NATIONAL OPEN UNIVERSITY OF NIGERIA
14/16, Ahmadu Bello Way, Victoria Island

SCHOOL OF SCIENCE AND TECHNOLOGY
October, 2013 Examination

Course Code: BIO 303

Course Title: GENERAL CYTOLOGY EXAMINATION

INSTRUCTION: ANSWER ONLY 4 QUESTIONS
TIME: 2 HOURS

1. a. Define the following terms:
   i. Cytogenetics;
   ii. Cytology; and
   iii. Genetics.
   b. i. Mention the different types of Structural Chromosomal Variations.
   ii. Define each of the mentioned structural chromosomal variations.
   c. i. What is Numerical Chromosomal Variation?
   ii. Mention the different types of numerical chromosomal variations.

2. a. Mention the general cytogenetic procedures synonymous to all cytogenetic techniques.
   b. i. Define Karyotype.
   ii. After Karyotyping, mention the observable characteristics in the chromosomes.
   c. Outline the importance and applications of cytogenetics.

3. a. Mention the molecular composition of a cell.
   b. State the functions/importance of protein in a living cell.
   c. Mention the different types of Nucleic acids.
   d. Outline the roles of the different types of nucleic acids.

4. i. Mention the two major phase of cell cycle.
ii. Name the five stages of mitosis.
iii. Define the word “Embryology”.
iv. Mention the stages of embryogenesis.
v. Explain briefly, the word “Diakinesis.

5. a. Three (3) major control checkpoints exist during the course of eukaryotic cell cycle. Mention these checkpoints. Explain any one of these checkpoints.
b. In a tabular form, make a brief comparism between RNA and Proteins.

6. a. State the function(s) of the following parts of a Light Microscope:
   i. Eye piece;
   ii. Body tube;
   iii. Objectives;
   iv. Diaphragm; and
   v. Stage.
   b. State the advantages of a Phase Contrast Microscope.
   c. Define Darkfield Microscopy.
   d. Mention two advantages of an electron microscope.