

Human Embryology Exam 1

SECTION A

1. The correct statement about gametes is:
 - a) The Spermatozoa can survive up to 72 hours
 - b) The oocyte can survive up to 48 hours
 - c) The result of fertilization is restoration of the haploid number of chromosomes
 - d) The unfertilized secondary oocyte normally degenerates within 4-8 hours

2. The correct statement about sperm capacitation is
 - a) It takes about 24 hours
 - b) The glycoprotein coat decapacitation factor is removed from the plasma membrane over the acrosome
 - c) Testosterone is a strong capacitating agent
 - d) It occurs in the epididymis

3. The incorrect statement about zona reaction is
 - a) It occurs after penetration of the corona radiata
 - b) The enzyme from the cortical granules alter sperm receptor molecules in the zona pellucida
 - c) It prevents polyspermy
 - d) renders other sperms incapable of fertilizing

4. The following are derived from the primitive fore gut except:
 - a) larynx
 - b) stomach
 - c) colon
 - d) trachea.

5. The following are true of an omphalocele
 - a) Coils of intestines herniated through the anterior abdominal wall
 - b) The umbilicus is attached separate to the omphalocele
 - c) The intestines are not covered by skin
 - d) Coils of the intestine herniated through the umbilicus

6. Which of these is most important during implantation
 - a) Cytotrophoblast
 - b) Syncytiotrophoblast
 - c) Zona pellucida
 - d) Corona radiata

7. The primitive streak is associated with the development of
 - a) Notochord
 - b) Mesoderm
 - c) Neural tube
 - d) Epiblast.

8. The physiological herniation of the intestines occurs during :
 - a) 4th week
 - b) 10th week
 - c) 8th week
 - d) 6th week

9. In Turners syndrome
 - a) Phenotype is male
 - b) Neck is webbed
 - c) There is normal mental development
 - d) They have slanting eyes

10. The following are excretory organs identified in an early embryo except:
 - a) Metanephros
 - b) Ureteric buds
 - c) Pronephros
 - d) Mesonephros

11. The point in meiosis where sister chromatids separate from each other is
 - a) metaphase 1
 - b) anaphase 1
 - c) anaphase 11
 - d) telophase

12. 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

13. The correct statement about oogenesis is;
 - a) 1st 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

14. Implantation occurs in the stage of
 - a) Cleavage
 - b) Blastular
 - c) Gastrular
 - d) Neurular

15. Which is the correct order of events during human development
 - a) Gametogenesis, fertilization, cleavage, morulla
 - b) Fertilization, gametogenesis, cleavage, morulla
 - c) Gametogenesis, cleavage, fertilization, morulla
 - d) Morulla, cleavage, fertilization, gametogenesis

16. The correct statement about the development of the notochord is

- a) The ventral wall of the notochord process fuses with the underlying ectoderm in a caudo cranial direction
 - b) There is transient communication between the amniotic cavity and the yolk sac called the notochordal canal
 - c) The notochordal process transforms into the notochordal plate
 - d) The margins of the notochordal plate fuse to form the notochordal process
17. In development of limbs which is the correct statement
- a) The apical ectodermal ridge is the prime mover in the initial stage
 - b) The mesenchymal core is the prime mover in the later stages
 - c) There is epithelio-mesenchymal interaction
 - d) There is no programmed cell death
18. Syndactyle is characterized by
- a) presence of an extra digit
 - b) two or more webbed digits
 - c) sole of foot twisted
 - d) incompletely formed digits
19. The following is the function of the placenta
- a) Production of enzymes
 - b) Diffusion of nutrients and oxygen
 - c) Provides buoyancy to the embryo
 - d) Acts as a shock absorber.
20. Tetralogy of Fallot consist of the following conditions except
- a) Pulmonary stenosis
 - b) Ventral septal defect
 - c) Hypertrophy of right ventricle
 - d) Patent ductus arteriosus

SECTION B

- 1. Draw a well labeled diagram of a mature spermatozoa (5Marks)
- 2. Explain the defect and signs of Klinefelter's syndrome (6 Marks)
- 3. Define fertilization and state the results of fertilization (7 Marks)
- 4. State six malformations of the limb (6marks)
- 5. Discuss the germ layers and the respective derivatives from each layer (8 marks)
- 6. Discuss the twinning process and the various types of twins (8marks)

SECTION C

- 1. (a) Explain factors that determine the effect of a teratogen(principles of teratogenicity) (5marks)
- (b) Explain various forms of teratogens and their effects (15marks)
- 2. Describe the development of the midgut of the digestive system (15 marks)
- b) Explain various malformations that can occur in this system(midgut) (5marks)