



**AMREF INTERNATIONAL UNIVERSITY
SCHOOL OF MEDICAL SCIENCE
DEPARTMENT OF REHABILITATION MEDICINE
BACHELOR OF SCIENCE IN PHYSIOTHERAPY
END OF SEPT-DECEMBER 2024 TRIMESTER EXAMINATIONS**

UNIT CODE: PHT 116

**UNIT NAME: General anatomy and embryology
(Special exam)**

DATE: Day/ Date/ AUGUST

TIME: TWO HOURS

START: 0:00 STOP: 0:00

INSTRUCTIONS (physical exams)

1. Do not write on this question paper

(Marks and questions distribution as per program curriculum.)

INSTRUCTIONS (Online examinations)

1. This exam is marked out of 70 marks
2. This Examination comprises 3 Sections
3. This online exam shall take 2 Hours
4. Late submission of the answers will not be accepted
5. Ensure your web-camera is on at all times during the examination period
6. No movement is allowed during the examination
7. Idling of your machine for 5 min or more will lead to lock out from the exam
8. The Learning Management System (LMS) has inbuilt integrity checks to detect cheating
9. Any aspect of cheating detected during and or after the exam administration will lead to nullification of your exam
10. In case you have any questions call the invigilator for this exam on Tel. 0705833434 and or the Head of Department on Tel 0720491032
11. For adverse incidences please write an email to: amiu.examinations@amref.ac.ke

Section A. Multiple Choice Questions. Answer all the questions (30 Marks)

1. A fertilized egg is called?

- a) Germ cell
- b) Embryo
- c) Zygote
- d) Blastula

2. Most of the body's homeostatic responses rely on "negative feedback".

Which of the following happens in negative feedback?

- a) The body ignores changes in a physiological variable that are directed away from the set point for that variable
- b) The body's response acts to oppose the change in the physiological variable
- c) The body ignores changes in a physiological variable that are directed towards the set point for that variable.
- d) The body's response acts to enhance the change in the physiological variable

3. The purpose of meiosis is to produce?

- a) DNA
- b) Somatic cells
- c) Diploid cells
- d) Haploid cells

4. Which muscle (s) are not controlled by the autonomic nervous system?

- a) Cardiac muscle
- b) Skeletal muscle
- c) The diaphragm
- d) Smooth muscle

5. Of the 23 chromosomes within a sperm?

- a) 23 chromosomes are the diploid number
- b) Some of the 23 come from the father and the rest come from the mother.
- c) 11 chromosomes and the Y come from the father, while 11 chromosomes come from the mother.
- d) 11 chromosomes come from the father; 11 chromosomes come from the mother, while one of either the Y or the X come from the father or mother respectively.

6. By which term is a muscle that opposes or reverses a particular movement called?

- a) Agonist
- b) Synergist
- c) Antagonist
- d) Fixator

7. Fetal alcohol syndrome results in:

- a) Attention deficit hyperactive disorder (ADHD)
- b) Changes in brain structure and behavioural problems
- c) Poor sleep patterns
- d) Blindness

8. Which of the following describes the DNA content of a female's gametes during her childhood?

- a) 46 chromosomes, 92 chromatids
- b) 46 chromosomes, 46 chromatids
- c) 23 chromosomes, 46 chromatids
- d) 23 chromosomes, 23 chromatids

9. Which sets of bones together form the appendicular skeleton?

- a) The head, shoulder girdle, arms and hands.
- b) Bones of the skull and face, thoracic cage and vertebra
- c) The arms and hands, the legs and feet, shoulder girdle and pelvic girdle.
- d) The thoracic cage, vertebral column, shoulder girdle, the pelvic girdle, the skull and facial bones.

10. Meiosis in males is the production of:

- a) One spermatid and three polar bodies
- b) Two primary spermatocytes
- c) Four spermatids
- d) One spermatid and two polar bodies

11. Which of the following is a correct definition of “positive feedback”?

- a) The process by which the body maintains homeostasis.
- b) A mechanism in which the body’s response to a stimulus, opposes the stimulus.
- c) A mechanism whereby the body responds to a stimulus by acting to enhance the stimulus.
- d) The dynamic equilibrium maintained by an integrating centre which causes an effector to respond to the stimulus received by the receptor.

12. During which period do most oocytes become atretic and degenerate:

- a) At menopause
- b) Between birth and puberty
- c) Between the 5th -7th fetal months
- d) During early post natal periods

13. Spermatogonia, which is derived from primordial germ cells, divide by mitosis during which period?

- a) All post natal period
- b) Early fetal life
- c) During the process of spermiogenesis
- d) Continuously throughout post puberty life

14. Which of the following is a function of the skeletal system?

- a) Glycogenolysis.
- b) Haemopoiesis
- c) Haemostasis

d) Peristalsis

15. The human body's ability to maintain a relatively constant internal temperature is an example of what?

a) Positive feedback

b) Homeostasis

c) Vasodilation and evaporative heat loss

d) Respiratory heat loss

16. The journey of the morula through the fallopian tubes takes how long?

a) 3-4 days

b) 5-7 days

c) 1-2 days

d) 8-10 days

17. What causes the body to maintain a relatively constant internal environment?

a) Reflexes

b) Homeostasis

c) Positive feedback

d) pH buffers

18. The early stages of cleavage are characterized by:

a) Formation of hollow ball of cells

b) Formation of the zona pellucida

c) Increase in the number of cells in the zygote

d) Increase in the size of the cells in the zygote

19. A synovial joint is also known as one of the following, which one?

a) Synarthrosis

b) Freely moveable joint

c) Immovable joint

d) Slightly moveable joint

20. What is the name given to bone forming cells?

- a) Osteocytes
- b) Osteoblasts
- c) Osteons
- d) Osteoclasts

21. Which one of the following lists contains only bones in the appendicular skeleton.

- a) Patella, ethmoid, femur, coccyx, tibia
- b) Clavicle, fibula, metatarsal, phalange, radius
- c) Humerus, scapula, occipital, metacarpal, sternum
- d) Ulna, radius, phalange, mandible, Coxal

22. Which bone of the head has a synovial joint?

- a) The sphenoid
- b) The hyoid
- c) The mandible
- d) The maxilla

23. Which describes the movements known as pronation and supination?

- a) The flexing of the arm with respect to the forearm around the elbow.
- b) The swivelling of the foot to the medial and lateral directions.
- c) The twisting of the wrist while the elbow is held motionless
- d) The rotation at the shoulder that causes the arm to describe a cone shape.

24. The bones functions to make red blood cells process is known as?

- a) Haemolysis
- b) Haemostasis
- c) Haemopoiesis
- d) Haematuria

25. The first week of human development is characterized by:

- a) Inner cell mass
- b) Hypoblast
- c) Trophoblast
- d) Blastocyst
- e) All of them

26. During the second week of human development, the trophoblast differentiates into:

- a) Yolk sac
- b) Syncytiotrophoblast
- c) Intraembryonic mesoderm
- d) Ectoderm

27. What is a teratogen:

- a) A noxious substance found in soil that crosses the maternal placenta barrier
- b) A hormonal trigger that stimulates excessive cell growth in the embryo
- c) A substance or environmental influence that affects the development of the fetus and causing physical abnormalities
- d) An allergen that affects both mother and fetus

28. During blastocyte implantation, which of the following plays most active role in invading the endometrium:

- a) Epiblast
- b) Syncytiophoblast
- c) Hypoblast
- d) Extraembryonic mesoderm

29. In ectopic pregnancy, the most common site for implantation is:

- a) Internal os of the uterus
- b) Mesentery

- c) Uterine tube
- d) Ovary

30. During the delivery of a baby the baby's head is pushing against the cervix causing the cervix wall to stretch. This stretching causes nerve impulses to be sent to the hypothalamus which directs the posterior pituitary to release oxytocin in the blood. Oxytocin stimulates the uterus to contract which pushes the baby's head deeper into the cervix, stretching it further.

This situation is a description of which of the following?

- a) Negative feedback
- b) Positive feedback
- c) Homeostasis
- d) An afferent pathway to an integrating centre

Section B. Structured short answer questions. Answer all the questions (20 Marks)

Q1. Discuss the phases of Spermatogenesis (12 Marks)

Q2. Explain the components of the appendicular skeleton (8 Marks)

Section C (CHOOSE ONLY TWO Structured long answer questions (20 Marks))

Q1. Discuss the development of bones (10 Marks)

Q2. Explain the classification of bones (10 Marks)

Q3. Explain the components of the axial skeleton (10 Marks)