



NATIONAL OPEN UNIVERSITY OF NIGERIA
FACULTY OF SCIENCES
DEPARTMENT OF ENVIRONMENTAL SCIENCE AND RESOURCE
MANAGEMENT
Plot 91, Cadastral Zone, Nnamdi Azikwe Expressway, Jabi, Abuja
2022_1 EXAMINATIONS

COURSE CODE: EMT407

COURSE TITLE: PRINCIPLES OF TOXICOLOGY I

CREDIT: 2 Units

TIME ALLOWED: 2 Hours

Instruction: Attempt question number ONE (1) and any other TWO (2) questions. Question number one (1) carries 30 marks, while the other questions carry (20) marks each.

1a) Diagrammatically illustrate molecular cloning using a plasmid vector **(10marks)**

1b) Give an overview of the contributions of Philippus Aureolus Theophrastus Bombastus von Hohenheim-Paracelsus (1493–1541) to the growth of toxicology as a discipline. **(17marks)**

1c) Outline the uses of cDNA and Genomic Libraries **(3marks)**

2) Discuss the following cell culture techniques (20marks)

i. Suspension Cell Culture (7marks)

ii. Monolayer Cell Culture (6marks)

iii. Indicators of Toxicity in Cultured Cells (7marks)

3a) Diagrammatically show how the generation of antibodies of several clonal origins with antibodies from each clonal origin recognizes a distinct epitope on the antigen. **(5marks)**

3b) Give a brief definition of the following **(5marks)**

i. Necrotoxin (1mark)

ii. Neurotoxins (2marks)

iii. Myotoxins (1mark)

iv. Cytotoxins (1mark)

3c) Expatiate on the relevance of cell culture techniques **(10marks)**

4a) Elucidate on the scope of environmental biochemistry **(13marks)**

4b) Discuss the importance of molecular techniques in toxicological studies **(7marks)**

5a) Attempt a broad definition of the term biotoxins **(6marks)**

5b) Using cognate example explain the difference between environmental toxins and the conventional toxins **(3marks)**

5c) Justify the rationale for the study of the exposure of the eye to toxicants **(11marks)**