2A2B HUMAN BIOLOGY CELL DIVISION, REPRODUCTION AND HORMONAL CONTROL TEST

Name: ANSWER KEY Teacher: _____ /73

Part one – multiple choice

1. Where does fertilisation occur?

a) Uterus
b) Fallopian tube (oviduct)
c) Ovary
d) Vagina

2. What is the function of cilia in the fallopian tube?

a) To provide nutrients for the ova.
b) To produce ova.
c) To lubricate the fallopian tube.
d) To guide ova along the fallopian tube.

3. Why is the endometrium shed at the end of the menstrual cycle?

a) The ova has implanted in the uterus.
b) It is no longer needed because no fertilised egg is going to be implanted.
c) No egg has been released during ovulation.
d) The lining becomes too full of blood and heavy.

4. What is the function of the testes?

a) Produces testosterone and spermatozoa.
b) Makes sperm and oestrogen.
c) Allows sperm to mature before moving into the vas deferens.
d) Produces luteinising hormone and testosterone.

5. Which of the following is **not** true.

a) The male gamete is spermatozoa.
b) The female gonad is the ovary.
c) Gametes are diploid.
d) Gametes are sex cells.

Part two – short answer

1. **List** two things that occur during interphase. (2 marks)

- DNA duplicates (1)
- Cell grows & prepares for mitosis (1)

2. **Describe** what happens during cytokinesis. (1 mark)

Cytoplasm of cell divides into two

3. Complete the table below. (10 marks)

	Mitosis	Meiosis
The type of cells this occurs in	General body cell (1)	gametes (sex cells) (1)
The number of daughter cells that are produced	2 (1)	4 (1)
The number of divisions	1 (1)	2 (1)
Are the daughter cells genetically identical to the parent cells?	Yes (1)	NO (1)
The number of chromosomes in each produced cell	46 (1)	23 (1)

4. What is the **difference** between menarche and menopause? (2 marks)

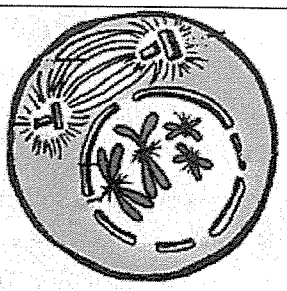
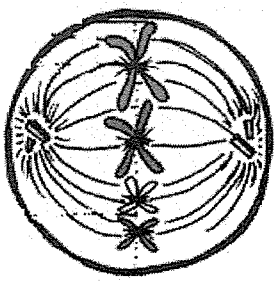
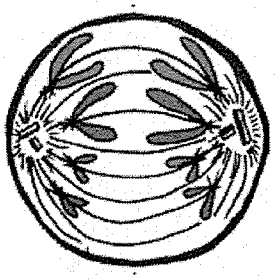
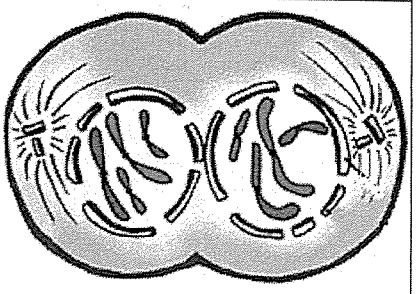
Menarche is the start of menstruation beginning in females and menstruation is the end of menstruation occurring in females.

5. List two secondary characteristics that occur in males during puberty. (2 marks)

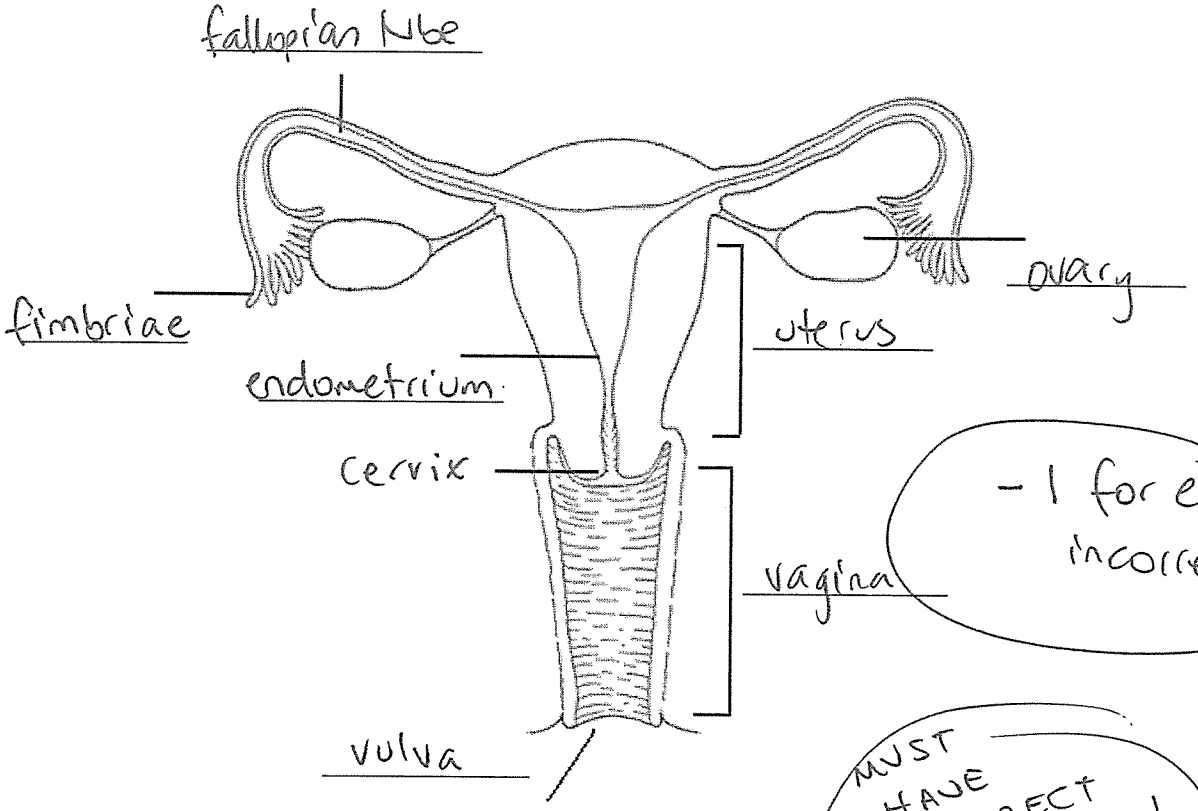
- Enlargement of penis, scrotum, prostate gland
- Growth of pubic, facial & chest hair
- Pubic hair becomes thicker, darker, curlier
- Shoulders broader
- Deeper voice due to enlarged larynx
- Increased perspiration

ANY TWO

6. Fill in the table below which shows the phases of mitosis. (12 marks)

Phase of mitosis	**Describe** what is happening	Diagram
Prophase (1)	- Nucleoli disappear - Nuclear membrane breaks down - centrioles move to opposite poles - Chromosomes appear as pairs of chromatids - spindle forms ANY TWO	
Metaphase (1)	- Chromosomes line up on spindle (1) at equator of cell (1)	
Anaphase (1)	- Centromeres divide (1) - Chromosomes move to opposite ends of spindle (1)	
Telophase (1)	- spindle disappears - nuclear membrane forms. - Nucleoli form - Centrioles divide - chromosomes uncoil & disappear ANY TWO	

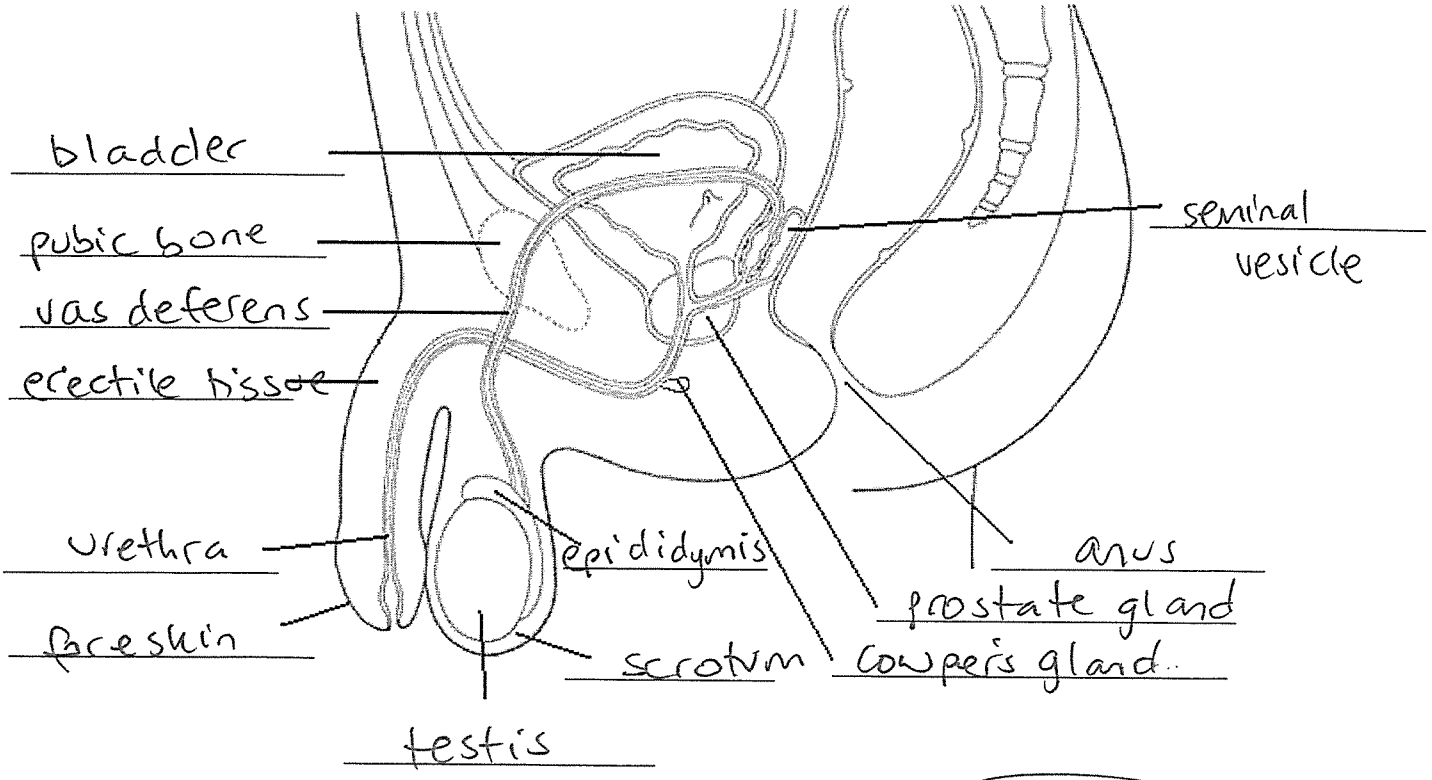
7. **Label** the diagram below. (3 marks)



-1 for each incorrect

MUST HAVE CORRECT SPELLING!

8. **Label** the diagram below. (6 marks)



-1 for each incorrect

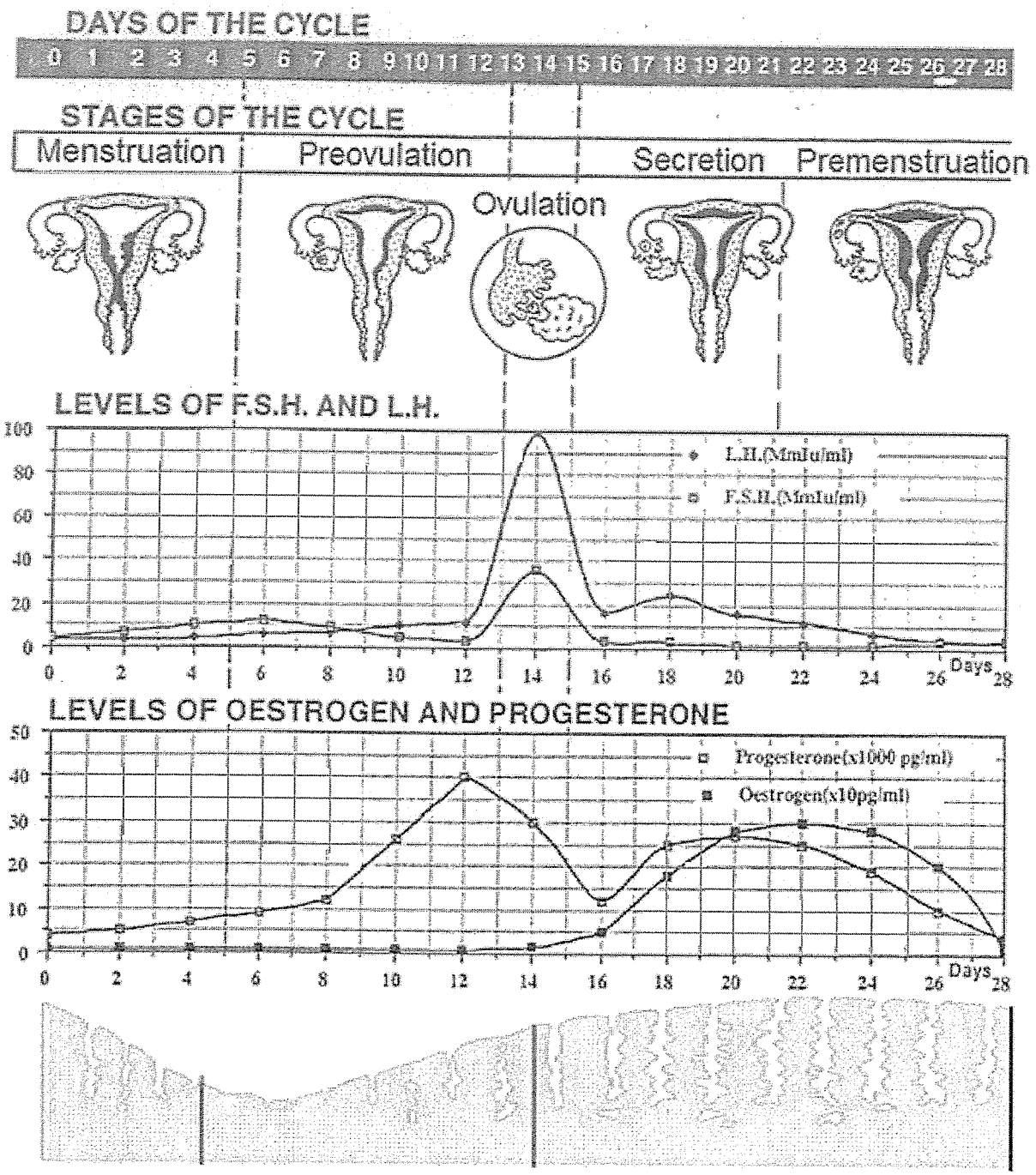
9. Fill in the table below. (6 marks)

	Number of gametes produced by meiosis	Do hormones cause meiosis to begin?	When does meiosis occur?
Oogenesis	1 (1)	YES (1)	* while in foetus (1) then pauses at prophase one & continues once puberty begins (1) (MUST HAVE ALL INFO)
Spermatogenesis	4 (1)	YES (1)	Once puberty begins (1)

10. Fill in the table below. (12 marks)

	Where is it secreted from	Target organ	Effect of hormone
FSH	pituitary gland (1)	seminiferous tubules of testes & follicles of ovaries (1)	➢ production of sperm (1) ➢ maturation of (1) ovarian follicles
HCG	placenta (1)	corpus luteum (1)	➢ maintenance of corpus luteum (1) during early stages of pregnancy (1)
LH	pituitary (1) gland	~~to~~ seminiferous tubules of testes & (1) cells of ovaries	➢ stimulates secretion of testosterone (1) ➢ stimulates secretion of oestrogen & progesteron (1)

Use the diagram below to answer the following questions.



11. Why does L.H peak when it does? (1 mark)

Causes follicle to burst and release an egg into fallopian tube

12. What is the function of the corpus luteum? (1 marks)

secretes oestrogen and progesterone

Part two – extended answer

1. There are a number of steps involved in the production of semen. Starting from the beginning of the process, **describe** the steps taken to produce the final ejaculated product. Include the substances added, where they are added from and what their functions are.

WRITE IN DOT POINTS PLEASE!

(10 marks)

- Sperm is produced in testes (1)
- Seminal vesicle (1) secretes fluid rich in sugars (1) which gives nutrients (1) to sperm
- Prostate (1) gland secretes thin, milky alkaline (1) fluid that helps activate (1) sperm
- Cowper's (1) gland secretes clear (1) mucus that acts as lubricant (1)