

**Q1.**The human body produces many hormones.

- (a) (i) What is a *hormone*?

\_\_\_\_\_  
\_\_\_\_\_  
(1)

- (ii) Name an organ that produces a hormone.

\_\_\_\_\_  
(1)

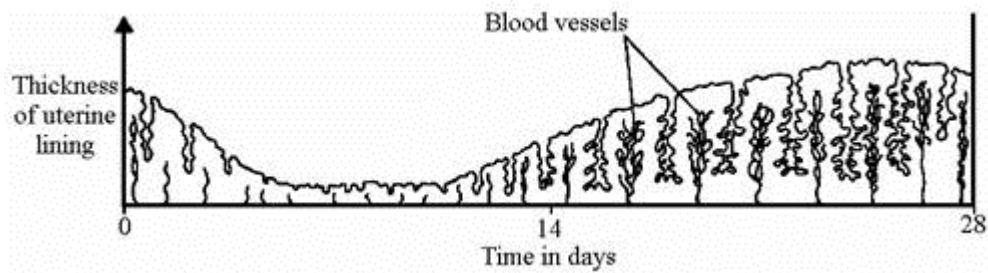
- (iii) How are hormones transported to their target organs?

\_\_\_\_\_  
(1)

- (b) Describe how the hormones FSH, oestrogen and LH are involved in the control of the menstrual cycle.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
(3)  
(Total 6 marks)

**Q2.(a)** The diagram shows changes in the uterus lining during 28 days of a menstrual cycle.



Describe how changes in the lining shown in the diagram adapt it for its function if an egg is fertilised.

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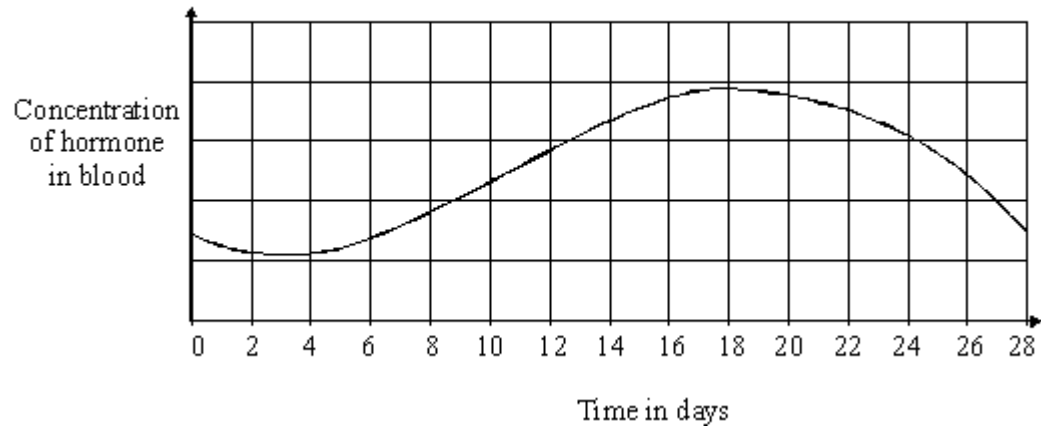
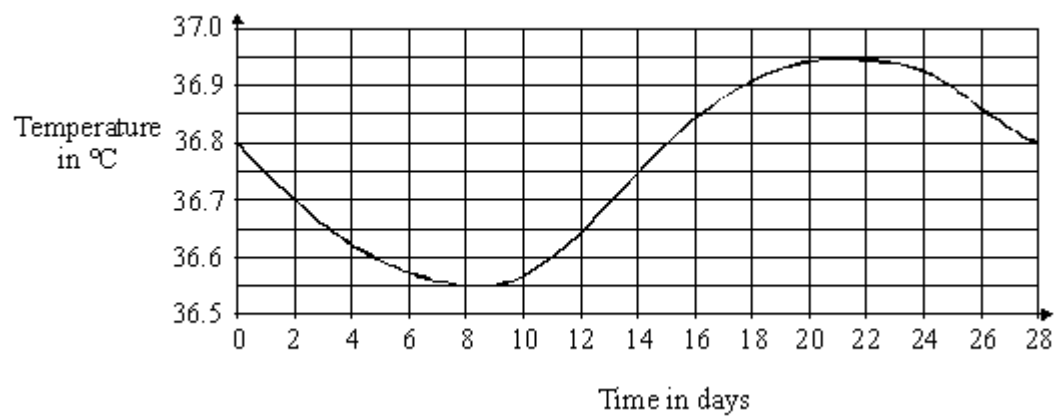
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(3)

- (b) The concentration of a certain hormone in the blood of a woman was measured during her menstrual cycle. The woman's temperature was also measured each day during this cycle.

**Graph 1** shows the results obtained for the measurement of the concentration of the hormone.

**Graph 2** shows the results obtained for the measurement of her body temperature.

**Graph 1****Graph 2**

- (i) What evidence is there that changes in the concentration of the hormone may be connected with changes in body temperature?

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(1)

- (ii) What is the difference between the minimum and maximum temperatures shown by **Graph 2**? Show your working.

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(2)

(Total 6 marks)

**M1.(a)** (i) any **one** from:

- chemical messenger / message  
*allow substance / material which is a messenger*
- chemical / substance produced by a gland  
*allow material produced by a gland*
- chemical / substance transported to / acting on a target organ
- chemical / substance that controls body functions

1

(ii) gland / named endocrine gland

*brain alone is insufficient*  
*allow phonetic spelling*

1

(iii) in blood / plasma **or** circulatory system **or** bloodstream

*accept blood vessels / named*  
*do **not** accept blood cells / named*

1

(b) *each hormone must be linked to correct action*  
*apply list principle*  
*ignore the gland producing hormone*

FSH stimulates oestrogen (production) / egg maturation / egg ripening

*ignore production / development of egg*

1

oestrogen inhibits FSH

*allow oestrogen stimulates LH / build up of uterine lining*

1

LH stimulates egg / ovum release / ovulation

*accept LH inhibits oestrogen*  
*ignore production of egg*

1

[6]

**M2.(a)** any **three** from

increased thickness **or** build up for  
attachment of zygote **or** so zygote can  
implant;

*allow gives more room for blood vessels*

3

increased blood vessels to provide  
nutrients for zygote;

*allow embryo **or** fetus **or** baby  
**or** egg for zygote*

becomes thicker to form placenta;

increased surface area for attachment  
of zygote;

increased glands for secretion;

- (b) (i) rise in hormone corresponds with rise  
in temperature;

*allow peak of hormone at same time as increased  
temperature **or** when hormone high, temperature is high  
allow change in hormone concentration followed by change  
in temperature **or** when hormone rises followed shortly by  
rise in temperature **or** graphs follow same pattern **or** graphs  
are nearly the same*

1

- (ii) maximum 36.95 °C

1

minimum 36.55 °C;

0.4 °C;

*allow **both** marks for correct answer **or** **one** mark for 0.4 if  
clearly round up **or** round down allow one mark for working if  
correct*

1

[6]

