ELIZADE UNIVERSITY, ILARA-MOKIN, ONDO STATTE, NIGERIA

BASIC & APPLIED SCIENCES

BIOLOGICAL SCIENCES

FIRST SEMESTER EXAMINATION

2019/2020 ACADEMIC SESSION

COURSE CODE: BIO 201
COURSE TITLE: INTRODUCTORY GENETICS
DURATION: 2 HOURS

HOD's SIGNATURE

NAME:.....MAT. No:.....

INSTRUCTION

Answer any FOUR questions.

QUESTIONS

1. a) Draw a well labelled diagram of plant cell.

   b) Differentiate between hybrid and hybridization.

   c) Write short notes on the following:

      i. Chromosome
      ii. Genetics
      iii. Cells
      iv. Mitosis
      v. Mutation

(15 Marks)

2. a) State the First and Second law of Mendelian's theory.

   b) Differentiate between Mendelian and Non-Mendelian Genetics.

   c) If a homozygous tall man (TT) married and homozygous short woman (tt). Determine the phenotypic and genotypic ratio of their F1 and F2 generation.

(15 Marks)

3. a) What is the biochemical evidence that DNA is the genetic material.

   b) Differentiate between DNA of Prokaryote and Eukaryote organisms.

   c) A breeder made dihybrid cross and he expected to see a phenotypic ratio of 9:3:3:1. He planted 800 plants and he observed the following: 439 to be yellow round, 168 to be yellow wrinkled, 133 to be green round and 60 to be green wrinkled. Does this experiment fit into Mendelian's? Theory.

(15 Marks)

4. a) Explain major checkpoints in the cell cycle?

   b) Explain how it is possible that a child inherits equally from its mother and father.

   c) Differentiate between mitosis and meiosis.

(15 Marks)

5. a) Explain types chromosomal mutations.

   b) Outline and explain the conditions associated with non-disjunction of sex chromosomes.

   c) Briefly explain extra-nuclear gene expression.

(15 Marks)

6. a) Discuss codominance using specific examples.

   b) Briefly the interaction between environment and gene expression using examples.

   c) Outline the assumptions of the Hardy-Weinberg Principle.

(15 Marks)