

**YEAR: 11**

**SUBJECT: ATAR HUMAN BIOLOGY UNITS 1 AND 2**

**TEST: Birth, Contraception, STIs and Genetics**

**TIME: 60 minutes**

**QUESTIONS: 20 Multiple Choice (20 marks)**

**8 Short Answers (30 marks)**

**1 Extended Answer (10 marks)**

**TOTAL MARKS: 60 marks**

**DO NOT WRITE ON OR MARK THIS PAPER**

**MULTIPLE CHOICE SECTION [20 MARKS]**

**Questions 1-20**

1. The ductus venosus diverts foetal blood away from the
   1. lungs
   2. liver
   3. placenta
   4. left ventricle
2. The foramen ovale:
   1. diverts blood from the right atrium to the left atrium
   2. allows blood to flow more freely to the foetal lungs
   3. diverts blood from the left atrium to the right atrium
   4. allows deoxygenated blood in the right atrium to mix with oxygenated blood in the left atrium
3. During parturition, the cervix will be fully dilated by the:
   1. end of the first stage of labour
   2. middle of the second stage of labour
   3. end of the third stage of labour
   4. middle of the first stage of labour
4. The third stage of labour involves the birth of the:
   1. foetus
   2. placenta
   3. placenta and membranes
   4. placenta, membranes and remains of the umbilical cord.
5. It is possible to transmit HIV
   1. through saliva
   2. during childbirth
   3. by discussing the latest Keeping Up With The Kardashians episode
   4. through shaking hands
6. The term ‘’chancre’’ is given to:
   1. the sores symptomatic of herpes
   2. the sores symptomatic of syphilis
   3. the sores symptomatic of genital warts
   4. the sores symptomatic of genital herpes
7. This STI may lead to heart disease and insanity.
   1. Gonorrhoea
   2. Chlamydia
   3. Syphilis
   4. Genital herpes
8. The possible symptoms of a syphilis infection during the secondary stage include:
   1. Small sores appearing on the sex organs
   2. Weakening of the blood vessels
   3. Mild fevers and skin rashes
   4. blindness
9. The treatment for gonorrhoea is usually:
   1. antibiotics
   2. laser therapy
   3. antivirals
   4. circumcision
10. Which of the following is the most effective at preventing sexually transmitted infections?
    1. Diaphragm
    2. NuvaRing
    3. Condom
    4. Depo-Provera injections
11. Which of the fertility awareness methods only determines ‘safe’ days by recording the days around ovulation?
    1. The rhythm method
    2. The temperature method
    3. The mucus method
    4. The symptothermal method
12. With the exception of sterilisation, the most effective method of contraception now available is
    1. the combination pill
    2. the mini-pill
    3. NuvaRing
    4. Femidom
13. Which of the following is typically associated with having a vasectomy?
    1. Decreased testosterone production
    2. Reduced rigidity of erections
    3. Decreased sperm production
    4. Normal orgasm
14. Which among the following involve the use of copper as a method of contraception?
    1. Implanon
    2. Depo-Provera injections
    3. Diaphragm
    4. Intrauterine device (IUD)
15. The best description of a person in terms of his/her observable features is called his/her:
    1. profile
    2. genotype
    3. phenotype
    4. genome
16. A person who has two identical genes for a particular trait is called a:
    1. hybrid
    2. homozygote
    3. heterozygote
    4. hemizygote
17. A couple have a family of four daughters. Which of the following statements about the sex chromosomes of the family are true?
    1. All the sex chromosomes of the parents are X
    2. All the sex chromosomes of the husband are X
    3. All the sex chromosomes of the daughters are X
    4. Half the sex chromosomes of the husband are Y and half are X
    5. Half the sex chromosomes of the wife are X and half are Y.
    6. 1 and 3
    7. 2 and 3
    8. 3 and 4
    9. 4 and 5
18. Colour blindness is an X-linked recessive condition. What is the probability that a man who is colour blind who is married to a woman who is a carrier, have a child who is colour blind?
    1. 0.25
    2. 0.50
    3. 0.75
    4. 1.00

19. If two people, one of whom is a heterozygote for tongue rolling and the other who is a non-tongue roller have children, what is the probability that their first child will be a non-tongue roller?

1. 0.25
2. 0.50
3. 0.75
4. 0

20. What is the probability of a couple, one of whom is a homozygote for tongue rolling, the other who is a non-tongue roller, having a child who is a non-tongue roller?

a. 0.25

b. 0.50

c. 0.75

d. 0



**TEST: Birth, Contraception, STIs and Genetics**

**ANSWER BOOKLET**

**NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Multiple Choice Short Answer Extended Answer Total

**/ 10**

**/ 60**

**/ 30**

**/20**

**SECTION ONE:** Multiple choice answers

Cross (X) through the correct answer.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1** | a | b | c | d |  | **11** | a | b | c | d |
| **2** | a | b | c | d |  | **12** | a | b | c | d |
| **3** | a | b | c | d |  | **13** | a | b | c | d |
| **4** | a | b | c | d |  | **14** | a | b | c | d |
| **5** | a | b | c | d |  | **15** | a | b | c | d |
| **6** | a | b | c | d |  | **16** | a | b | c | d |
| **7** | a | b | c | d |  | **17** | a | b | c | d |
| **8** | a | b | c | d |  | **18** | a | b | c | d |
| **9** | a | b | c | d |  | **19** | a | b | c | d |
| **10** | a | b | c | d |  | **20** | a | b | c | d |

**SHORT ANSWER SECTION [30 MARKS]**

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**Question 21**

Explain how the cervix becomes dilated for preparation of childbirth (3 marks)

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**Question 22**

Briefly explain two physical changes to a mother after childbirth (2 marks)

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**Question 23**

What is an IUD (intrauterine device) and how are current market IUDs used to prevent pregnancy? (You only need to discuss one IUD currently on the market) (3 marks)

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**Question 24**

Using a contraceptive method as an example, explain how hormonal contraceptives can prevent pregnancy. (3 marks)

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**Question 25**

a) Explain why it is possible to treat syphilis and gonorrhea with antibiotics, but HIV infection does not respond to antibiotic treatment. (2 marks)

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b). Explain how chlamydial infection can lead to infertility in women. (2 marks)

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c.) Explain why chlamydia was once mistaken to be a virus and not a bacterium.

(2 marks)

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**Question 26**

Sickle-cell anaemia is a genetic disease in which the homozygote ss causes the red blood cells to become sickle shaped and lose their oxygen carrying capacity. In the heterozygote Ss, both types of red blood cells are formed, i.e. both normal and sickling. The person is said to have sickle-cell trait (not anaemia). People who have Ss are quite healthy but they can suffer a shortage of oxygen at high altitudes or under extreme physical exertion. A person who is homozygote SS is normal.

1. What is this disease’s mode of inheritance? (1 mark)

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1. If a couple who both have the sickle-cell trait have children, what is the probability that their first child will have sickle cell trait? (3 marks)

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1. If a person who has sickle-cell trait marries a normal homozygote, what is the probability that any of their children will have sickle-cell anaemia? (3 marks)

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**Question 27**

Red-green colour blindness is an X-linked recessive condition. Victoria has normal vision as do her parents, Joshua and Jayde, but Victoria’s brother Craig has colour blindness.

What are the genotypes of Victoria, her parents Joshua and Jayde, and her brother Craig? (Use the appropriate symbols to represent the alleles). (2 marks)

a) Victoria \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b) Joshua \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c) Jayde \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

d) Craig \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Question 28**

The ABO blood grouping system displays two phenomena in genetics. It is inherited by multi-allelic and co-dominant inheritance. Explain the following terms and give an example using the ABO system.

1. Multiple Alleles (2 marks)

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1. Co-dominance (2 marks)

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**EXTENDED ANSWER SECTION [10 MARKS]**

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You must answer **either** question 29 or question 30

(Do not answer both questions, as only your first answer will be marked. Do not answer parts of questions from both questions, as only your first answer will be marked)

**Question 29**

a) Using five examples outline the way HIV may be spread from person to person. (5 Marks)

b) Outline the stages of an infection with human immunodeficiency virus (HIV) that eventually develops into AIDS. (5 Marks)

OR

**Question 30**

1. Using a diagram, describe the events that occur to enable milk to be released from the nipples. (7 marks)
2. Explain, using scientific terminology, why the first milk secretions are very important for a newborn child (3 marks)

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**END OF TEST**