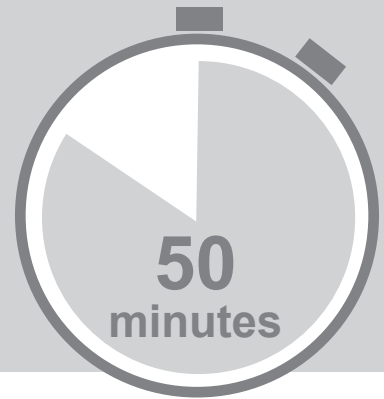




Human Biology General course

Externally set task sample



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WA student number: In figures

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In words



Before starting this task **check** that you have:

- black or blue pen, 2B pencils (including coloured)
- sharpener
- correction fluid/tape
- eraser
- ruler
- highlighters
- a calculator of the type used in classroom assessments.



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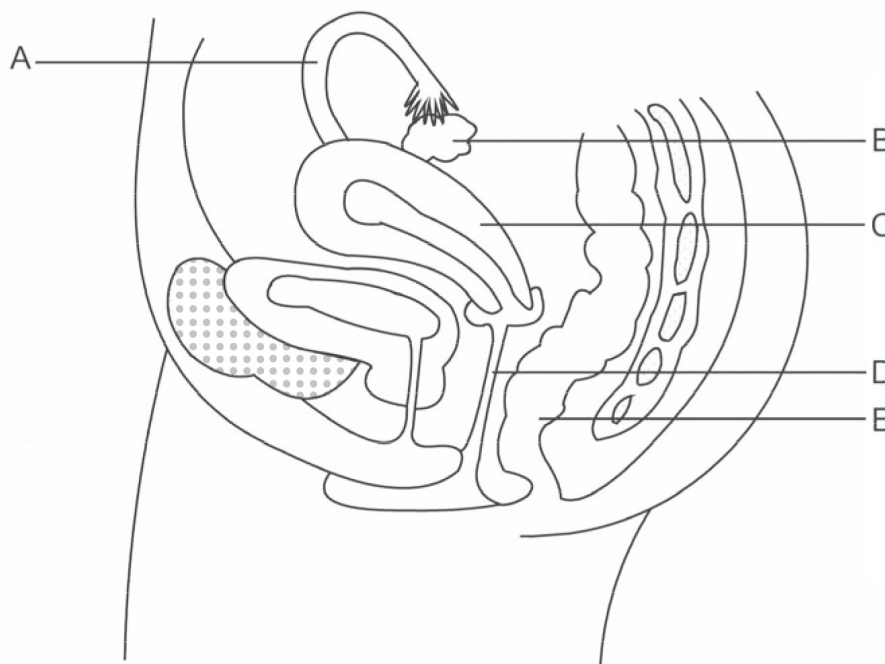
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Total time for the task: 50 minutes
 Total marks: 39 marks
 Weighting: 15% of the school mark

Question 1

(14 marks)

Question 1 refers to the diagram below of the female reproductive system.



(a) Name the following structures: (2 marks)

B: _____

D: _____

Pregnancy involves a combination of hormones interacting inside the female body.

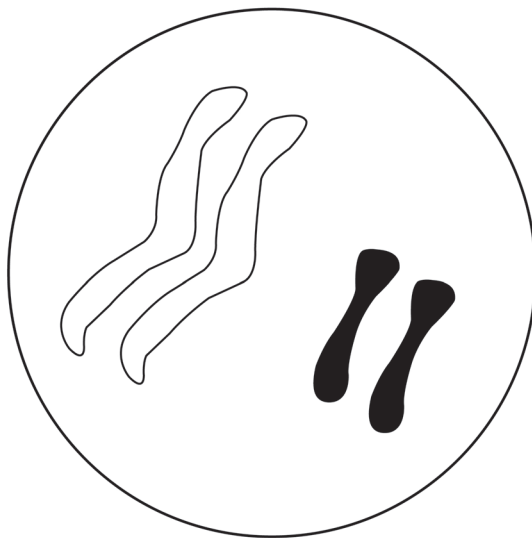
(b) Identify **two** hormones that play a role in preparing the uterus for implantation. (2 marks)

One: _____

Two: _____

Question 1 (continued)

Below is a diagram of a cell about to start meiosis. This cell contains two pairs of chromosomes.

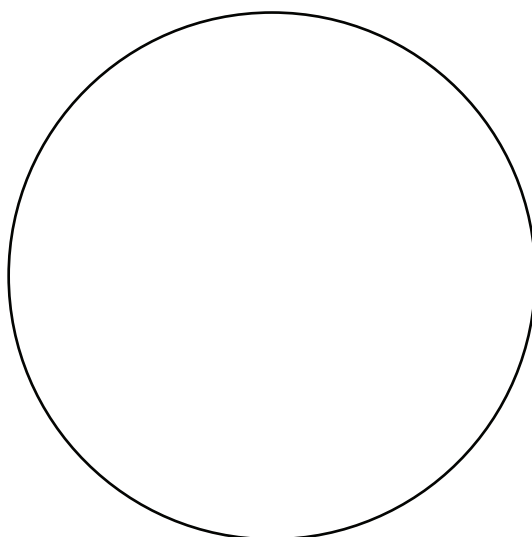


- (c) State the haploid and diploid number for the cell above. (2 marks)

Haploid number: _____

Diploid number: _____

- (d) In the circle below, draw the chromosomes for a new cell produced when the cell above has undergone meiosis. (2 marks)



(e) Contrast the structure and purpose of diploid and haploid cells. (4 marks)

(f) Describe where DNA is found in cells. (2 marks)

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Question 2

(15 marks)

An experiment was carried out with 60 male patients to check their sperm motility. Sperm motility is the ability of the sperm to move efficiently for fertilisation. Half of the patients were given alcohol and half were not, over a period of one month. The patient's sperm motility was measured and was recorded as a percentage in the table below. Generally, anything less than 30% is considered low sperm motility which could reduce fertility.

The results of the experiment are set out below.

Time (days)	Sperm motility with alcohol (%)	Sperm motility with no alcohol (%)
Day 0 (start)	45	60
Day 5	38	50
Day 10	42	50
Day 15	40	50
Day 20	25	30
Day 25	32	35
Day 30	40	60

- (a) Propose a hypothesis for the experiment. (2 marks)

- (b) Identify the following variables from this experiment. (2 marks)

Independent variable: _____

Dependent variable: _____

- (c) Draw a line graph for the data in the table on the grid provided below. (5 marks)



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A spare grid is provided at the end of this booklet. If you need to use it, cross out this attempt and indicate that you have redrawn it on the spare grid.

- (d) Calculate the mean sperm motility for the group without alcohol. Show your workings. (2 marks)

Question 2 (continued)

- (e) Propose a conclusion that can be drawn from the results of this experiment and state whether the results support your hypothesis proposed in part (a) on page 6. (2 marks)

- (f) State **two** improvements to this experiment that could increase the validity of the results. (2 marks)

One: _____

Two: _____

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Question 3

(10 marks)

Below is an article taken from the Department of Health and Aged Care website. Read the article and answer the questions below.



Australian Government
Department of Health and Aged Care

Endometriosis and pelvic pain clinics

We are establishing endometriosis and pelvic pain clinics across Australia to provide more appropriate and timelier endometriosis care and management. This will lead to reduced diagnosis timeframes and better pain management for those suffering from endometriosis and pelvic pain.

About the initiative

The Australian Government is funding endometriosis and pelvic pain clinics in every state and territory in Australia. These clinics aim to:

- improve access for patients to diagnostic, treatment and referral services for endometriosis and pelvic pain
- build the primary care workforce to manage this chronic condition
- improve access to new information and care pathways.

Why it is important

Endometriosis is a complex and debilitating chronic condition that can be hard to diagnose, with those suffering waiting an average of 7 years before diagnosis. It is a progressive condition that can start at puberty and continue through to old age. In Australia it affects at least one in nine girls, women and those assigned female at birth.

Goals

The clinics will provide multi-disciplinary care with a focus on:

- improving the timeliness of diagnosis
- promoting early access to intervention, care, treatment options, and referral services for endometriosis and pelvic pain.

(a) State whether this article is scientific or non-scientific. (1 mark)

(b) Justify your response to part (a). (2 marks)

See next page

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Question 3 (continued)

- (c) Outline why it is important to have up to date information when reading about health issues. (1 mark)

Use the information from the article to answer the following questions.

- (d) State why early detection is beneficial. (1 mark)

- (e) Explain why the initiative exists. (3 marks)

A recent social media post from a self-trained healer stated she believes endometriosis only affects those with a low pain threshold and that females will grow out of it with the use of natural remedies such as breathing techniques.

- (f) State whether the healer is providing an opinion or an evidence based idea. Justify your response. (2 marks)

End of questions

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Spare grid for Question 2(c)



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ACKNOWLEDGEMENTS

Question 3: Department of Health and Aged Care. (2023). *Endometriosis and Pelvic Pain Clinics*. Retrieved November, 2023, from <https://www.health.gov.au/our-work/endometriosis-and-pelvic-pain-clinics>