



SCHOOL OF SCIENCE, ENGINEERING AND HEALTH  
END OF SEMESTER EXAMINATIONS

**JANUARY SEMESTER 2012**

**BIO 111 M, X & Y: BIOLOGY**

TIME 2 HOURS    TOTAL MARKS = 70

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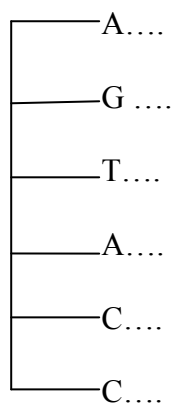
INSTRUCTIONS: Answer all questions in Section A and only 2 questions in Section B

SECTION A: [40 MARKS]

1. (a) Assume you are psychotherapist or psychologist, running a private clinic in the city centre. Suggest three health-related issues that you are likely to encounter among female youth clients. [3 marks]
- (b) Using your Biological knowledge, state one advice you would give to your clients for each of the health issues you have mentioned above. [3 marks]
2. (a) Ebola virus is more virulent than HIV. Explain the meaning of this statement in relation to infectious diseases. [2 marks]
- (b) Using suitable examples differentiate between a disease reservoir host and a disease carrier. [2 marks]
3. (a) State three challenges that scientists have faced in trying to come up with a vaccine against Malaria for the past 70 years? [3 marks]
- (b) Indicate whether the vaccines listed below are live and attenuated, killed or toxoid types. [2 marks]

Vaccine against (disease)	Type of Vaccine
Tetanus	
Polio	
Cholera	
Measles	

4. (a) Using a suitable example, explain the meaning of essential nutrients. [2 marks]
- (b) Identify two reasons why the dietary requirements of a 30 year-old lactating mother are different from those of a non-lactating mother of the same age. [2 marks]
5. (a) State three effects of prolonged protein deficiency in the human body. [3 marks]
- (b) Name three important substances in the body that require cholesterol to be synthesized. [3 marks]
6. A child was found to have the following symptoms; Itchy, red, raised, scaly patches that blister and ooze.
- a) Name the most likely disease in the child. [1 mark]
- b) Name the causative agent of the disease. [1 mark]
- c) Suggest two ways of preventing the disease. [2 marks]
7. (a) Distinguish between glycosuria and polyuria. [2 marks]
- (b) State the cause of each of the following diabetes complications:
- i. Blindness [1 mark]
- ii. Kidney failure [1 mark]
- iii. Gangrene [1 mark]
8. (a) What is the difference between autosomal and sex chromosomes? [2 marks]
- (b) A section of DNA strand constituting a gene has the following base sequence:



- i. Sketch the base sequence on the complementary strand of the same DNA. [3 marks]
- ii. State one structural difference between DNA and RNA. [1 mark]

SECTION B: ANSWER TWO QUESTIONS ONLY

[30 MARKS]

9. You have been invited as one of the presenters in a public forum organized to discuss health issues affecting your community, and you have decided to talk about Tuberculosis.
- (a) Outline the TB prevention and control measures that you are likely to discuss with your audience. [10 marks]
- (b) Name five types of Extra-Pulmonary Tuberculosis (EPTB). [5 marks]
10. (a) Explain five roles of dietary fibre in the human body. [10 marks]
- (b) Identify reasons why modern urban lifestyles could be a contributory factor to obesity. [5 marks]
11. Alisha was admired by her friends because of her slender-slim body appearance. When interviewed she said she achieves weight loss by drastic dieting, fasting, exercising excessively, vomiting and use of laxatives and diuretics.
- a) Name the disorder Alisha is suffering from. [1 mark]
- b) Outline any three factors that Lead to such a disorder. [3 marks]
- c) Outline any four effects Alisha is exposing herself to. [4 marks]
- d) What do you think is the BMI range for Alisha? [1 mark]
- e) Outline two limitations of using BMI. [2 marks]
- f) Describe the possible treatment for Alisha's condition. [4 marks]
12. Malaria is a common and life-threatening disease in many tropical and subtropical areas. The World Health Organization (WHO) reports that malaria is currently endemic (i.e., constantly occurring) in over 100 countries, which are visited by more than 125 million international travellers annually. According to the WHO, many international travellers fall ill with malaria each year while visiting countries where the disease is endemic, and well over 10,000 travellers fall ill with malaria after returning home.
- a) Name any one of the four protozoa that causes malaria. [1 mark]
- b) Explain how the disease is transmitted. [2 marks]
- c) Outline any four symptoms of malaria. [4 marks]
- d) Outline three measures one can take to prevent spread of the infection by avoiding mosquito bites. [3 marks]
- e) Discuss the erythrocytic stage of the life cycle of the malaria parasite. [5 marks]

