**GENERAL HUMAN BIOLOGY – YEAR 11**

**TASK 8 – DNA, CELLS AND REPRODUCTIVE SYSTEMS TEST**

***MULTIPLE CHOICE SECTION [10 MARKS]***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1. | A |  | 4. | C |
| 2. | D |  | 5. | B |
| 3. | A |  | 6. | A |
|  |  |  | 7. | B |
|  |  |  | 8. | D |
|  |  |  | 9. | C |
|  |  |  | 10. | A |

***SHORT ANSWER SECTION [35 MARKS]***

1. Below are diagrams of the various stages of mitosis.
   1. Match the diagrams to the correct statements. (3 marks)

*½ mark per correct match*

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  | b. |
|  |  |  | d. |
|  |  |  | f. |
|  |  |  | e. |
|  |  |  | c. |
|  |  |  | a. |

* 1. Chayse and Morgan were arguing over an article that they had read about genetic inheritance. Chayse stated that mitosis was used to create gametes and not the growth and repair of body cells. Is Chayse right or wrong? Create an argument either agreeing or disagreeing with Chayse. Justify your response, making sure to reference mitosis.

(6 marks)

* Wrong (1)

*Any 5 for 1 mark each:*

* Mitosis is for growing and repair of cells
* Mitosis creates identical daughter cell, identical to parent cell (1)
* Replicates once divides once (1)
* 46 chromosomes (1)
* Gametes go through meiosis (1)
* Giving 23 chromosomes (1)
* Replicates once divides twice (1)

1. Examine the diagram below:



1. Identify the structures labelled C and D ? (2 marks)

A: Vas Deferens

C: Prostate gland

1. State the function of the structure labelled B and D (2 marks)

B: Carry urine and sperm out of the body – *if write “urethra” ½ mark*

D: Stores sperm – *if write “epididymis” ½ mark*

1. It is important for gametes, such as sperm, to have the chromosome number of 23.
   1. What letter is used to represent 23 chromosomes? (1 mark)

* ‘n’
  1. Explain the importance of having only 23 chromosomes in gametes. (2 marks)

*Any 2 for 1 mark each:*

* When fuse together there is the correct number
* 46 chromosomes
* Decrease chance of deformities/improper growth
* Traits from both parents
  1. Complete the following table on the production of gametes (8 marks)

|  |  |  |
| --- | --- | --- |
|  | **Production of Sperm** | **Production of Ova** |
| **Location** | Testes (1) | Ovary (1) |
| **When production begins** | Puberty (½) | In utero / during development (½) |
| **When production stops** | Death (½) | Menopause (½) |
| **Number of viable gametes formed from 1 parent cell** | 4(1) | 1 (1) |
| **Scientific model of gamete** | Drawing showing head, body and tail (1)   * *Labels not required* | Drawing showing cell and nucleus (1)   * *Labels not required* |

1. The production of ovum in the female productive system is controlled by four main hormones.
   1. These hormones have an influence on what two cycles during the production of ovum?

(1 mark)

* + 1. Ovarian (½)
    2. Menstrual (½)
  1. Below is a diagram where one of those cycles occurs. Label the following information on the diagram
     1. The name of the cycle (1 mark)
     2. Describe (briefly) and locate the three main events occurring in the cycle

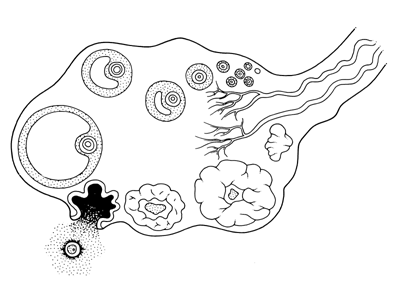
(3 marks)

* + 1. Start and end of the cycle (1 mark)

Start (½)

**Ovarian Cycle (1)**

Development of ovum (1)



Formation of corpus luteum (1)

Ovulation (1)

End (½)

* 1. During the production of an ovum what role does Follicle Stimulating Hormone play in the above cycle? (1 mark)
* Stimulates the production of a follicle /stimulates the release of an ovum
  1. Just prior to the second event occurring in the above cycle, what hormone increases?

(1 mark)

* Luteinising hormone
  1. There are two other hormones involved in the production of an ovum.
     1. Which one helps to maintain the lining of the uterus? (1 mark)
* Progesterone  
  + 1. What happens in the female’s body when there is a decrease in the amount of this hormone? (1 mark)
* Menstruation / beginning of the menstrual cycle
  + 1. For there to be a decrease in this hormone, what has not happened in the female’s body? (1 mark)
* Fertilisation

***EXTENDED RESPONSE ANSWER SECTION***

***Write your answers in the space provided below:***

1. Describe the pathway sperm needs to travel, from the testes where they are produced to be ejaculated out of a man. Include any organs or glands that help in the process or that sperm may pass on the way out of the body. (5 marks)

*Any 8 of the 9 = ½ mark each, 1 mark correct order*

* Scrotum
* Epididymis
* Vas deferens
* Seminal vesicles
* Prostate gland
* Bulbo-urethral gland
* Urethra
* Penis
* Erectile tissue

1. Males have three glands in their reproductive system. Each of the three glands produces fluid that contributes to the semen. Name the three glands and describe the role they play in the production of semen ? (6 marks)

* Seminal Vesicle (1)
  + Sugary fluid that provides energy to sperm / majority of semen (1)
* Prostate Gland (1)
  + Alkaline fluid that activates sperm / neutralises acidic environment of vagina (1)
* Bulbo-urethral Gland (1)
  + Acts like a lubricant / mostly secreted prior to ejaculation (1)