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GRADE 12 BLOCK TEST: Human Reproduction

22 May 2019

TOTAL: 50 MARKS

Set by: IM Foster

Moderated by: LS Department



Name: _____

Teacher's initials: _____

Check that you have 7 printed pages.

Question 1

- 1.1 Select the term in column B that best matches a description in column A. Each term may only be used once. **Write the letter** of the most suitable term next to the appropriate description between the brackets provided.

Column A	Column B
[] The reproductive hormone that remains at a consistently high level during pregnancy	A Ovulation
[] Rupture of the Graafian follicle	B Uterus
[] A strong membrane around the embryo	C Implantation
[] Labour is initiated by contractions of certain muscles in this organ	D Amniotic fluid
[] Attachment of the developing embryo as it sinks into the endometrium	E Progesterone
[] The most common site of fertilisation	F Amnion
[] Substance that protects and cushions the foetus from impact injury	G Placenta
[] Acts as a barrier against pathogens and drugs	H Vagina
	I Oviduct/Fallopian tube
	J Oestrogen

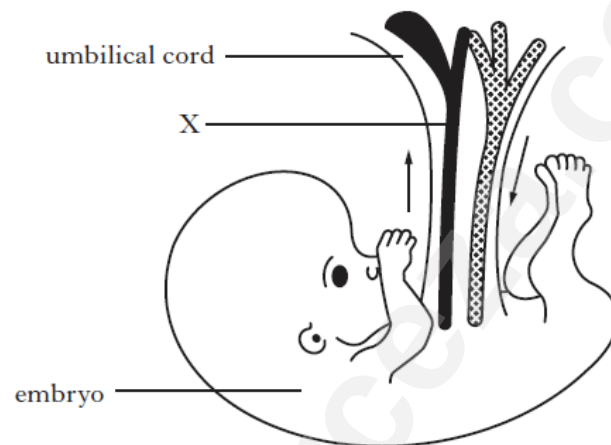
Question 2

Questions 2.1 to 2.4 are multiple choice questions. Choose only the letter of the correct answer and write it in the box below.

Question	2.1 (1 mark)	2.2 (1 mark)	2.3 (2 marks)	2.4 (2 marks)
Answer				

[6]

2.1 The diagram below shows the blood flow in the umbilical cord.



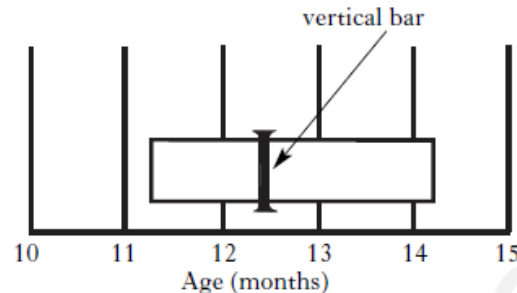
Which line in the table below identifies correctly blood vessel X and the blood it carries?

	Blood vessel X	Blood carried in X
A	vein	deoxygenated
B	vein	oxygenated
C	artery	deoxygenated
D	artery	oxygenated

2.2 Which of the following are produced by meiosis?

A	Haploid cells of identical genetic composition
B	Diploid cells of different genetic composition
C	Diploid cells of identical genetic composition
D	Haploid cells of different genetic composition

- 2.3 The diagram below shows the ages in months at which children are able to walk unaided. The left end of the bar shows the age at which 25% of infants can walk unaided. The right end of the bar shows the age at which 90% of infants can walk unaided. The vertical bar shows the age at which 50% of infants can walk unaided.



If 16 infants, aged twelve months, were tested, how many would be expected to walk unaided?

- A 4
- B 7
- C 9
- D 12

- 2.4 Changes in the ovary during the menstrual cycle are described below:

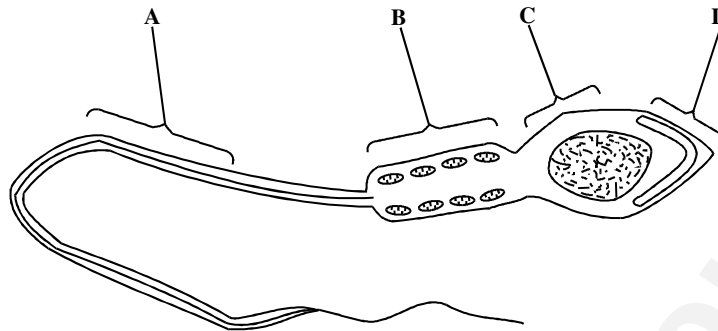
- 1 corpus luteum forms
- 2 ovulation occurs
- 3 progesterone is produced
- 4 corpus luteum disintegrates
- 5 Graafian follicle develops

The sequence in which these changes occur following menstruation is:

- A 2, 3, 1, 5, 4
- B 2, 1, 3, 4, 5
- C 5, 3, 2, 1, 4
- D 5, 2, 1, 3, 4

Question 3

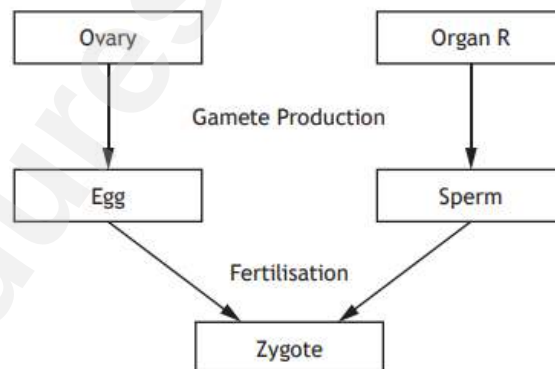
3.1 Study the diagram of a sperm cell below and use it to complete the table below:



Letter of the region where the structure is found	Name of structure	Function of structure
		To supply energy for locomotion
D		
	Nucleus	

[6]

3.2 The diagram below relates to sexual reproduction in humans.



3.2.1 Name organ R.

[1]

3.2.2 Describe what happens during fertilisation.

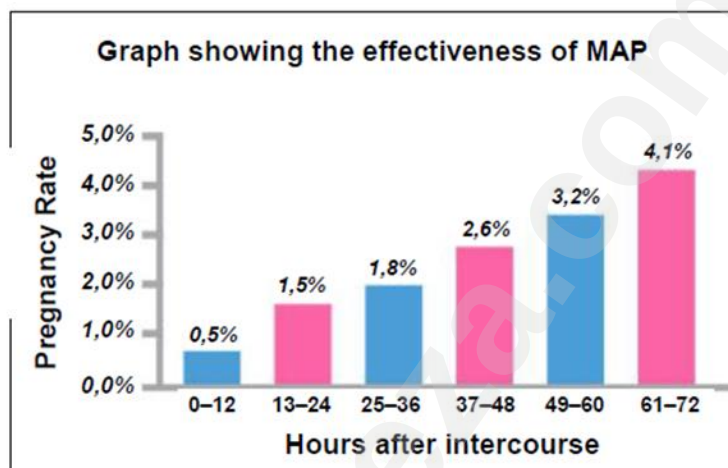
[2]

[9]

Question 4

Read the text and study the graph below which give information about MAP.

The “Morning After Pill” (MAP) is an emergency form of contraception used by women who have had unprotected sexual intercourse and want to prevent pregnancy. Emergency contraceptives are more effective if taken soon after the unprotected sex event. The World Health Organisation (WHO) recommends that women be prepared for the unexpected and have emergency contraceptive medicine on hand. A study was done to determine the effectiveness of the MAP when taken up to 72 hours after intercourse. The results are shown below:



[Source: Piaggio, von Hertzen, Grimes and Van Look 1999]

- 4.1 The statements below refer to the information above. For each statement, decide whether it is TRUE or FALSE and tick the appropriate box.

Statement	True	False
Taking MAP within 12 hours of unprotected sex guarantees no pregnancy.		
The quicker you take the MAP after unprotected sex, the more effective it is		
MAP is a recommended emergency medication		
82% of women who take the MAP 2 days after unprotected sex will not fall pregnant		
MAP can prevent pregnancy even if taken 4 days after intercourse		

[5]

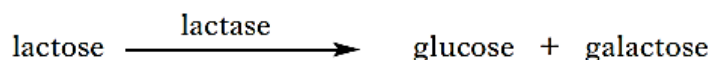
- 4.2 Pharmacies may not sell MAP to women under the age of 14, unless they have a doctor's prescription or are accompanied by either a parent or legal guardian. Give ONE argument in support of this ruling.

[2]

[7]

Question 5

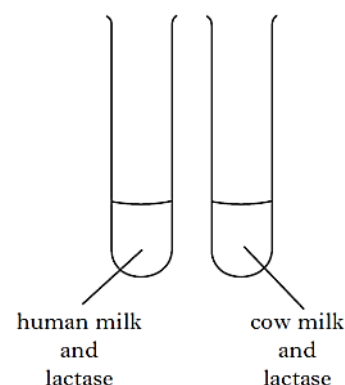
Lactose is the main sugar found in milk. Lactose is broken down by lactase, an enzyme which is made by cells lining the small intestine. The glucose and galactose molecules produced are then absorbed into the bloodstream.



A group of Grade 12 learners carried out an investigation to compare the lactose content of human milk and cow milk. They set up a test tube containing human milk and lactase solution. Every 30 seconds samples were taken and the glucose concentration was measured. They then repeated the procedure with cow milk. The experimental setup is shown in Figure 1 and the results are shown in the table below.

Time (minutes)	Concentration of glucose (%)	
	Human milk	Cow milk
0	0	0
0.5	0.28	0.28
1.0	0.54	0.46
1.5	0.80	0.54
2.0	1.04	0.58
2.5	1.10	0.58
3.0	1.10	0.58

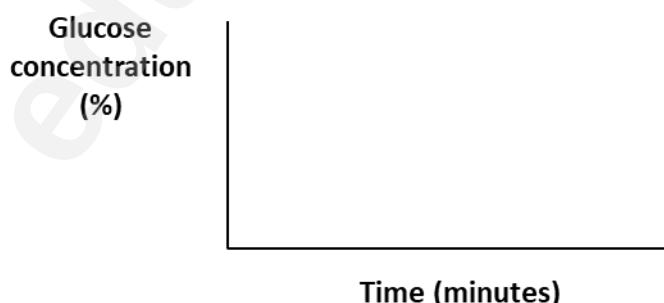
Figure 1



- 5.1 One variable that must be kept constant in this investigation is pH. Name TWO other variables which would have to be kept constant. [2]

- 5.2 Name the dependent variable in this investigation. [1]

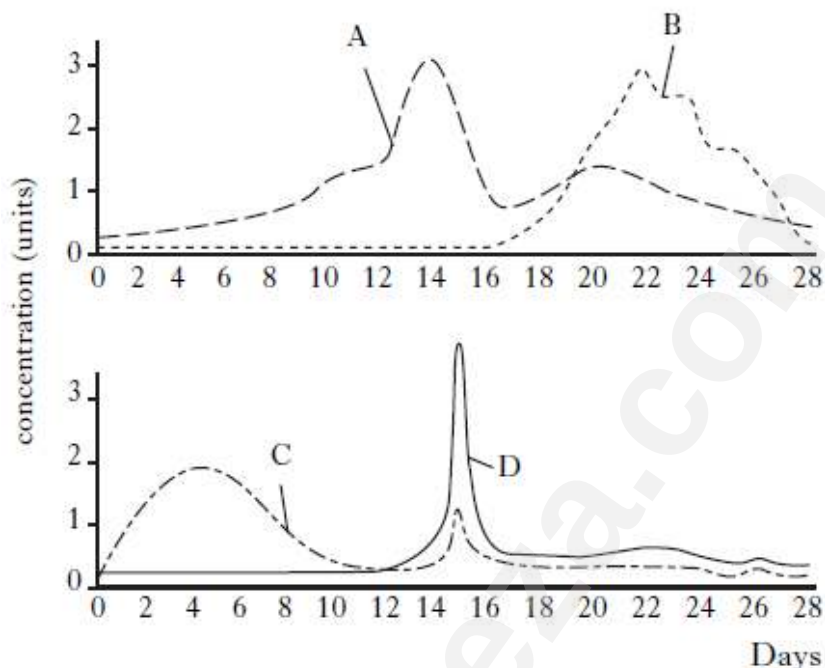
- 5.3 Draw sketch line graphs showing the data from the investigation on the axes provided. [4]



- 5.4 What conclusion can be drawn from the results? [1]

Question 6

The graphs below show the hormones involved in a typical 28 day menstrual cycle.



- 6.1 What is menstruation? [2]
-
- 6.2 Hormone C is FSH. Identify hormones A, B and D by adding labels on the graph. [3]
- 6.3 Describe the effect of FSH on its target organ. [2]
-
-
- 6.4 What event is triggered by the peak (or surge) in hormone D? [1]
-
- 6.5 What structure releases hormone B? [1]
-
- 6.6 Explain what prevents the development of egg cells when there is an embryo developing in the uterus. [3]
-
-
-
-

[12]

TOTAL: 50 marks