



# MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

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## UNIVERSITY EXAMINATIONS 2023/2024

FIRST YEAR, FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF  
SCIENCE IN CLINICAL MEDICINE AND COMMUNITY HEALTH DEVELOPMENT

### CCM 3113: EMBROLOGY

**DATE: JANUARY 2025**

**TIME: 3 HOURS**

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**INSTRUCTIONS:** *Answer all questions in the booklet provided*

Ensure that all your answers are properly numbered

Section A: Short Answer Questions

Section B: Long Answer Questions

Section C: Multiple Choice Questions (MCQs)

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### SECTION A: SHORT ANSWER QUESTIONS

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



MUST is ISO 9001:2015 and



ISO/IEC 27001:2013 CERTIFIED

8. List five the congenital anomalies of the gastrointestinal system. (5 Marks)

### SECTION B: LONG ANSWER QUESTIONS

1. Describe the gastrulation process and name derivatives of the 3 layers (10 Marks)
2. Describe the process of spermatogenesis (10 Marks)
3. Describe the fertilization process (10 Marks)
4. Describe the congenital anomalies of the nervous system. (10 Marks)

### SECTION C: MULTIPLE CHOICE QUESTIONS (MCQS)

1. Which of the following associations are correct?
  - A. renal pelvis - ureteric bud
  - B. ureter - ureteric bud
  - C. median umbilical ligament urachus
  - D. all of the above are correct
2. The penile urethra is derived from the:
  - A. urogenital sinus
  - B. pelvic part of the vesicourethral canal
  - C. cloaca
  - D. mesonephric duct
3. The specialized group of mesenchymal cells which aggregate to form blood islands are called:
  - A. hemoblasts
  - B. angioblasts
  - C. fibroblasts
  - D. yolk sac endoderm
4. Which is false about spermatogenesis:
  - A. Start time: birth
  - B. Duration: 64-74 days
  - C. End time: At death



- D. Optimum temperature: 340C
5. Which of the following types of germ cells does not undergo cell division?
- A. spermatogonia
  - B. primary oocytes
  - C. spermatids
  - D. oogonia
6. Which of the following are classified as gonadotropin hormones?
- A. FSH
  - B. GnRH
  - C. estradiol or estrogen
  - D. progesterone
7. 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 posterior pituitary gland, causing release of FSH & LH
8. 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
9. 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. acinar period



10. 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
11. Hair arises from which type of tissue?
- A. Ectoderm
  - B. mesoderm
  - C. epidermis
  - D. dermis
12. When the amount of amniotic fluid exceeds two liters, the condition is called:
- A. oligohydramnios
  - B. polyhydramnios
  - C. amniotitis
  - D. hydrogravida
13. The blastocoele becomes the:
- A. amniotic cavity
  - B. extraembryonic coelom
  - C. primary yolk sac
  - D. chorionic cavity
14. The primitive streak first appears at the beginning of which week.
- A. first
  - B. second
  - C. third
  - D. fourth
15. Identify the correct association:
- A. adrenal medulla - ectoderm
  - B. blood vessels of the stomach - endoderm
  - C. lung epithelium - mesoderm



- D. olfactory epithelium - brain
16. 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
17. In the adult, it is stated that the thorax is superior to the abdomen. The corresponding C) term for an embryo is:
- A. dorsal
  - B. cranial
  - C. caudal
  - D. inferior
18. Of the following, the item most closely associated with the hypothalamus is:
- A. telencephalon
  - B. diencephalon
  - C. mesencephalon
  - D. myelencephalon
19. 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
20. The cloacal membrane is derived from:
- A. ectoderm
  - B. endoderm
  - C. both
  - D. mesoderm

