Tanta University Faculty of Medicine Anatomy Department	First semester Examination Medical Doctorate in Anatomy& Embryology 6 pages	

Date: 17/8/2021… Time allowed: 3 hours… Total marks: 90 marks

Number of Questions: 8 Short essay+ 25 MCQ

ADVANCED EMBRYOLOGY (1st SEMESTER DOCTORATE)

All questions to be answered

Short Essay (65 marks)

1. **A. Describe** the external appearance of the embryo during the second month. **(7 marks)**
   B. Explain the development of the blood and blood vessels. **(4 marks)**

2. **Define** the teratogenesis associated with gastrulation. **(7 marks)**

3. **Explain** the establishment of the body axes and their abnormalities. **(8 marks)**

4. **Describe** the characters of the different skeletal dysplasias and **define** their associated gene. **(6 marks)**

5. **Discuss** the molecular regulation of muscle development **(with illustrating diagram)** and **explain** the myogenic determination (regulatory) factors. **(4.5 marks)**

6. **A. Explain** the septation and appropriate positioning of atrioventricular canal. **(4 marks)**
   B. Draw diagrams of the development of arteries of lower limb during 5^{th} to 7^{th} weeks of development (stages 13-19) and their fate. **(3 marks)**
   C. Explain the development of lymphatic system with its genetic basis. **(3 marks)**

7. **A. Explain** the formation of lung buds and **define** factors inducing them. **(2.5 marks)**
   B. Explain the development of the liver and **discuss** the molecular regulation of its induction. **(7 marks)**

8. **A. Explain** endocrine development of kidney and **outline** renal dysplasias and agenesis. **(3 marks)**
   B. Discuss the disorders of sexual development. **(6 marks)**

MCQ (25 marks)

1. **Chorionic villi are designated as secondary chorionic villi when they are characterized by which of the following characters?**
   - **a.** Become in contact with the decidua basalis
   - **b.** Are covered by syncytiotrophoblast
   - **c.** Develop a mesenchymal core
   - **d.** Give rise to branch villi
   - **e.** None of the above

2. **The intervillous space DOES NOT contain which of the following substances?**
   - **a.** Oxygen
   - **b.** Carbon dioxide
   - **c.** Maternal blood cells
   - **d.** Fetal blood
   - **e.** Electrolytes

3. **The seven-day blastocyst is characterized by which of the followings?**
   - **a.** Has a single layer of trophoblast at the embryonic pole
   - **b.** Has an amniotic cavity
   - **c.** Is attached to the endometrial epithelium
   - **d.** Is surrounded by a degenerating zona pellucida
   - **e.** Is called the hypoblast

4. **Which of the following events occurs to the blastocyst during implantation?**
   - **a.** It implants in the endometrium
   - **b.** Usually, it attaches to endometrial epithelium at its embryonic pole
   - **c.** Usually, it implants in the posterior wall of the body of the uterus
   - **d.** It causes changes in the endometrial tissues
   - **e.** All of the above events are correct

5. **Which of the followings best describes the development of amniotic cavity?**
   - **a.** It appears on the tenth day
   - **b.** It develops within the outer cell mass
   - **c.** It develops within the inner cell mass near cytotrophoblast
   - **d.** It appears in extraembryonic mesoderm
   - **e.** None of the above is correct about its development

6. **The primitive streak first appears at the beginning of which of the following weeks?**
   - **a.** 1^{st}
   - **b.** 2^{nd}
   - **c.** 3^{rd}
   - **d.** 4^{th}
   - **e.** 5^{th}

7. **Which of the following events occurs in the 3rd week of human embryonic development?**
   a. The amnion appears
   b. A bilaminar embryonic disc is formed
   c. Body stalk moves ventrally and joins the yolk sac stalk to form the umbilical cord
   d. Neural plate is induced by the notochordal process and associated mesoderm
   e. The uteroplacental circulation is established

8. **Which of the following is the character of somites?**
   a. Differentiate into myotomes which give rise to skeletal muscle in trunk and limbs.
   b. Differentiate into sclerotomes which give rise to vertebrae
   c. Arise from segmentation of the paraxial mesoderm
   d. Differentiate into myotomes which give rise to skeletal muscle of limbs
   e. All of the above are correct characters of somites

9. **Which of the following structures DOES NOT turn under onto the ventral surface of the embryo during folding of the head?**
   a. Prochordal plate
   b. Heart
   c. Notochord
   d. Pericardial cavity
   e. Septum transversum

10. **The wall of the chorionic sac is composed of which of the followings?**
   a. Cytotrophoblast and syncytiotrophoblast
   b. Two layers of trophoblast lined by extraembryonic somatic mesoderm
   c. Trophoblast and exocoelomic membrane
   d. Extraembryonic splanchnic mesoderm and both layers of trophoblast
   e. None of the above structures form the wall of chorionic sac.

11. **Which of the following molecules is the inductive signal regulating the positioning of joints during limb development?**
   a. FGF4
   b. TBX4
   c. WNT14
   d. SER2
   e. WNT7

12. **Costal cartilages develop from which of the following mesodermal layers?**
   a. Cells of the lateral somitic frontier
   b. Parietal layer of the lateral plate mesoderm
   c. Sclerotome cells that remain in the paraxial mesoderm
   d. Sclerotome cells migrating across lateral somitic frontier to lateral plate mesoderm
   e. Ventral Somitic cells and parietal layer of the lateral plate mesoderm

13. **A newborn baby was transported to the pediatrician as his mother noticed that his abdominal wall is very thin that the organs were visible. On radiological examination, there was bladder and urethral obstruction. Which of the following congenital muscular anomalies has the following characters?**
    a. Arthrogryposis
    b. Poland sequence
    c. Prune belly syndrome
    d. Duchenne's muscular dystrophy
    e. Becker's muscular dystrophy

14. **Mutation of which of the following genes is the cause of Marfan syndrome ?**
    a. COL1A1
    b. FBN1
    c. HOXD13
    d. HOXA13
    e. TBX5

15. **Which of the following tissues of the heart is derived from splanchnopleuric coelomic epithelium (myocardial) ?**
    a. Conducting system
    b. Interstitial fibroblasts
    c. Valvular apparatus
    d. Coronary vascular bed
    e. Epicardium

16. **Which of the following explains that coronary arteries invade the aorta?**
    a. Angioblasts formed from sprouts off the aorta are distributed at site of coronary arteries.
    b. Connection of the coronary arteries to the aorta occurs by ingrowth of arterial endothelial cells from the arteries into the aorta.
    c. Mesenchymal cells around aorta contribute to endothelial and smooth muscle cells of the coronary arteries.
    d. Neural crest cells contribute smooth muscle cells along proximal segments of coronaries arising from aorta
    e. Some epicardial cells undergo an epithelial-to-mesenchymal transition induced by the underlying myocardium at aortic opening.

17. **Which of the following parts of vitelline veins form superior mesenteric vein?**
    a. Anastomotic plexus between both veins
    b. Distal portion of left vitelline vein
    c. Portion of right vein distal to anastomotic plexus
    d. Portion of right vein proximal to anastomotic plexus
    e. Proximal portion of left vitelline vein

18. **A 2-day-old newborn female was diagnosed to have De George sequence. Which of the following defects are characteristics to this congenital anomaly?**
    a. Outflow tract defects, such as persistent truncus arteriosus and tetralogy of Fallot, facial defects, thymic hypoplasia, parathyroid dysfunction.
    b. Atrial septal defects, defects in muscular portion of the interventricular septum and preaxial (radial) limb abnormalities.
    c. Displacement of tricuspid valve toward the apex of right ventricle with enlargement of anterior leaflet, hypertrophy of the right atrium and small right ventricle.
    d. Disruption of laterality pathway with dextrocardia, VSD, ASD, double outlet right ventricle and outflow tract defect.
    e. Disruption in organization of cardiac muscle cells resulting in hypertrophic cardiomyopathies.

19. **Which of the following proteins is produced by macrophages in the amniotic cavity under the effect of surfactant of type II alveolar epithelial cells and upregulation of this gene results in uterine contraction at time of birth ?**
    a. Cyclo-oxygenase 1
    b. Cyco-oxygenase 2
    c. Endothelin-1
    d. Interleukin 1β
    e. Nitric oxide synthase

20. **The mother of a newly born baby complained that he had vomiting with initial feeds, which worsened over the first 18 h and the abdomen became progressively distended. An upper gastrointestinal series and contrast enema were performed and demonstrated atresia of the proximal jejunum and confirmed diagnosis of apple peel atresia. Misexpression of which of the following genes has resulted in this condition?**
    a. HOX
    b. TBX5
    c. CDXA
    d. SOX2
    e. SHH

21. **Expression of which of the following genes must be repressed in the gut endoderm to induce formation of dorsal pancreatic bud?**
    a. FGF2
    b. PAX4
    c. PAX6
    d. PDX1
    e. SHH

22. **A 1-day-old female infant has a mass protruding through her umbilicus. Physical examination reveals an umbilical hernia. A CT scan reveals that part of another organ is attached to the inner surface of the hernia. What portion of the gastrointestinal tract is most likely to be attached to the inner surface of the umbilical hernia?**
    a. Jejunum
    b. Appendix
    c. Cecum
    d. Ileum
    e. Dudenum

23. **Denys- Drash syndrome is characterized by which of the following anomalies?**
    a. Wilms tumor, aniridia, gonadoblastoma and mental retardation
    b. Renal failure, ambiguous genitalia and Wilms tumor
    c. Renal cysts, obesity, intellectual disability and limb defects
    d. Renal cysts, hydrocephalus, microphthalmia, cleft palate and polydactyly
    e. Anurea, oligohydramnios, hypoplastic lung and cardiac anomalies

24. **Which of the following genes stimulates differentiation of Sertoli and Leydig cells in the male testis?**
    a. SRY
    b. FGF9
    c. SF1
    d. SOX9
    e. WNT4

25. **Which of the following structures is homologies in male to duct of epoophoron (Gartner duct) in female ?**
    a. Duct of epididymis
    b. Vas deferens
    c. Ejaculatory duct
    d. Appendix of epididymis
    e. Paradidymis

END OF THE EXAM

WITH MY BEST WISHES

Committee of the Exam: *Prof. Dr. Amal Halawa rof. Dr. Amal ElKAttan Prof. Dr. Mona Zoair Prof. Dr. Mona Attia Prof. Dr. Doaa Haiba,*

Tanta University Faculty of Medicine Human Anatomy & Embryology Dep.	Doctorate Degree of Emergency Medicine & Traumatology Exam.
Date: 17/8 /2021	Time Allowed: 3 Hours
Number of Questions8	Total: 90 Marks

Emergency Medicine& Traumatology

All questions to be answered

1- Mention the subarachnoid cisterns? (10marks)

2- Discuss the anatomy of cavernous sinuses, tributaries and important communications? (10marks)

3- A penetrating wound in the posterior triangle of the neck: Name the cranial nerve affected and mention the result of its lesion? (10 marks)

4- Discuss the surface anatomy and auscultation of the heart valves? (10marks)

5- Mention the sites of portosystemic anastomosis and complications? (12 marks)

6- What are the anatomy of male urethra and common sites of rupture? (12 marks)

7- Mention the nerve usually injured in fracture neck of fibula and its effects on the leg and foot deformity? (13 marks)

8-Discuss the anatomy of superficial veins of the upper limb? (13 marks)

END OF THE EXAM

Oral Examination:

On 31 / 8/ 2021 at 10 o'clock in the Anatomy Department (Second floor)

Committee of the Exam: *Prof. Dr. Amal Halawa, Prof. Dr. Mona Attia, Prof. Dr. Doaa Heiba,*