



# 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*

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**DATE: 25/04/2019**

**TIME: 2:30 PM - 4:30 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)**

**//END**