



**NATIONAL OPEN UNIVERSITY OF NIGERIA**  
**UNIVERSITY VILLAGE, PLOT 91 CADASTRAL ZONE, NNAMDI AZIKIWE**  
**EXPRESS WAY, JABI - ABUJA.**  
**FACULTY OF SCIENCE**  
**2022\_2 Examination**

**BIO 303: General Cytology**

**TIME: 2 Hours**

**CREDIT UNITS: 2**

**INSTRUCTION: Answer FOUR questions in all .Question 1 is compulsory**

- 1a. Write briefly on water as an important constituent of the living cell (7 marks)
- 1b. Give a brief description of the structure of the nucleic acids (8 marks)
- 1c. What are radioisotopes? (5marks)
- 1d. Recount the contribution of the following in the development of cytogenetics (5 marks)
  - i. Karl Wilhelm von Nägeli (1842) (1 mark)
  - ii. Walter Flemming (1882) (2 marks)
  - iii. von Waldeyer (1888) (1 mark)
  - iv. van Beneden and Heuser (1884) (1 mark)
- 2a Enumerate 3 disadvantages of Autoradiography (3 marks)
- 2b Give a stepwise description of the autoradiography method (12 marks)
- 3a. State 3 similarities between mitosis and meiosis (3 marks)
- 3b. In a tabular form state six differences between mitosis and meiosis (12 marks)
- 4a. Outline the major events of Gap 2 phase of the cell cycle (3 marks)
- 4b. Discuss the events of the S-phase of the cell cycle (12 marks)
5. Discuss the principle and operation of the electron microscope (15 marks)