NATIONAL OPEN UNIVERSITY OF NIGERIA
14-16 AHMADU BELLO WAY, VICTORIA ISLAND LAGOS
SEPTEMBER/OCTOBER 2015 EXAMINATION

SCHOOL OF SCIENCE AND TECHNOLOGY

COURSE CODE: **BIO 301**

COURSE TITLE: **GENETICS II**

TIME ALLOWED: 2 Hours
INTRUCTION: Answer question ONE (1) and any other THREE (3) questions

1. (a) State the Haldane's Rule. (5 marks)
   (b) Describe hybrid sterility with examples. (8 marks)
   (c) Explain the mode of occurrence of the different types of inversions. (8 marks)
   (d) Describe the mechanisms of balancing selection. (4 marks)

2. (a) How do genes determine sex? (3 marks)
   (b) Write **short notes** on the following:
   (i) Gene recombination (4 marks)
   (ii) Gene transfer (4 marks)
   (iii) Frameshift mutation (4 marks)

3. (a) Enumerate the role of structural chromosomal aberrations in plant breeding. (5 marks)
   (b) Polyploids are of significant effects. Discuss. (10 marks)

4. (a) Outline the steps in specialized translocation. (5 marks)
   (b) Explain the defects of abundant and structural proteins. (10 marks)

5. (a) What do you understand by the term pedigree? (3 marks)
   (b) Give a **detailed** description of the structure of a virus. (6 marks)
   (c) List **6** characteristic features of haploid plants. (6 marks)

6. (ai) Define paralogous. (5 marks)
   (b) Write **short notes** on the following:
   (i) Homologous (4 marks)
   (ii) Homoeologous (4 marks)
   (iii) Paleopolyploidy (4 marks)