



TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Applied and Health Sciences
Department of Pure & Applied Sciences

**UNIVERSITY EXAMINATION FOR:
BACHELOR OF SCIENCE IN BIOCHEMISTRY
ABC 4304: REPRODUCTIVE BIOCHEMISTRY
END OF SEMESTER EXAMINATION**

SERIES: Pickyear DEC 2024

TIME: 2 HOURS

DATE: Pick Date Dec Pick Year 2024

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **FIVE** questions. Attempt question ONE (Compulsory) and any other TWO questions.

Do not write on the question paper.

QUESTION ONE

- (a) Compare and contrast the roles of testosterone and estrogen in the regulation of male and female reproductive systems. **(4 marks)**
- (b) Outline the phases of spermatogenesis, highlighting the hormonal regulation involved in the process. **(6 marks)**
- (c) Explain the following reproductive disorders.
- i) Poly Cystic Ovarian Syndrome (PCOS) **(2 marks)**
 - ii) Amenorrhea **(2 marks)**
- (d) Outline the following reproductive processes.
- i) Semen sexing **(3 marks)**
 - ii) *In-vitro* Fertilization (IVF). **(5 marks)**
- (e) Mention the main biochemical changes that occur during menopause. **(3 marks)**
- (f) Explain how thyroid disorders influence reproductive health. **(3 marks)**
- (g) State TWO symptoms associated with andropause. **(2 marks)**

QUESTION TWO

- (a) Explain the structure and function of the epididymis, and outline the process of sperm maturation that occurs there. **(10 marks)**
- (b) Describe the stages involved in parturition. **(10 marks)**

QUESTION THREE

- (a) Describe the major hormonal changes that occur during puberty in males and females. **(8 marks)**
- (b) Describe fetal cardiovascular function and explain how it transitions to neonatal life. **(12 marks)**

QUESTION FOUR

- (a) Describe the hormonal regulation of the three phases of the menstrual cycle. **(10 marks)**
- (b) Describe the biochemical and molecular changes that occur during fertilization. **(10 marks)**

QUESTION FIVE

- (a) Explain the embryological development of the male and female reproductive systems. **(10 marks)**
- (b) Discuss FIVE biochemical causes of female infertility. **(10 marks)**