

Brett Robbins Academic Consulting

Biology 30 Practice Test

Unit B: Reproduction & Development

25 Questions

Original practice questions written to the Alberta curriculum, in the style of past diploma examinations. Work through each question, then check your answers with the key at the end.

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, contact Brett for clarification.

Question 1

Sperm cells are produced in the

- A) Epididymis
- B) Seminiferous tubules
- C) Vas deferens
- D) Prostate gland

Question 2

In humans, fertilization normally takes place in the

- A) Fallopian tube
- B) Uterus
- C) Ovary
- D) Cervix

Question 3

Ovulation is triggered by a sudden surge in the secretion of

- A) FSH
- B) Estrogen
- C) LH
- D) Progesterone

Question 4

The number of chromosomes in a mature human sperm cell is

Question 5

The function of the epididymis is to

- A) Produce testosterone
- B) Add a fructose rich fluid to semen
- C) Produce sperm cells
- D) Store sperm while they mature

Question 6

In oogenesis, one primary oocyte that completes meiosis produces

- A) Four functional ova
- B) One functional ovum
- C) Two functional ova
- D) No functional ova

Question 7

Two days before ovulation, estrogen secreted by a maturing follicle reaches its peak. The direct effect of this estrogen peak is

- A) A surge in LH secretion
- B) A surge in progesterone secretion
- C) Breakdown of the endometrium
- D) Release of oxytocin

Question 8

The main function of the placenta is to

- A) Mix the blood of the mother
and the fetus together
- B) Store food reserves for the
developing fetus
- C) Cushion the fetus and protect
it from shocks
- D) Allow nutrients, gases, and wastes
to diffuse between maternal and fetal blood

Question 9

Some events of early human development are listed below.

- 1 Implantation in the endometrium occurs
- 2 Fertilization forms a zygote
- 3 A hollow blastocyst is formed
- 4 Cleavage produces a solid ball of cells called a morula

The order in which the events occur, from first to last, is

Question 10

After ovulation, one hormone is mainly responsible for maintaining the endometrium so that implantation can occur. This hormone, secreted by the corpus luteum, is

- | | |
|-----------------|-----------------|
| A) FSH | B) LH |
| C) Progesterone | D) Testosterone |

Question 11

Inhibin, secreted by cells in the seminiferous tubules, normally inhibits the secretion of FSH. If a man's inhibin secretion is blocked, the expected result is

- | | |
|--------------------------------|---|
| A) A decrease in FSH secretion | B) An increase in FSH secretion |
| C) A decrease in LH secretion | D) A complete stop in testosterone production |

Question 12

Some men who use anabolic steroids (synthetic testosterone) develop low sperm counts. This happens because high testosterone levels

- A) Decrease GnRH and LH secretion through negative feedback, so the testes are less stimulated
- B) Directly destroy the cells that line the seminiferous tubules
- C) Block the vas deferens so sperm cannot leave the testes
- D) Increase FSH secretion until the tubules are damaged

Question 13

Early in pregnancy, the developing embryo secretes hCG, which maintains the corpus luteum. A lower than normal level of hCG during the first weeks of pregnancy could result in

- A) The release of several mature ova at ovulation
- B) The immediate start of uterine contractions
- C) The failure of the embryo to begin cell division
- D) The breakdown of the corpus luteum, a fall in progesterone, and the loss of the endometrium

Question 14

Which of the following rows correctly matches an embryonic germ layer with a structure that develops from it?

- A) Endoderm – spinal cord
- B) Mesoderm – heart and skeletal muscles
- C) Ectoderm – lining of the digestive tract
- D) Endoderm – skin and hair

Question 15

Some events of the menstrual cycle are listed below.

- 1 A surge of LH occurs
- 2 Menstruation begins
- 3 A follicle matures and secretes estrogen
- 4 A corpus luteum forms and secretes progesterone

The order in which the events occur in a typical cycle, from first to last, is

Question 16

Before ova are collected for in vitro fertilization, a woman is given a hormone so that several follicles mature at the same time.

The hormone given is most likely

- | | |
|-------------|-----------------|
| A) FSH | B) LH |
| C) Oxytocin | D) Progesterone |

Question 17

During in vitro fertilization, a single cell can be removed from an embryo at the eight cell stage for genetic screening without preventing normal development. This is possible because

- A) The removed cell is replaced by meiosis in the remaining cells
- B) The removed cell would have formed the placenta rather than the fetus
- C) Each early embryonic cell contains a complete copy of the genome and is not yet specialized, so the remaining cells can form a complete embryo
- D) The embryo does not need all of its cells until after birth

Question 18

Some structures of the male reproductive system are listed below.

1 Epididymis 2 Vas deferens 3 Seminiferous tubules 4 Urethra

The order of the structures through which sperm pass, from where sperm are produced to where they leave the body, is

Question 19

The hormone that stimulates uterine contractions during labour, and the gland that releases it into the bloodstream, are

- A) Oxytocin – ovary
- B) Oxytocin – pituitary gland
- C) Progesterone – corpus luteum
- D) Estrogen – placenta

Question 20

A fetus has an XY genotype and develops testes that produce testosterone, but its body cells have no functional testosterone receptors. The external reproductive structures that develop are

- A) Male, because the Y chromosome is present
- B) Male, because testosterone is produced
- C) Female, because target tissues cannot respond to testosterone
- D) Neither male nor female in any respect

Question 21

Combination birth control pills contain estrogen and progesterone.

These pills prevent pregnancy mainly by

- A) Physically blocking both Fallopian tubes
- B) Destroying sperm cells that enter the uterus
- C) Keeping FSH and LH levels low so that no
follicle matures and ovulation does not occur
- D) Causing the endometrium to be shed every day

Question 22

The number of sperm cells produced when one primary spermatocyte completes meiosis is

Question 23

Blood taken on day 21 of a woman's menstrual cycle shows a high level of progesterone. The main source of this progesterone is the

- | | |
|--------------------|--------------------|
| A) Pituitary gland | B) Mature follicle |
| C) Hypothalamus | D) Corpus luteum |

Question 24

A woman gives birth to twins, a boy and a girl, and each twin has its own placenta. The twins most likely developed from

- A) Two ova, each fertilized by a different sperm cell
- B) One fertilized ovum that split into two embryos
- C) One ovum fertilized by two sperm cells at once
- D) Two sperm cells that developed without ova

Question 25

If each of 100 primary spermatocytes completes meiosis, the total number of sperm cells produced is

Answer Key

- | | | |
|---------|----------|---------|
| 1. B | 10. C | 19. B |
| 2. A | 11. B | 20. C |
| 3. C | 12. A | 21. C |
| 4. 23 | 13. D | 22. 4 |
| 5. D | 14. B | 23. D |
| 6. B | 15. 2314 | 24. A |
| 7. A | 16. A | 25. 400 |
| 8. D | 17. C | |
| 9. 2431 | 18. 3124 | |

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