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 (Main exam)**

DATE: **Thursday/ 5th/ December**
TIME: **TWO HOURS**
START: **9AM** **STOP : 11AM**

INSTRUCTIONS (physical exams)

Do not write on this question paper

(Marks and questions distribution as per program curriculum.)

1. This exam is marked out of 70 marks
2. This Examination comprises 3 Sections
3. This exam shall take 2 Hours

Section A .Multiple Choice Questions (30 Marks)

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

a) Cardiac muscle

b) The diaphragm

c) Skeletal muscle

d) Smooth muscle

2. Meiosis in males is the production of:

a) One spermatid and three polar bodies

b) Four spermatids

c) Two primary spermatocytes

d) One spermatid and two polar bodies

3. The purpose of meiosis is to produce?

a) DNA

b) Haploid cells

c) Diploid cells

d) Somatic cells

4. Of the 23 chromosomes within a sperm?

a) 23 chromosomes are the diploid number

b) 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.

c) 11 chromosomes and the Y come from the father, while 11 chromosomes come from the mother.

d) Some of the 23 come from the father and the rest come from the mother.

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

a) Respiratory heat loss

b) Vasodilation and evaporative heat loss

c) Homeostasis

d) Positive feedback

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

of the following happens in negative feedback?

a) The body's response acts to oppose the change in the physiological variable

b) The body ignores changes in a physiological variable that are directed away from the set point for that 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

7. 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) Homeostasis

c) Positive feedback

d) An afferent pathway to an integrating centre

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

a) Glycogenolysis.

b) Haemostasis

c) Haemopoiesis

d) Peristalsis

9 Which sets of bones together form the appendicular skeleton?

a) The head, shoulder girdle, arms and hands.

b) The arms and hands, the legs and feet, shoulder girdle and pelvic girdle.

c) The thoracic cage, vertebral column, shoulder girdle, the pelvic girdle, the skull and facial bones.

d) Bones of the skull and face, thoracic cage and vertebra

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

a) Agonist

b) Antagonist

c) Synergist

d) Fixator

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

a) 46 chromosomes, 46 chromatids

b) 46 chromosomes, 92 chromatids

c) 3 chromosomes, 46 chromatids

d) 23 chromosomes, 23 chromatids

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

a) Between the 5th -7th fetal months

b) At menopause

c) Between birth and puberty

d) During early post natal periods

13. Spermatogenia, which is derived from primordial germ cells, divides by mitosis during which period?

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

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

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

15. A fertilized egg is called?

a) Germ cell

b) Embryo

c) Blastula

d) Zygote

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

a) Synarthrosis

b) Immovable joint

c) Freely moveable joint

d) Slightly moveable joint

19. Where does the increase in the length of a long bone take place?

a) Diaphysis ossification centres

b) Medullary canal

c) Cartilaginous plates

d) Epiphyseal plates

20. Which of the following 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 rotation at the shoulder that causes the arm to describe a cone shape.

d) The twisting of the wrist while the elbow is held motionless

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

a) The sphenoid

b) The hyoid

c) The maxilla

d) The mandible

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

a) Patella, ethmoid, femur, coccyx, tibia

b) Humerus, scapula, occipital, metacarpal, sternum

c) Clavicle, fibula, metatarsal, phalange, radius

d) Ulna, radius, phalange, mandible, Coxal

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

a) Osteocytes

b) Osteons

c) Osteoblasts

d) Osteoclasts

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

a) Haemolysis

b) Haemostasis

c) Haematuria

d) Haemopoiesis

25. 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) An allergen that affects both mother and fetus

d) A substance or environmental influence that affects the development of the fetus and causing physical abnormalities

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

a) Yolk sac

b) Intraembryonic mesoderm

c) Syncytiotrophoblast

d) Ectoderm

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

a) Inner cell mass

b) Hypoblast

c) Trophoblast

d) Blastocyst

e) All of them

28. 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 size of the cells in the zygote

d) Increase in the number of cells in the zygote

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

a) Internal os of the uterus

b) Uterine tube

c) Mesentery

d) Ovary

30. Fetal alcohol syndrome results in:

a) Attention deficit hyperactive disorder (ADHD)

b) Poor sleep patterns

c) Changes in brain structure and behavioural problems

d) Blindness

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

31. Discuss the development of bones (12 Marks)

32. Explain the classification of bones (8 Marks)

Section C (<u>CHOSE ONLY TWO</u> Structured long answer questions (20 Marks)

33. Discuss the phases of Spermatogenesis (10 Marks)

34. Explain the components of the appendicular skeleton (10 Marks)

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