

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

**EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE IN
NURSING
NURS 224: HUMAN PATHOLOGY II**

STREAMS: BSc. NURSING

TIME: 2 HOURS

DAY/DATE: FRIDAY 08/08/2025

11.30 A.M. – 1.30 P.M.

INSTRUCTIONS:

- **Answer all questions**

SECTION I: MCQS 10 MARKS

- 1. Which type of hypersensitivity reaction involves IgE and mast cell degranulation?**
 - A. Type I
 - B. Type II
 - C. Type III
 - D. Type IV
- 2. Which immune cell is primarily involved in Type IV hypersensitivity?**
 - A. B cells
 - B. T cells
 - C. Mast cells
 - D. Eosinophils
- 3. In the cell cycle, DNA replication occurs in which phase?**
 - A. G1
 - B. S
 - C. G2
 - D. M

4. **Which process results in programmed cell death without inflammation?**
 - A. Necrosis
 - B. Apoptosis
 - C. Autolysis
 - D. Lysis

5. **A tumor consisting of cells that closely resemble normal tissue and grow slowly is considered:**
 - A. Malignant
 - B. Invasive
 - C. Benign
 - D. Metastatic

6. **A virus known to be associated with cervical cancer is:**
 - A. Epstein-Barr virus (EBV)
 - B. Hepatitis B virus (HBV)
 - C. Human papillomavirus (HPV)
 - D. Human immunodeficiency virus (HIV)

7. **Tumor cells may escape immune detection by:**
 - A. Releasing interleukins
 - B. Downregulating MHC class I
 - C. Overexpressing CD8+ T cells
 - D. Increasing antigen presentation

8. **A test used for detecting genetic mutations at the DNA level is:**
 - A. Western blot
 - B. ELISA
 - C. PCR
 - D. Gram stain

9. **A child inherits a genetic condition through mitochondrial DNA. This means the disorder is:**

- A. Autosomal dominant
- B. Autosomal recessive
- C. X-linked
- D. Maternal inheritance

10. **Karyotyping is used to detect:**

- A. Single base mutations
- B. RNA expression
- C. Chromosome abnormalities
- D. Enzyme activity

SECTION II; SHORT ANSWER QUESTIONS 30 MARKS

1. Outline 4 hallmarks of cancer (4 Marks)
2. Describe the phases of the cell cycle and mention the role of cell cycle checkpoints (4 Marks)
3. Name the two main components of a tumor and describe their functions (6 Marks)
4. Discuss the role of the immune system in tumor immunity. (6 Marks)
5. List two molecular techniques used in the diagnosis of genetic diseases and explain their application. (4 Marks)
6. Compare the key characteristics of benign and malignant tumors. (6 Marks)

SECTION III LONG ANSWER QUESTIONS 30 MARKS

1. Describe the stages of the cell cycle and the role of cell signaling and receptors in regulating cell growth and differentiation. Explain how dysregulation of these processes contributes to disease (10 Marks)
2. Define hypersensitivity reactions and classify them into four types. For each type, describe the immune mechanism involved and provide one clinical example. Discuss the significance of understanding these reactions in clinical immunopathology (20 Marks)

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