertilisation (IVF) can be used to treat infertility in some women. Describe the stages in the process of IVF.

In this question you will be assessed on your written communication skills, including the use of specialist scientific terms.

6.

(a) Obesity in pregnant women can increase the risk of health problems in the developing baby.

The graph below shows the BMI (body mass index) of pregnant women, in different age groups, in Northern Ireland in 2010–2011.



Women are defined as being obese if they have a BMI of 30 and over.

(i) What percentage of pregnant women aged 31–35 were classed as being obese?

Show your working.

_____ % [2]

	Examiner Only Marks		Remark
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The table below shows the BMI of pregnant women aged 36–40.

BMI	Key	Percentage of pregnant women aged 36-40
35 and over	<input type="checkbox" value="stippled"/>	10
30-34	<input type="checkbox" value="dotted"/>	10
25-29	<input type="checkbox" value="white"/>	38
Less than 25	<input type="checkbox" value="diagonal lines"/>	42

(ii) Complete the graph opposite by using this data to draw the bar for pregnant women aged 36–40. [3]

(iii) Using the completed graph, give the age group of pregnant women that is **least** likely to have a developing baby with health problems. [1]

_____ [1]

(b) As well as causing problems in pregnancy, obesity can result in high cholesterol levels. Describe and explain how a diet which is high in cholesterol could lead to a heart attack. In this question you will be assessed on your written communication skills, including the use of specialist scientific terms.

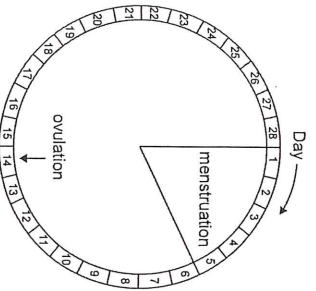
_____ [6]

	Examiner Only Marks		Remark
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Sex hormones are involved in the menstrual cycle.

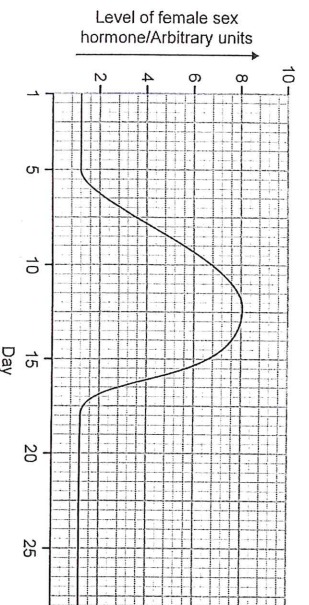
- (a) How are hormones transported around the body?

- (b) The diagram below shows a 28 day menstrual cycle.



[1]

The graph below shows how levels of a female sex hormone change during the menstrual cycle.



Examiner Only
Marks Remark

Using the diagram, the graph and your knowledge, describe the changes during the menstrual cycle from Day 1 to Day 16.

Suggest how the events of the menstrual cycle are linked to the hormone levels shown in the graph.

In this question you will be assessed on your written communication skills, including the use of specialist scientific terms.

Examiner Only
Marks Remark

- (c) In vitro fertilisation (IVF) may be used to treat childless couples who have fertility problems.

- (i) How are zygotes produced in the laboratory during IVF?

_____ [6]

Examiner Only
Marks Remark

- (ii) Suggest one reason why zygotes produced during IVF are left to grow to the eight cell stage (embryo) before being transferred into the uterus.

_____ [1]

- (iii) Suggest two ethical issues associated with IVF.

1. _____
2. _____ [2]

Examiner Only
Marks Remark