



**NATIONAL OPEN UNIVERSITY OF NIGERIA  
FACULTY OF AGRICULTURAL SCIENCES  
SEPTEMBER 2020\_1 EXAMINATION**

**COURSE CODE: CRP 305**

**COURSE TITLE: CROP GENETICS AND BREEDING**

**INSTRUCTIONS: ANSWER FOUR (4) QUESTIONS. QUESTION 1 IS COMPULSORY (25 marks) AND ANY OTHER THREE (3) QUESTIONS (15 marks each)**

**QUESTIONS**

1. Define Crossing. (5 marks)
  - b. State three (3) causes of Biological Variations and explain any two (2). (10 marks)
  - c. What are the processes involved in cell division? (10 marks)
2. Explain the process of Gametogenesis and Fertilization. (10 marks)
  - b. In a tabular form, list three differences between Mitosis and Meiosis. (5 marks)
3. Distinguish between diploid and haploid. (6 marks)
  - b. Why are genes so important in crop genetics and breeding. (9 marks)
4. Explain the following terms:
  - i. Mono hybrid cross
  - ii. Dihybrid cross
  - iii. Homozygous
  - iv. Pure line
  - v. Trihybrid cross

(TOTAL=15MARKS)

5. State Mendel's principle of segregation. (5 marks)

b. Complete the table below:

Number of Heterozygous gene pair	Number of different gametes	Number of different F2 Genotypes produced	Number of different F2 phenotypes produced
N	$2^N$	$3^N$	$2^N$
1	2	—	—
2	4	—	—
3	8	—	8
4	16	—	—
10	1024	—	—

(10 marks)

6 In a tabular form, state five (5) differences between Qualitative and Quantitative traits. (10 marks)

b. Define the following terms:

- i. Complete flowers
- ii. Perfect flowers
- iii. Imperfect flowers
- iv. Monoecious
- v. Dioecious (5marks)