



NATIONAL OPEN UNIVERSITY OF NIGERIA

National Open University of Nigeria

Plot 91, Cadastral Zone, Nnamdi Azikiwe Expressway, Jabi - Abuja

Faculty of Science

Department of Biological Sciences

202122 EXAMINATION

COURSE CODE: BIO413

COURSE TITLE: DEVELOPMENTAL BIOLOGY

CREDIT UNIT: 2

TIME ALLOWED: 2 HOURS

INSTRUCTION: ANSWER QUESTION 1 AND ANY OTHER TWO QUESTIONS

- 1a. Define the following terms: i. Embryology ii. Gametogenesis iii. Blastocoel **3 Marks**
- b. Highlight the contributions of Aristotle towards the development in bird **5 Marks**
- c. State the principles of development **9Marks**
- d. Use an annotated diagram only, describe the development of sperm **5 Marks**
- e. List the characteristics of the prophase stage **3 Marks**
- f. Explain the six general questions scrutinized by Developmental Biologists. **5 Marks**

- 2a. Write a comprehensive note on sperm-egg fusion **8 Marks**
- b. List and describe the types of placenta in animals, based on the following:
 - (i) histology **(7.5 marks)**
 - (ii) degree of association **(4.5 marks)**

- 3a. List four stages in Prophase I of meiotic cell division **2 Marks**
- b. Expatriate on the types of egg membrane **9 Marks**
- c. Concisely, explain internal fertilization in a named mammal **9 Marks**

- 4a. Write the full meanings of each of the following acronyms: i. GIFT ii. ZIFT **2 Marks**
- b. Mention four (4) conditions associated with placental abruption in a woman **4 Marks**
- c. Explain the features of fertilin protein in mammals **5 Marks**
- d. Explain the journey of a zygote from fertilization to cleavage **9 Marks**

- 5a. State the functions of a cell division that lead to the formation of sperm cells **5 Marks**
- b. Highlight seven (7) ways each, how infertility can be prevented in men and women **7 Marks**
- c. Explain gastrulation in snail **8 Marks**