



MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

P.O. Box 972-60200 – Meru-Kenya

Tel: +254(0) 799 529 958, +254(0) 799 529 959, + 254 (0) 712 524 293,

Website: info@must.ac.ke Email: info@must.ac.ke

University Examinations 2023/2024

FIRST YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR
OF CLINICAL MEDICINE AND COMMUNITY HEALTH

CCM 3113: EMBRYOLOGY

DATE: APRIL 2024

TIME: 3 HOURS

INSTRUCTIONS:

Answer *All* questions

Ensure that all your answers are properly numbered

Part I multiple Choice Questions (MCQ): Write the correct answer on the space provided in the answer booklet. Each MCQ is one mark

Part II: Short Answer Questions – Answer questions following each other on the answer booklet

Part III: Long Answer Questions – Answer each question on the answer booklet

SECTION A: MULTIPLE CHOICE QUESTION (20 MARKS)

1. Placenta accreta is a medical condition in which the placenta attaches abnormally to the myometrium. What is the earliest embryonic stage that this could occur, which cells are responsible for this attachment?
 - a) Blastulation, trophoblast
 - b) Early cleavage, trophoblast
 - c) Compaction, epiblast
 - d) Blastulation, epiblast
 - e) Early cleavage, embryoblast
 2. The blastocoele becomes the:
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- a) Amniotic cavity
 - b) Extraembryonic coelom
 - c) Primary yolk sac
 - d) Chorionic cavity
 - e) Secondary cavity
3. The primitive streak first appears at the beginning of which week.
- a) First
 - b) Second
 - c) Third
 - d) Fourth
 - e) Fifth
4. Identify the correct association:
- a) Adrenal cortex - ectoderm
 - b) Blood Vessels Of The Stomach - Endoderm
 - c) Lung epithelium - mesoderm
 - d) Olfactory epithelium - brain
 - e) Liver parenchyma (functional cells) - endoderm
5. Of the following, the item most closely associated with the hypothalamus is:
- a) Telencephalon
 - b) Diencephalon
 - c) Mesencephalon
 - d) Metencephalon
 - e) Myelencephalon
6. Hydrocephalus:
- a) Exhibits decreased accumulation of CSF within the ventricles or between the brain and dura mater
 - b) Is accompanied by an excessive amount of amniotic fluid
 - c) May be caused by an obstruction of the aqueduct of Sylvius

- d) May be caused by an absence of the choroid plexuses
 - e) All the above are false
7. The cloacal membrane is derived from:
- a) Ectoderm
 - b) Endoderm
 - c) Both
 - d) Neither
 - e) Mesoderm
8. Which of the following associations are correct?
- a) Renal pelvis - ureteric bud
 - b) Ureter - ureteric bud
 - c) Urethra - urogenital sinus
 - d) Median umbilical ligament - urachus
 - e) All of the above are correct
9. The penile urethra is derived from the:
- a) Urogenital sinus
 - b) Pelvic part of the vesicourethral canal
 - c) Phallic part of the vesicourethral canal
 - d) Cloaca
 - e) Mesonephric duct
10. The specialized group of mesenchymal cells which aggregate to form blood islands are called:
- a) Hemoblasts
 - b) Angioblasts
 - c) Fibroblasts
 - d) Yolk sac endoderm
 - e) Wharton's jelly

11. What is the name of the plane passing through the body that divides the body into equal right and left halves?
- a) Coronal
 - b) Transverse
 - c) Sagittal
 - d) Medial
 - e) Vertical
12. In the adult, it is stated that the thorax is superior to the abdomen. The corresponding term for an embryo is:
- a) Dorsal
 - b) Cranial
 - c) Caudal
 - d) Posterior
 - e) Inferior
13. Which is false about spermatogenesis:
- a) Site: Seminiferous tubules
 - b) Start time: birth
 - c) Duration: 64 -74 days
 - d) End time: At death
 - e) Optimum temperature: 34 0C
14. Which of the following types of germ cells does not undergo cell division?
- a) Spermatogonia
 - b) Primary oocytes
 - c) Spermatids
 - d) Secondary oocytes
 - e) Oogonia
15. Which of the following are classified as gonadotropin hormones?
- a) FSH

- b) GnRH
 - c) Estradiol or estrogen
 - d) Progesterone
 - e) All of the above
16. Gonadotropin-releasing hormone or GnRH:
- a) Acts on the hypothalamus, causing release of FSH & LH
 - b) Is released once a month from the corpus luteum
 - c) Acts on anterior pituitary gland, causing release of FSH & LH
 - d) Acts on the anterior pituitary causing release of estrogen and progesterone
 - e) Acts on posterior pituitary gland, causing release of FSH & LH
17. The stage of lung development, 6 mos. to after birth, during which the respiratory epithelium becomes squamous and the capillary loops are intimately related to the epithelium is the:
- a) Glandular period
 - b) Vascular period
 - c) Alveolar Period
 - d) Canalicular period
 - e) Acinar period
18. The terminal sac or saccular stage of lung development is characterized by the appearance of:
- a) Secondary bronchi
 - b) Tertiary bronchi
 - c) Respiratory bronchi
 - d) Surfactant
 - e) Mature alveoli
19. Hair arises from which type of tissue?
- a) Ectoderm
 - b) Mesoderm

- c) Epidermis
 - d) Dermis
 - e) More than one of the above
20. When the amount of amniotic fluid exceeds two liters, the condition is called:
- a) Oligohydramnios
 - b) Polyhydramnios
 - c) Amnionitis
 - d) Bag of waters
 - e) Hydrogravidia

SECTION B: SHORT ANSWER QUESTIONS (40MARKS)

- 1. List 5 results of fertilization (5 marks)
- 2. Outline the 5 principles of teratogenesis (5 marks)
- 3. Classify and give examples of malformations of the limbs (5 marks)
- 4. Draw and label parts of a mature graafian follicle (5 marks)
- 5. List the derivatives of the neural tube and neural crest (5 marks)
- 6. List five the congenital anomalies of the gastrointestinal system. (5 marks)
- 7. Outline the 4 stages of maturation of the lungs (5 marks)
- 8. Outline the implantation process (5 marks)

SECTION C: LONG ESSAY QUESTION (40MARKS)

- 1. Concerning the cardiovascular embryology:
 - a) Briefly describe the development of the heart (5 marks)
 - b) Classify and briefly describe various congenital heart diseases. (15 marks)
- 2. Describe the following processes in embryology.
 - a) Spermatogenesis (10 marks)
 - b) Fertilization (10 marks)