



(University of Choice)

**MASINDE MULIRO UNIVERSITY OF  
SCIENCE AND TECHNOLOGY  
(MMUST)**

MAIN CAMPUS

**UNIVERSITY EXAMINATIONS  
2021/2022 ACADEMIC YEAR**

**FIRST YEAR SECOND TRIMESTER EXAMINATIONS**

**FOR THE DEGREE  
OF  
BACHELOR OF SCIENCE IN NURSING (UPGRADING & DIRECT)**

**COURSE CODE: NCN 115/NMM 113**

**COURSE TITLE: HUMAN EMBROLOGY**

**DATE: 4/10/2022**

**TIME: 11.30-2.30pm**

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INSTRUCTIONS TO CANDIDATES

ANSWER ALL QUESTIONS

TIME: 3 Hours

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 4 Printed Pages. Please Turn Over. ►

## SECTION A (MULTIPLE CHOICE QUESTIONS)

1. The pre-embryonic stage is completed when
  - a) The blastocyst becomes implanted
  - b) The morula reaches the uterus
  - c) The placenta is formed
  - d) The primary germ layers are formed
  
2. A morula
  - a) Has 23 chromosomes
  - b) Is the term describing the developing structure during the pre-embryonic development
  - c) Is composed of 16 or more cells
  - d) Is in the stage of development following that of a blastocyst
  
3. Which event does not occur in the pre-embryonic stage?
  - a) Parturition
  - b) Mitotic divisions
  - c) Formation of the primordial embryonic disc
  - d) Implantation
  
4. The following is a chromosomal structural defect:
  - a) Cri-du chat syndrome
  - b) Down syndrome
  - c) Klinefelter's syndrome
  - d) Trisomy 13
  
5. Which of these is most important during implantation
  - a) Cytotrophoblast
  - b) Syncytiotrophoblast
  - c) Zona pellucida
  - d) Corona radiata
  
6. In mitosis anaphase is marked by;
  - a) Chromosomes lining up on the equatorial plane
  - b) Chromosomes uncoiling and lengthening
  - c) Migration of chromatids to the opposite poles
  - d) Each chromosome replicates its DNA becoming doubled
  
7. In Down's syndrome;
  - a. Phenotype is male
  - b. Neck is webbed
  - c. There is normal mental development
  - d. They have slanting eyes
  
8. The condition where we have less amount of amniotic is:
  - a. oligohydramnios
  - b. hydrocephalus
  - c. Polyhydramnios
  - d. hydramnios
  
9. Sirenomelia is characterized by:
  - e. presence of an extra digit
  - f. fusion of the lower limbs

- g. cardiac defects
- h. defects in the cranium

10. The point in meiosis where sister chromatids separate from each other is

- a. metaphase 1
- b. anaphase 1
- c. anaphase 11
- d. telophase

11. Follicle stimulating hormone

- a. stimulates endometrial development
- b. stimulates development of ovarian follicles
- c. stimulates formation of corpus luteum
- d) Stimulates spermatozoa to fertilize the ovum

12. The correct statement about oogenesis is;

- a. 1<sup>st</sup> meiosis is arrested during metaphase by oocyte maturation inhibitor (OMI)
- b. Resumption of meiosis and ovulation are by an ovulatory stage in levels of oestrogen
- c. Second meiosis is arrested at metaphase and completed after ovulation
- d. The polar bodies serve to take the other half of the chromosomes

13. A newborn infant had dribbling of urine from the umbilicus. the congenital defect described here is;

- a) extrophy of the bladder
- b) rectovesical fistula
- c) urachal fistula
- d) double ureter

14. Limb defects are associated with the following teratogen

- a) Thalidomide
- b) Warfarin
- c) Syphilis
- d) Rubella virus

15. After several years of trying to become pregnant, a young woman seeks consultation. Examination reveals a double uterus and single vagina. the defect occurred due to;

- a) Complete failure of fusion of the right and left mullerian ducts
- b) Partial failure of fusion of the 2 mullerian ducts
- c) A small septum that remains in the upper part of the uterine cavity
- d) Fundus that slightly depress due to minor degree of imperfect fusion of the 2 mullerian ducts

16. A limb defect where the long bones are absent and rudimentary hands and feet are attached to the trunk by small irregularly shaped bones is called

- a) syndactyly
- b) Amelia
- c) phocomelia
- d) polydactyly

17. Write true or false at the end of the statement; In limb development;

- a) Lower limbs rotate approximately 90° laterally
- b) Fingers and toes are formed by cell death in the apical ectodermal ridge ( AER)

18. The baby at birth had excessive fluids in the mouth and the mother was diagnosed with polyhydramnios during pregnancy. The type of birth defect present was:

- a) tracheoesophageal atresia/fistula
- b) pneumonia
- c) lung agenesis

19. 1. Tetralogy of Fallot consist of the following defects except

- a) pulmonary stenosis
- b) ventricular septal defects
- c) over-riding of the aorta
- d) ductus arteriosus

20. Write true or false at the end of the statement

- a) In fetal circulation blood flows from the left ventricle to the right ventricle through the foramen ovale
- b) The oxygenated blood flows from the placenta to the fetus through the umbilical arteries

### SECTION B

1. Describe cleavage (5marks)
2. Write short notes on (XXY) syndrome. (5marks)
3. Differentiate between oogenesis and spermatogenesis (5marks)
4. Describe the development of the germ layers (gastrulation) (5marks)
5. Explain the congenital malformations of the limb (5marks)
6. Explain five malformation of the digestive system (5marks)
7. Explain 5 causes of birth defects (10marks)

### SECTION C

1. Explain the process of fertilization and the results of fertilization (20marks)
2. Describe the process of spermatogenesis citing factors that may affect this process (20marks)