



MAASAI MARA UNIVERSITY

UNIVERSITY EXAMINATIONS 2018/2019

RESITS/RETAKES

**THIRD YEAR SECOND SEMESTER
EXAMINATIONS
FOR
THE DEGREE OF BACHELOR OF SCIENCE
(BOTANY)**

BOT 317: CYTOGENETICS

**DATE: 25/04/2019
4:30 PM**

TIME: 2:30 PM -

Instructions

Answer **ALL** questions in section **A** and any **TWO** selected questions in section **B**. Illustrate your answers with diagrams and give examples where appropriate.

SECTION A (30 MARKS): ANSWER ALL QUESTIONS

1. Give six functions of the cell wall. **(3 marks)**
2. Position of centromere determines chromosome shape. Discuss briefly. **(3 marks)**
3. What is the function of the following;
 - a. Centromere
 - b. Kinetochore
 - c. Centrosome **(3 marks)**
4. Give the types of mitotic spindle. **(3 marks)**
5. Define the following terms;
 - a. Crossover **(1 mark)**
 - b. Recombination **(1 mark)**
 - c. Chiasmata **(1 mark)**
6. State the events of heterotypic meiosis prophase. **(3 marks)**
7. Distinguish between a prokaryote and a eukaryote. **(3 marks)**
8. Describe the three types of meiosis. **(3 marks)**
9. State the trisomies and give major characteristics of the following;
 - a. Down's syndrome
 - b. Edward's syndrome
 - c. Patau's syndrome **(3 marks)**
10. Show;
 - d. Tandem duplication
 - e. Reverse tandem duplication
 - f. Pericentric inversion **(3 marks)**

m n o p q o b c d e f normal chromosome

SECTION B (40 MARKS): ANSWER ANY TWO QUESTIONS

11. With examples, differentiate Euploidy and aneuploidy. **(20 marks)**
12. Account for chromosomal aberrations. **(20 marks)**

13. Describe in great detail, the Meiosis process. **(12 marks)**

14. a. Describe the structures of the prokaryotic and eukaryotic chromosomes.

(8 marks)

b. Describe how a very large chromatin is packaged into a very small nucleus. **(12 marks)**

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