

Q1. (2018)

11 Which of these can be used to treat type 2 diabetes but **not** type 1?

- A Diet and exercise
- B Exercise only
- C Insulin and diet
- D Insulin, diet and exercise

Your answer

☐

[1]

Q2. (2018)

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

..... [1]

Q3. (2018)

(b) Finish these sentences to explain what is happening in the body of a female during the menstrual cycle.

The pituitary gland in the releases the hormone FSH.

FSH causes an to mature in a follicle.

FSH also causes the follicle to release the hormone

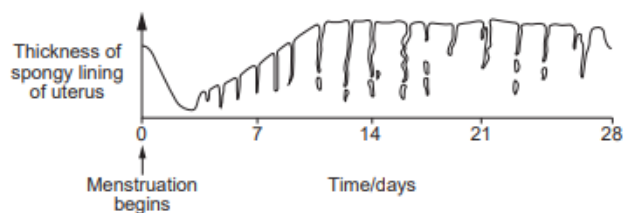
After ovulation, the empty follicle releases another hormone called

[4]

Q4. (2018)

A)

(c) The diagram shows how the lining of the uterus changes during the menstrual cycle.



(i) Mark on the diagram with the letter **E** the most likely point when ovulation occurs. [1]

B)

(ii) If a fertilised egg is **not** present, a change happens to the uterus lining after 28 days.

How does the uterus lining change?

..... [1]

Q5. (2018)

(d)* The table shows the effectiveness of some different forms of contraception.

Form of contraception	Percentage pregnancies per year (%)
Hormonal	
Injection	<1
Patch	<1
Pill	2
Non-hormonal	
Diaphragm	6
Male condom	2
Male sterilisation	<1

Suggest explanations for the differences in the effectiveness of the methods of contraception and explain why the pill is a popular method.

6

Q6. (2019) 19c

A)

(c) (i) Different hormones control the human menstrual cycle.

Complete the sentences to describe how the menstrual cycle is controlled.

Use words from the list.

Each word can be used once, more than once, or not at all.

fetus	follicle	FSH	oestrogen	progesterone
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The hormone released by the pituitary gland is called

This hormone acts on the ovary and causes the growth of a

The hormone that maintains the lining of the uterus is called

[3]

B)

- (ii) The table shows the concentration of oestrogen in the blood during the first 7 days of the menstrual cycle.

Time in days	Oestrogen (mg/100 cm ³ of blood)
1	20
2	20.5
3	25
4	27.5
5	30
6	32.5
7	34

Put a (ring) around the days below which show a steady increase in the concentration of oestrogen.

Days 1–4

Days 2–5

Days 3–6

Days 4–7

[1]

Q7. (2019)

A)

- 20 (a) (i) Diabetes occurs when blood sugar levels are not controlled.

Which hormone reduces blood sugar levels?

.....

[1]

B)

- (ii) Hormones are produced in endocrine glands.

Describe how hormones control different parts of the body.

.....

 [2]

C)

- (b) Diabetes can often result in high levels of glucose in the urine.

Which organ usually prevents glucose being lost from the blood when urine is made?

..... [1]

D)

- (c) Drugs can be used to treat one type of diabetes. One drug prevents an enzyme working properly.

Suggest how a drug can stop an enzyme working.

.....

 [2]

Q8. (2020)

- 9 When a woman reaches the age of about 50, eggs are released less often from her ovaries. To try and correct this, her body increases the production of one hormone.

Which hormone is this?

- A Adrenaline
- B FSH
- C Progesterone
- D Testosterone

Your answer

[1]

Q9. (2020)

A)

- 19 Hormones are used in some methods of contraception.

- (a) (i) Which **two** hormones are found in the most commonly used contraceptive pills?

Put a ring around the **two** correct answers.

FSH Insulin Oestrogen Progesterone Testosterone

[1]

B)

- (b) Contraceptive hormones can be used by women in different ways.

Method 1

One contraceptive pill is taken every day at around the same time of day for 21 days. Then no pill is taken for seven days.

Fewer than 1 in 100 women will get pregnant in a year if they use the contraceptive pill correctly. However, typically 9 in 100 women will get pregnant in a year.

Method 2

A contraceptive implant is a small flexible plastic rod containing hormones. It is inserted under the skin of a woman by a doctor or nurse. It is reversible and needs replacing after 3 years.

Fewer than 1 in 100 women using the contraceptive implant will get pregnant in a year.

Which method is more successful?

Evaluate the information to explain why.

.....

.....

.....

.....

..... [2]

Q10. (2021)

A)

- 19 (a)** Insulin is a hormone that is important in controlling blood sugar levels.

Which organ in the body produces insulin?

..... [1]

B)

- (b)** Diabetes is a disorder that results in being unable to control blood sugar levels.

Table 19.1 shows some notes written by a doctor about a patient who has **type 1** diabetes.

Patient
35 years old
symptoms developed quite quickly
patient often feels tired
cells that make insulin have been destroyed

Table 19.1

- (i)** Which note in **Table 19.1** indicates that the patient has type 1 diabetes and **not** type 2?

..... [1]

C)

- (ii)** Describe how the patient should be treated.

.....

..... [1]

Q11. (2021)

A)

- 21** Polymenorrhea is a condition which affects the menstrual cycle.

Symptoms of the condition include the time between ovulation and the next period being shorter than usual.

- (a) (i)** What is the name of the hormone that could treat the symptoms of this condition?

Tick (✓) **one** box.

FSH	☐
Oestrogen	☐
Progesterone	☐
Testosterone	☐

[1]

B)

(ii) Describe how the hormone chosen in part (a)(i) would help.

.....
..... [1]

Q12. (2022)

9 One symptom of diabetes is glucose in the urine.
Which biochemical test is used to confirm the presence of glucose in the urine?

- A Benedict's
- B Biuret
- C Ethanol (emulsion)
- D Iodine

Your answer

☐

[1]

Q13. (2022)

19 A boat with ten people onboard capsizes and all ten people are found in the sea.

The first aiders at the scene take the body temperature of each of the ten people.

Rescued person	Body temperature after rescue (°C)
1	35.2
2	35.0
3	34.9
4	34.8
5	35.1
6	35.1
7	34.8
8	34.9
9	35.0
10	34.9

- (b) A study in the British Medical Journal looked at 35 488 people to see if there were differences in individuals' normal body temperatures.

They found the following:

- the mean body temperature was 36.6°C
- 95% of the population had a body temperature between 35.7°C and 37.3°C .

The study did **not** include people with infections or severe illnesses.

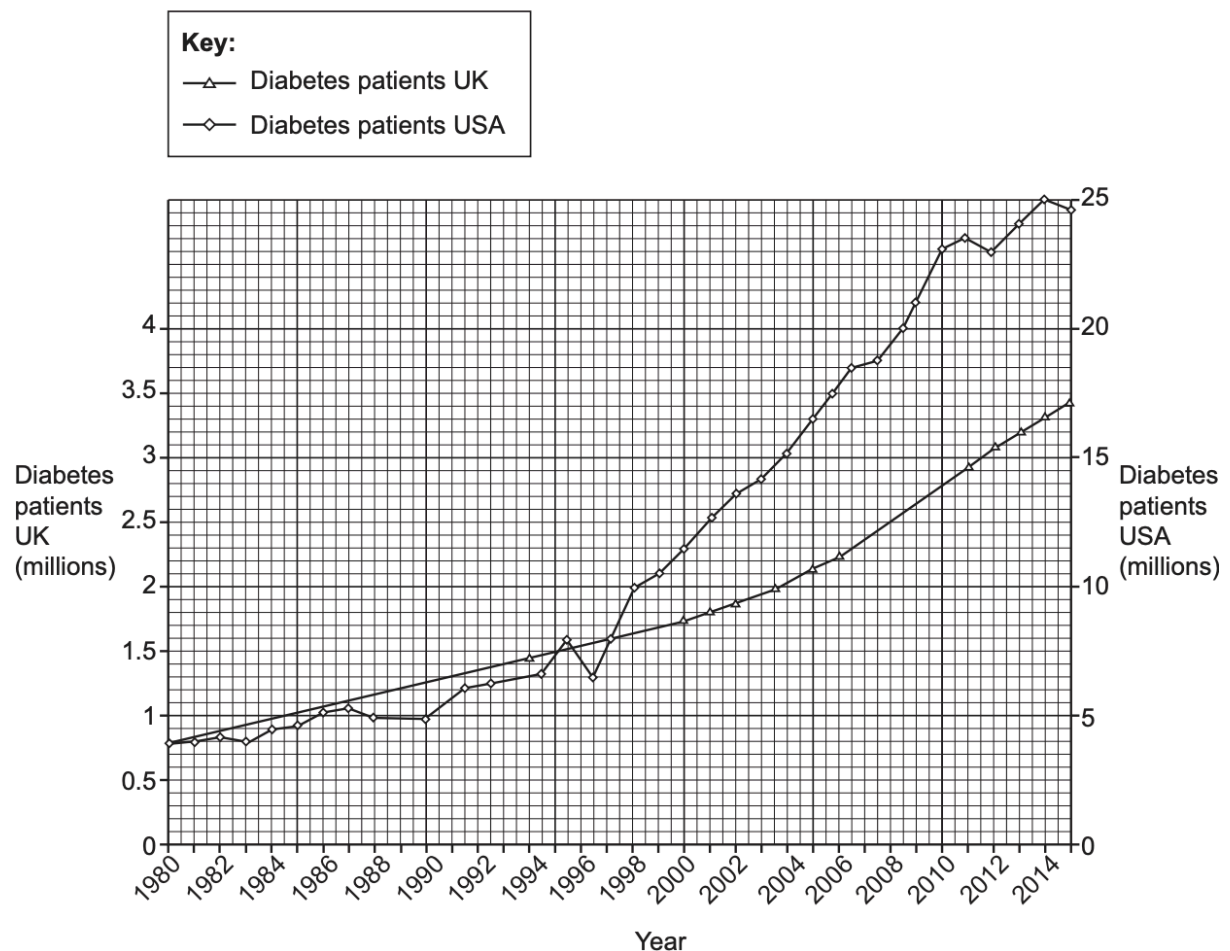
- (i) The British Medical Journal is a peer-reviewed journal.
Explain why scientists publish their results in peer-reviewed journals.

.....

 [2]

Q14. (2022)

- 22 The graph shows the number of patients with diabetes in the UK and the USA from 1980 to 2015.



(e) Diabetes can be Type 1 or Type 2.

Describe **two** differences between the treatments for Type 1 and Type 2 diabetes.

1

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2

.....

[2]

Q15. (2022)

A)

24 The female menstrual cycle is regulated by hormones.

As women get older, they go through a stage called menopause when their periods stop.

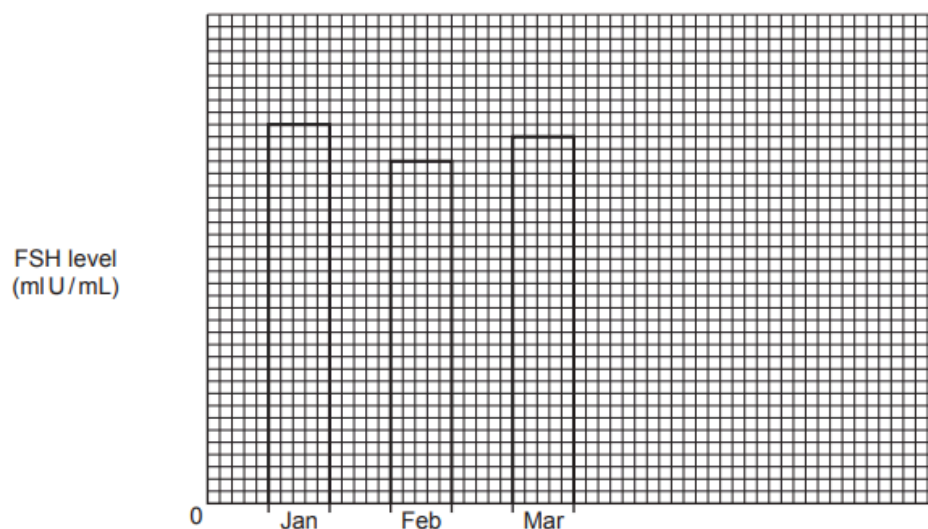
- Doctors can determine if a woman is going through menopause by measuring the level of FSH in their blood.
- If the FSH level goes above 30 ml U/mL, this indicates that menopause may have started.

A patient has her FSH levels measured each month for six months as shown in the table.

Month	FSH level (ml U/mL)
January	31
February	28
March	30
April	32
May	30
June	33

(a) (i) Complete the bar chart for the remaining values from the table.

Finish the scales for both axes.



B)

- (ii) What evidence is there to suggest this patient **may** have started menopause?

.....
..... [1]

C)

- (iii) The doctor decides they need more evidence to confirm if the patient has started menopause.

Suggest what further evidence the doctor should collect.

.....
.....
..... [2]

D)

- (b) The doctor discusses a treatment called hormone replacement therapy (HRT) with the patient.

The doctor gives the patient a leaflet about HRT.

Information about HRT

HRT usually contains the hormones oestrogen and progesterone.

Benefits of HRT

When some women reach the menopause, it can affect their health.

They can get hot flushes, mood swings and it can weaken their bones.

These symptoms can be reduced by taking HRT.

Risks of HRT

HRT increases the risk of blood clots and, if you are overweight, this risk is increased further.

HRT increases the risk of heart disease in people over the age of 60.

Taking HRT for more than a year can increase the risk of breast cancer.

A 56-year-old patient is deciding if she should take HRT. She is overweight.

Discuss what factors the patient should consider when trying to decide whether to take HRT.

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..... [3]

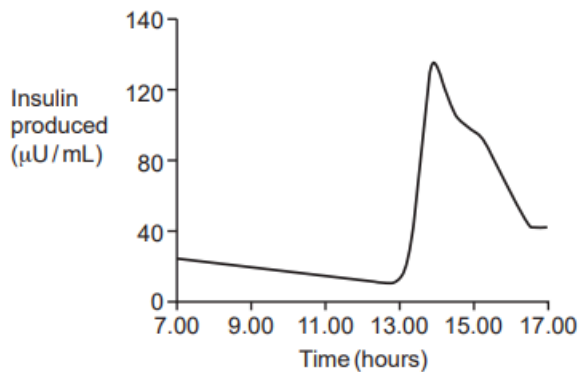
Q16. (2024)

- 17 An athlete is running a 10 km race. They need to produce ATP in their cells during the race.

A)

- (d) After the race, the athlete eats some food.

The graph shows the athlete's insulin production after the race.



- (i) Estimate what time the athlete ate the food.

..... [1]

B)

- (ii) Explain why eating food affects the athlete's insulin levels.

..... [2]

Q17. (2024)

A)

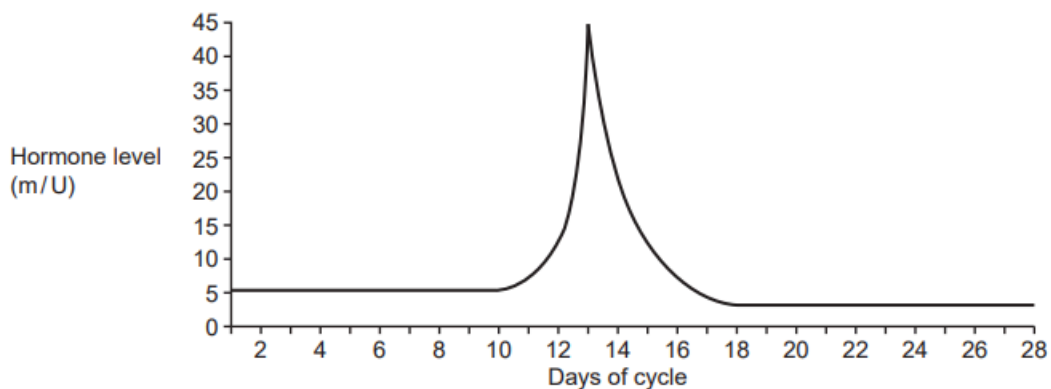
20

- (a)* A female is trying to get pregnant.

To help improve her chances of pregnancy her doctor tells her:

- to monitor her level of a hormone that causes ovulation
- most sperm only survive 2 days in the female uterus, although some sperm can survive up to 5 days
- eggs only survive in the body for 24 hours after ovulation unless they are fertilised.

The graph shows the female's hormone level during a typical menstrual cycle.



Explain when, during the female's menstrual cycle:

- having sex could **possibly** result in pregnancy
- having sex is **most likely** to result in pregnancy.

Use the information provided by the doctor, the graph and your scientific knowledge.

[6]

B)

(b) The table lists some of the different contraceptives available to males and females.

For each method of contraception, tick (✓) **all** the boxes that describe how that method works.

Method of contraception	Hormonal	Non-hormonal	Stops sperm entering the uterus	Stops ova (eggs) being released
Condom				
Diaphragm				
IUD				
Combined pill				

[4]

Q18. (2024)

- 22** A student investigates the effect of different concentrations of sugar solution on cubes of beetroot.

This is the method that they use:

Step 1 Cut four cubes of beetroot tissue.

Step 2 Place each beetroot cube in a test tube containing a different concentration of sugar solution.

Step 3 Leave the beetroot cubes in the sugar solutions for 3 hours.

Step 4 Remove the beetroot cubes from the sugar solutions.

- (a)** The student wants to calculate the percentage change in mass for each beetroot cube.

They want to use the method above to collect the data they need, but have missed some steps from the method.

Describe the **additional** steps needed in the method to find the data.

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.....

.....

..... **[3]**