



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

**BIO 318: Immunology and Immunochemistry**

**Credit: 3 Units**

**Time allowed: 2½ hours**

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

- 1a List 4 purposes for drug bioassay (4marks)
  - b. Explain the four distinct phases in the cell cycle division process. (6marks)
  - c Describe four new techniques used in immunochemistry (6marks)
  - d. State the postulates of the clonal selection hypothesis (6marks)
  - e. List THREE cellular components and THREE secreted components of the innate immune system (3marks)
- 2 Outline 10 criteria that should be met by a primary bioassay (15 marks)
3. Write a brief history of chemotherapy (15 marks)
- i. Karl Landsteiner
  - ii. Elvin Kabat and colleagues
  - iii. Linus Pauling
  - iv. Paul Ehrlich
  - v. Ilya Ilyich Mechnikov
4. Highlight the contributions of the following scientist in the field of Immunology and Immunochemistry
- i. Karl Landsteiner (3 marks)
  - ii. Elvin Kabat and colleagues (3 marks)
  - iii. Linus Pauling (3 marks)s
  - iv. Paul Ehrlich (3 marks)
  - v. Ilya Ilyich Mechnikov (3 marks)
5. Describe occurrence in the body during a primary exposure to an antigen.  
*(Marks will be awarded for a clear illustration)* (15 marks)
6. Discuss the relationship between cell division and malignant tumor progression (15 marks)