



COLLEGE OF AGRICULTURE, ENGINEERING AND SCIENCE
AGRICULTURE PROGRAMME

COURSE CODE: ANF 224
COURSE UNIT: 2
SESSION: 2022/2023

COURSE TITLE: INTRODUCTION TO BIOTECHNOLOGY
TIME: 2 1/2 HOUR
SEMESTER: SECOND SEMESTER

INSTRUCTION: Answer any 4 questions BUT question 1 is compulsory

1. (a) What is biotechnology? (5 marks)
(b) Write short notes on the following:
 (i) Microbial biotechnology
 (ii) Agricultural biotechnology
 (iii) Forensic biotechnology
 (iv) Regulatory biotechnology (5 marks each)
2. (a) Explain the importance of biotechnology to these sectors :
 i. Health..... (5marks)
 ii. Agriculture..... (5marks)
 iii. Energy (5marks)
(b) List five applications of animal cell culture (10marks)
3. (a) What do you understand by the term Animal biotechnology? (5 marks)
(b) Define transgenic animals. (2 marks)
(c) Explain four importance of animal biotechnology (10 marks)
(d) Describe the following:
 i. Primary cell culture (2 marks)
 ii. Adherent cells (2 marks)
 iii. Suspension cells (2 marks)
 iv. Secondary cell culture (2 marks)
- 4a. Discuss the under listed methods for increased reproduction in animals.
(i) Embryo transfer [5 marks]
(ii) Multiple ovulation [5 marks]
b. Write exhaustively on Artificial insemination (Semen storage, ovulation control & sperm sexing) (15 marks)
5. (a) What are Clones? [5 marks]
(b) Write briefly about Dolly Sheep. [10 marks]
(c) Mention five other examples of transgenic animals/fish you know. [10 marks]
6. (a) What is biosafety and its general concerns? [6 marks]
(b) Discuss the following terms; GMOs and CPB. [6 marks]
(c) Mention 5 areas of biosafety level of preparedness in Nigeria. (10 marks)
(d) in Nigeria, which national body is in charge of implementation of the biosafety management acts? (3 marks)