Training Booklet (GAD-102) 2025-2026

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Short answered Questions(SAQs)

General Anatomy

Functions of superficial fascia

1. ……..
2. ……
3. ……..
4. ……

Functions of deep fascia

1. ……..
2. ……
3. ……..

Bones provide the following functions

1. ……..
2. ……
3. ……..
4. ……

Types of bones in the human body

1. ……**example……..**
2. …… **example ……**
3. …… **example …..**
4. …… **example …**
5. …….. **example**

The vertebral column consists of ……number of vertebrae consists of

1. **Cervical**: ……. number vertebrae
2. **Thoracic**: ……. number vertebrae
3. **Lumbar** : ……. number vertebrae
4. **Sacrum**: ……. number vertebrae
5. **Coccyx**: ……. number vertebrae

About joints complete the followings

- ☒ Immoveable joints called……..
- ☒ Growing bones contains…….type of joints
- ☒ Freely moveable joints called……..
- ☒ …….secretes synovial fluid

About Types of Synovial Joint complete the followings

- ……joint permitted movement in one plane around a transverse axis
- ……joint in which articular surfaces include an oval convex surface fitting into a concave surface
- …….joint in which articular surfaces include a rounded head fitting into a cup shaped socket
- …… joint in which opposed surfaces of the bones are flat

About Movements at joints

- ✓ A bending movement that *decreases* the angle between two parts **called ……..**
- ✓ Moving away from the median plane of the body **called……**
- ✓ Rotation towards the axis of the body **called ……..**

What are the three types of muscles?

1. ……example……..
2. …… example ……
3. …… example …..

As regards the Cardiovascular System complete the followings

- ☐ Right atrium contains ……..types of blood
- ☐ Left ventricle contains ……..types of blood

- ☐ All arteries carry oxygenated blood with the exception of…….
- ☐ All veins carry deoxygenated blood except……..

What Are The Differences Between Arteries And Veins?

1. **……..**
2. **……**
3. **……..**
4. **……**

As regards the respiratory System complete the followings

- ❖ Pharynx divided into three sections……,……,……
- ❖ Organ responsible for the production of voice is …….
- ❖ Right lung: divided into ……lobes
- ❖ The ……. lung has a cardiac notch on its anterior border

As regards the digestive System complete the followings

- ❖ Organ extends from the pharynx to the stomach is ……
- ❖ Fixed part of small intestine is …….
- ❖ The most dilated part of the large intestine is ……
- ❖ Pelvic colon is the other name of ……colon
- ❖ The largest of the salivary glands is…….
- ❖ The pancreas composed of 4 parts:……,……,……,……

The large intestine differs from the small intestine by the presence of the following main features

1. **……..**
2. **……**
3. **……..**

As regards the urinary System complete the followings

- On the upper end of each kidney the ……. gland rests
- Each kidney consists of millions of functional units called ……
- Male urethra divided into 3 parts:……,……..,……
- Female urethra is …….cm.

As regards the female genital System complete the followings

- ✓ Muscular tubes that extend from the left and right superior corners of the uterus to the edge of the ovaries called …….
- ✓ The lower part of the uterus known as …….
- ✓ Connects the uterus to the exterior of the body is ……
- ✓ The inner lining of the uterus, known as the……..

As regards the male genital System complete the followings

- ❖ A sac-like organ made of skin and muscles that houses the testes **is called ……..**
- ❖ A sperm storage area is …….
- ❖ ……..carries sperm superiorly from the epididymis into the abdominal cavity to the ejaculatory duct

- ❖ The urethra in males is a common pathway for**…… and ……**

Main functions of the lymphatic system

1. **……..**
2. **……**

As regards the Nervous System complete the followings

- ☒ Central nervous system (CNS), made up of…… and ……..
- ☒ There are …….pairs of cranial nerves and ……. pairs of spinal nerves
- ☒ The outermost layer of the meninges is the……..
- ☒ The Cerebrospinal Fluid (CSF) circulates between …….matter and …… matter of the meninges

General Embryology

As regards the human chromosomes complete the followings

A. Each cell normally contains…….. Pairs of autosomes and ……pairs of sex chromosomes.
B. Chromosomes are divided into ……..number of chromatids

What are the differences between mitosis and Meiosis?

A. ……..
B. ……

As regards the Primary sex organs complete the followings

a) Primitive male germ cell is called ……. While Primitive female germ cell is called …….
b) Supporting cells in the seminiferous tubule called **…….** cells
c) The **…… cells** which secrete hormones (testosterone)

d) The accessory sex glands pour their secretions over the sperms to form the seminal fluid are:**……..,…….,…….**

As regards the Spermatogenesis complete the followings

A. Primary spermatocyte contains …….. Number of chromosomes
B. Spermatids contains …….. Number of chromosomes

C. Process by which the spermatids are transformed from rounded cells to complete sperms called …….
D. acrosomal cap is formed by …… and covers……

As regards the Oogenesis complete the followings

a) Primary oocyte is surrounded by a layer of flat follicular cell to form the …….. Follicle
b) The primary oocyte contains ……number of chromosomes
c) The granulosa cells become separated from the oocyte by a thick hyaline membrane called……..
d) a sheath of stroma cells formed around the mature follicle and called the ……..
e) ……..cells are the main source of estrogen hormone

As regards the OVULATION complete the followings

A. Ovulation takes place ……..days before the beginning of the following menstrual cycle.
B. Secondary oocyte together with surrounding …….and ……. is discharged from the ovary

The following factors leading to the rupture of the follicle

A. ……..
B. ……
C. ……..

There are 2 types of corpus luteum and duration of each

A. ……..
B. ……

Shortly describe PHASES of the OVARIAN CYCLE

a) ……..
b) ……
c) ……..

Shortly describe PHASES of the MENSTRUAL CYCLE

a) ……..
b) ……
c) ……..

As regards the Fertilization complete the followings

A. It takes place in…….
B. Capacitation means……..
C. Function of Zona pellucida are…… and…….

RESULTS OF FERTILIZATION are

a. ……..
b. ……
c. ……..

As regards the Blastocyst formation complete the followings

a) The blastocyst formed about the …….day of fertilization
b) It having a cavity called ……
c) **Inner cell mass** will develop into……
d) **Outer cell mass** differentiated into 2 layers……and…….

A patient is being seen due to vaginal bleeding, four months into her pregnancy. High levels of HCG are found but no inner cell mass (embryo) is present. The diagnosis is implantation outside the uterus?

a) -Name given for this condition is……..
b) -Time of implantation is……..
c) -The commonest site for implantation is……..
d) Placenta previa means…… and its four types is…….,……..,……,……..
e) Human chorionic gonadotropin (HCG) is secreted by……

As regards the chorion complete the followings

➔ The chorion forms the wall of the …….
➔ It consists of 3 layers as follows, from outside to inside:

1. **……..**
2. **……**
3. **……..**

As regards the Gastrulation complete the followings

a) Gastrulation means……
b) Gastrulation begins with the formation of ……..
c) Time of Gastrulation around day……..

Derivatives of ectoderm are

A. ……..
B. ……
C. ……..
D. ……..
E. ……

Derivatives of mesoderm are

a) ……..
b) ……
c) ……..
d) ……..
e) ……

Derivatives of endoderm are

A. ……..
B. ……
C. ……..
D. ……..
E. ……

As regards the neural tube complete the followings

a) Consists of thickening of…….
b) Extends between……..and……
c) Neural tube differentiates into …… and……

Folding of the disc is due to the following mechanisms

A. ……..
B. ……

Results of folding

A. ……..
B. ……
C. ……..

Parts of the decidua are

A. ……present at…….
B. …… present at ……
C. …… present at ……..

Types of villi (According to their structure) are

A. ……consist of …….
B. …… consist of ……
C. …… consist of ……

As regards the placenta complete the followings

A. Foetal part formed by ……..
B. Maternal part formed by ……..
C. The umbilical cord attached at ……..part
D. Type of blood at Intervillous space is…….

In mid-pregnancy Placental barrier (membrane) formed by

a) …….
b) …….
c) ……..
d) ……

Hormone Produced from placenta are

A. …….
B. …….
C. ……..
D. ……..

Structures of the umbilical cord before full-term are

a) …….
b) …….
c) ……..
d) ……..
e) ……

Describe changes occurs to umbilical cord after birth

A. …….
B. …….
C. ……..

As regards the Yolk sac complete the followings

A. Its roof is formed by the……
B. The caudal part of the sac gives a diverticulum called……
C. Communicates with the gut through the ……
D. It's functions includes……,……,……

As regards the amnion complete the followings

a) Its floor is formed by……..
b) Amniotic fluid is derived from ……and……..
c) Functions of the amnion includes……..,……and……..

MCQs(General Anatomy)

Proximal means:
a. In front b. In back c. Near the trunk d. far of the trunk

Which of the following types of joints are associated with the growth plate?
a. fibrous b. synovial c. primary cartilaginous d. Secondary cartilaginous

In what joint is the root of a tooth attached to a periodontal ligament and held into a tooth socket?
a. gomphosis b. suture c. syndesmosis
d. diarthrosis

Bones that surround the spinal cord are classified as _____ bones:
a. irregular b. sesamoid c. flat
d. short e. Pneumatic

The connective tissue that surrounds muscles, blood vessels, and nerves, binding those structures together is ……
a. superficial fascia b. internal fascia
c. deep fascia d. dermis

About secondary cartilaginous joints, one is true:
a. They are united by hyaline cartilage. B. They are called (synchondrosis).
c. They are called (symphysis). D. They are present where epiphysis unite with diaphysis e. They disappear after puberty

All of the following about hinge type of joints are true <u>EXCEPT:</u>
a. Their movements are permitted in one plane. b. They are uniaxial joints.
c. They are present in elbow joint d. They are biaxial joints.

Extension means:
a. Decreasing the angle between two parts.
b. Increasing the angle between body parts.
c. Moving away from the median plane of the body
d. Moving toward the median plane of the body

Where is a fixed (immovable) joint located?

a. Hip b. Knee c. Skull
d. Finger e. Shoulder

Superficial fascia is present and dense in

a. eyelids b. scrotum c. penis d. Palm e.ear

The anatomical position is characterized by all of the following except:

a. palms facing posterior
b. thumbs pointing laterally
c. face pointing anteriorly
d. body standing upright

An organ is both for respiratory and digestive system:

a. Esophagus b. trachea
c. Intestine d. pharynx

What is a joint?

A. The cushion between two bones
B. Where two bones meet and move
C. The outer coating of the bone
D. The hard part of a skeleton

The pulmonary circulation

A. carries blood from the right ventricle to the lungs and back to the left atrium
B. carries blood from the left ventricle to the body and back to the right atrium
C. supplies blood with a high oxygen level to all tissues of the body
D. veins carry blood with a low oxygen level

Small arteries are called _____.

a. Arterioles
b. venules
c. capillaries
d. pulmonary arteries

Striated or skeletal muscle responsible for voluntary movement is under the control of the:

A. Somatic nervous system
B. Sympathetic nervous system
C. Parasympathetic nervous system
D. All of the above

When a skeletal muscle contracts to cause a given movement, the relatively stationary end of attachment of the muscle is termed its

a. origin
b. insertion
c. antagonist.
d. belly

There are around how many bones in the adult skeleton?

a. 106 b. 206 C. 66 d. 205

The shoulder and hip joints are of this type.

a. ball-and-socket
b. pivot
c. saddle
d. gliding

About Skin all are true <u>EXCEPT</u>

a. superficial layer called the epidermis
b. deep layer called the dermis
c. dermis is avascular part
d. dermis contains sweat glands

A joint that allows biaxial motion only is the

a. hinge joint
b. pivot joint
c. condyloid joint
d. gliding joint

Which division of the nervous system initiates a response known as fight or flight?

A. The sympathetic nervous system
B. The parasympathetic nervous system
C. The somatic nervous system
D. None of the above

The correct term for the end of a long bone is:

A. The terminal ileum
B. The diaphysis
C. The epiphysis
D. shaft

Which of the following is not characteristic of all synovial joints?

A. meniscus
B. articular cartilage
C. joint capsule
D. synovial membrane

The _____ conducts the chewed bolus of food from the pharynx to the stomach.

A. esophagus
B. trachea
C. intestine
D. glottis

The lumen of the digestive tract is lined with _____ .

a. serosa
b. mucosa
c. submucosa
d. muscularis

The large intestine consists of the _____ .

A) colon
B) cecum
C) rectum
D) colon, cecum, rectum, and anus

What human organ system is responsible for exchanging gases with the outside environment?

A) respiratory system
B) endocrine system
C) excretory system
D) circulatory system

The _____ system transports nutrients and oxygen to cells and removes their waste.

A) digestive
B) circulatory
C) excretory
D) respiratory

The circulatory system has _____ types of blood vessels.

A) one

B) two
C) three
D) four

The largest artery in the systemic circuit is the _____ .

A) Superior vena cava
B) pulmonary artery
C) Aorta
D) femoral artery

The lymphatic system _____.

A) takes up excess tissue fluid and returns it to the blood stream
B) absorbs fats in the intestinal villi and transports them to the blood stream
C) helps to defend the body against disease
D) all of the above

The _____ convey(s) urine from the kidneys toward the bladder.

A) urethra
B) nephrons
C) prostatic gland
D) ureters

The _____ extend(s) from the urinary bladder to an external opening.

A) ureter
B) renal arteries
C) urethra
D) glomerulus

In the central nervous system, the brain and spinal cord are protected by membranes known as the _____ as well as cushioned by cerebrospinal fluid.

A) meninges
B) vesicles
C) tendons
D) peritoneum

The _____ glands lie on top of the kidneys.

A) pituitary

B) growth
C) adrenal
D) thyroid

The vas deferens empties sperm into the _____.

A) urinary bladder
B) urethra
C) penis
D) prostate gland

Write the correct sequence of the pathway through which air travels after entering the body.

A. Larynx, pharynx, trachea bronchioles
B. Pharynx, larynx, trachea, bronchioles
C. Pharynx, larynx, bronchioles, trachea
D. Pharynx, trachea, larynx, bronchioles

The structure that connects muscles to bones is the _____

a) Aponeurosis
b) Fascicle
c) Tendon
d) ligament

There are ……pairs of cranial nerves and ……..pairs of spinal n erves.

a) 12, 31
b) 13, 31
c) 13, 32
d) 12,33

Which category of bone is among the most numerous in the skeleton?

a. long bone b. sesamoid bone c. short bone d.flat bone

Bones that surround the spinal cord are classified as _____ bones:

A. irregular
B. sesamoid
C. flat
D. short

Sesamoid bones are found embedded in _____.

A. joints
B. muscles
C. ligaments
D. tendons

Most of the bones of the arms and hands are long bones; however, the bones in the wrist are categorized as _____.

A. flat bones
B. short bones
C. sesamoid bones
D. irregular bones

The type of joint that is distinguished by having a fluid-filled joint cavity is a _____ joint.

A. fibrous
B. cartilaginous
C. synovial
D. suture

The greatest range of motion is provided by the

A. pivot joint
B. ball-and-socket joint
C. saddle joint
D. condyloid join

The layer of the body just under (or deep to) the skin is called:

A. deep fascia
B. epimysium
C. an aponeurosis
D. superficial fascia

Which of the following planes of the body divides it into upper and lower parts?

(a) Sagittal (b) Transverse

(c) Frontal d) Vertical.

The smooth muscles are present all of the following EXCEPT:

a. Urinary bladder. b. Limbs.

c. Intestine. d. Gall bladder.

As regard the lymph vessels:

a. Thin walled and beaded
b. Thick wall and beaded
c. Carry the lymph to the spleen
d. Carry the lymph to liver

What is the circulatory system?

A. The body's breathing system
B. The body's system of nerves
C. The body's food-processing system
D. The body's blood-transporting system

Regarding the artery, following are true except:

a. Has thick walls b. Contains oxygenated blood

c. Contains valves d. Can anastomose with other arteries

From the following selections, identify the directional terms equivalent to ventral, posterior, superior, and inferior in the correct sequence.

a. anterior, dorsal, cephalic, caudal
b. dorsal, anterior, caudal, cephalic
c. caudal, cephalic, anterior, posterior
d. cephalic, caudal, posterior, anterior

The female urethra is about …. cm long:

a. 4. b.10.
c. 15. d. 20

5- The joint in which one part of a bone slides over another bone.

a- Ball and socket b- Hinge c- Pivot
d- Gliding e-saddle

6-A vertical plane which divides the body into right and left parts: a. Sagittal b-Coronal c-Transverse
d. Horizontal

MCQs (Developmental anatomy)

The initial step during fertilization is _____

a. Penetration of sperm into corona radiata

b. Fertilizing and antifertilizing reaction
c. Formation of fertilization membrane
d. Formation of fertilization cone

The main function if fimbriae of oviduct is:

a. Help in collection of ovum after ovulation
b. Make necessary changes in endometrium for implantation
c. Release ovum from Graafian follicle
d. Help in development of embryo

The most correct sequence of early development following fertilization is:

a) zygote, oocyte, morula, blastocyst
b) oocyte, zygote, morula, blastocyst
c) morula, zygote, oocyte, blastocyst
d) blastocyst, zygote, oocyte, morula

The lytic enzyme released by sperm is _____

a. Ligase b. Acrosome
c. Hyaluronidase d. A and B

Which one of the followings is incorrectly matched regarding male reproductive organ?

a) Testes: Sperm and sex hormones are produced
b) Epididymis: Ducts where sperm mature
c) Prostate gland: Contributes fluid to semen
d) Urethra: Contributes nutrients and mucus-containing fluid to semen
e) Seminal vesicle: provide secretion into ejaculatory duct

Ovulation takes place at :

a. In the center of the ovary. B. Through the cortex of the ovary.
c. Isthmus of uterine tube d. Ampulla of uterine tube.

ligamentum teres of liver is a ligament which was…… in the embryo

a. Ductus arteriosus b. Lt Umbilical vein c. Ductus venosus
d. Umbilical artery

Within which extra embryonic membrane are blood cells formed in the early stage of development?

a. Yolk sac b. Allantois c. Chorion
d. Allantois e. a and b

In mammalian development, the embryo will form from which population of cells?

a. the blastocyst b. the inner cell mass
c. the trophoplast d. the blastocele

Which of the following is NOT derived from ectoderm?

a. Epidermis b. Enamel of teeth c. Skeletal muscles
d. Forebrain e. Mammary gland

Which of the following does NOT take place during fertilization?

a) Endometrial implantation occurs
b) Restoration of a diploid genome
c) Determination of genetic sex of the embryo
d) Cleavage initiated

The two layers of extraembryonic mesoderm are called:

a) Endoderm; Mesoderm
b) Primary; Secondary
c) Somatopleuric; Splanchnopleuric
d) Mesenchyme; Parachyme

All arteries, veins, and lymphatic channels form from____.

a) Ectoderm b) Mesoderm c) Endoderm d) Chorionic Villi

The placenta has all of the following functions <u>EXCEPT</u>:

a) oxygenation of blood b) Hormone production c)Protection

d) Nutrition

_____ is the hormone that is the basis for the pregnancy test.

a. Estrogen
b. Human chorionic gonadotropic hormone (HCG)
c. Progesterone
d. Prostaglandin

The amniotic cavity appears on the eighth day as a slit-like space between the trophoblast and the

a. Extraembryonic mesoderm
b. Embryoblast
c. Exocoelomic membrane

d. Connecting stalk

Blood in the intervillous space is considered ____ the mother's circulatory system and adequate irrigation of chorionic villi ____ an important factor in the development of the fetus.

a) Inside; Is not
b) Inside: Is
c) Outside; Is not
d) Outside; Is

The point of fertilization occurs when

a. Sperm are deposited in the vagina
b. Sperm penetrates the outer jelly coating of the egg
c. The sperm contacts the vitelline envelope
d. The sperm sheds the tail

Development of the placental membrane consists of all of the following EXCEPT:

a) Syncytiotrophoblast
b) Cytotrophoblast
c) Endothelium of the fetal vessels
d) Cotyledons

At the fetomaternal junction, projections of decidua basalis towards the chorionic plate serve to divide the fetal placenta into irregular areas called:

a) Endometrium
b) Cotyledons
c) Anchoring villi
d) Smooth chorion

During labor, what membrane ruptures ("water breaks")?

a. Amniochorionic
b. Amnitoic
c. Chorionic
d. Decidua capsularis

What is the correct developmental order for the following: 1: Neural crest; 2: Notochord; 3: Neural plate; 4: Neural tube; 5: Neural groove:

a. 3-2-5-4-1

b. 3-5-4-2-1
c. 2-3-5-4-1
d. 5-2-1-4-3
e. 2-3-1-5-4

Which of the following statements is incorrect about the zona pellucida:

a. surrounds the oocyte in the ovary
b. protects oocyte in the uterine tube
c. important in implantation
d. is important for fertilization

Muscles and excretory structures arise from;

a. Mesoderm
b. Ectoderm
c. Endoderm
d. Layer

The acrosome is formed from

a. Nucleus b. Golgi bodies C. Centrosome d.Mitochondria

Which one of the following undergo meiotic division

a. Primordial germ cells
b. Spermatogonia
c. Spermatids
d. Primary spermatocytes

First polar body is formed from

a. Primordial germ cells b. Oogonia C. Primary oocyte
e. Secondary oocyte

Chromosomal reduction during gametogenesis occurs due to the

a. Meiosis b. Mitosis C. Non-disjunction d. Amitosis

The part of the sperm containing proteolytic enzymes to digest the zona pellucida is the a. head
b. corona c. acrosome d. cumulus

The first week of human development is characterized by formation of the:

a. inner cell mass b. hypoblast
c. trophoblast d. blastocyst

During implantation, the blastocyst

a. implants in the endometrium
b. usually attaches to endometrial epithelium at its embryonic pole
c. usually implants in the posterior wall of the body of the uterus
d. causes change in the endometrial tissues
e. all of the above are correct

Implantation of human embryos typically occurs:

a. about 1 day after fertilization
b. about one week (i.e. 7 days) after fertilization
c. about two weeks (i.e. 14 days) after fertilization
d. at the same time as neural tube closure
e. NONE of the above

Which of the following is derived from ENDODERM?

a. endoneurial fibroblasts and Schwann cells of peripheral nerves
b. endothelial lining of blood vessels
c. epithelial lining of the respiratory tract
d. cells lining the amniotic membrane

Corpus luteum develops under the influence of

Progesterone- Estrogen- FSH- LH

When released from ovary, human egg contains

One Y chromosome- Two X chromosomes- One X chromosome- XY chromosomes

Cleavage starts after fertilization in

Fallopian tube- Uterus- Vestibule- Clitoris

Corona radiata is made up of

a. zona pellucida around the oocyte
b. vitelline membrane
c. follicular cells around the oocyte

d. stratum functionalis

Which are called sperm mother cells

A. Spermatids B. Spermatogonia

C. Spermatocytes D. spermatozoa

At the end of spermatogenesis each primary spermatocyte gives rise to

A.one spermatid B. Two spermatids C. Three spermatids

D. Four spermatids

Testis is made up of sperm tubules called

A. Malpighian tubules B. Uriniferous tubules

C. Seminiferous tubules D. Collecting Seminiferous tubules

Name the special cells which provide nutrient materials to the matured spermatozoa in the testis

A. Spermatogonia B. Leydig cells C. Interstitial cells D. Sertoli cells

What is a teratogen?

a. A measure of prenatal **activity**
b. A layer of the embryo
c. A type of ultrasound
d. A stage of development
e. A physical deformity caused by harmful substances transmitted through the placenta

Process of gametogenesis includes all the following steps except:

a-Proliferation of the primitive germ cells by repeated mitotic divisions.

b-fusion of the corresponding chromosomes to increase genetic material.

c-Growth of the primitive germ cells to increase their sizes.

d-maturation of the primitive germ cells by meiotic divisions.

e-additional process of spermiogenesis added in males.

Regarding spermatogenesis, all the following statements are true except:

a-It includes all steps of transformation of spermatogonia into sperm.

b-It starts just before puberty.

c-Its site is in both testes.

d- secondary spermatocyte has Y-chromosome or X-chromosome.

One of the following have 23 chromosomes:

a-Sertoli cells. b-1ry spermatocyte.

c-spermatogonia d-2ry spermatocyte.

the following are different part of sperm except:

a-head (nucleus +chromosome). B-neck

c-limb d-tail

Usually one spermatogonium gives:

a-one sperm b-two sperm

c-three sperm d-four sperms

The sperm usually pass through the following except:

a-vasa efferentia b-head of epididymis

c-tail of epididymis d-vas deferens

e-seminal vesicle.

One statement is false regarding the oogenesis:

a- start during fetal life and continue after puperty.

b- oogenesis take place in the cortex of the ovary.

c- number of 1y oocyte for each ovary at birth 70,000.

d- at ovulation 1ry oocyte complete 1st meiotic division and enter 2end meiotic division.

Regarding ovulation, all statements are true except:

a- Its usually onset is at 14th day of menstrual cycle.

b- At ovulation mature follicle rupture to release mature ovum.

c- Mature ovum surrounded by layer of corona radiata.

d- At it start 1st reduction division occur lead to 2ry oocyte.

One of these structures have diploid number of chromosomes:

a- 1ry oocyte b-2ry oocyte
c -1st polar body d-mature ovum.

Regarding the follicular phase of ovarian cycle one statement is false:

a- It starts after birth & repeated every 28 days
b- Its site is cortex of ovary
c- It is including all growth changes in follicular cells till mature follicles
d- Estrogen will stimulate pituitary gland to secrete LH

Oogenesis takes place in:

a-medulla of ovary b-fundus of uterus

c-cortex of ovary d- uterine tube

Luteinizing cells of corpus luteum secrete:

a-estrogen b- L.H

c-progesterone d- F.S.H

The process of fertilization has one of the following steps:

a. sperm reaches the ova in stage of 1ry oocyte

b. sperm undergo process of capacitation

c. tail of the sperm helps in zygote formation

d. sperm start its meiotic division

The process of cleavage has the following changes except:

a. increase the number of blastomers

b.decrease in size of each cell

c. disappearance of zona pellucida

d. occurs in the uterine tube

which of the following is derivatives of ectoderm:

a-connective tissue, cartilage and bone.

b- All types of muscles.

c- The whole cardiovascular system

d-The brain and spinal cord.

Which one of the following is endodermal in origin

a- lining of the gut (except inlet and outlet).

b- muscles of the upper limb

c- The brain and spinal cord.

e-Epithelium of the nasal cavity

Which of the following statements is correct about the zona pellucida:

a- surrounds the blastocyst inside the uterus

b- prevents sperms from fertilization

c- surrounds the zygote during cleavage

d- It disappears before fertilization

For fertilization all true except:

a. it means union of male &female gametes
b. its site is medial end of uterine tube
c. one of its results is initiation of cleavage
d. more than one sperm can pass through zona pellucida

Process of cleavage means each one of the following:

a. repeated division of zygote by series mitosis
b. repeated division of zygote by miosis
c. repeated division of oogonia by mitosis
d. The zona pellucida disappears at 9th day

placenta will develop from each one of the following

a-decidua capsularis b-decidua parietalis

c-decidua basalis d. embryoblast

What is the type of placenta in which the cord inserted peripherally:

a- membranous placenta b- Placenta accreta

c-. Battledore placenta d- Velamentous placenta

placenta may have one of the following anomalies EXCEPT:

a-placenta previa b-membranous placenta

c-placenta succenturiata d-oligohydramnios

Aminotic fluid arise from:

a-amniotic epithelium b-fetal urination

c- placental circulation d-a+b+c

The umbilical cord is formed of all the following except:

a-wartons jelly b-umbilical vessels

c-allantois d-mesoderm

Married 20 years old female noticed a delay in her menstrual cycle for month, doctor examined heir suspected pregnancy which hormone suspect to be elevated in this case:

a-LH b-F.S.H c-H.C.G d-estrogen

Morula reaches the uterine cavity about ……. days after fertilization:

a- 1day b- 4days c- 7days d- 6days

What is the name of placenta attached to lower uterine segment:

a-placenta previa b- battledore placenta

c- membranous placenta d-placenta accrete

The normal site of implantation is one of the following:

a-Posterior wall of body. b-Cervix.

C-Around internal os. d-Fundus of the uterus.

Placenta previa means implantation in:

a-Uterine tube. b-Abdominal cavity.

c-Outer surface of ovary. d-Lower uterine segment.

After a difficult labor, a female received a twin babies that are fused at their sacral region: What is the name of such condition:

a. conjoint twins b. Vanishing twin c. Twin to twin transfusion syndrome

In humans, the number of ova and sperms that would be produced from 100 secondary oocytes and 100 secondary spermatocytes during gametogenesis is

a. 50 ova, 100 sperms b. 100 ova, 100 sperms
c. 100 ova, 200 sperms d. 200 ova, 200 sperms

What describes the DNA content of a female's gametes during her childhood.

a. 23 chromosomes, 23 chromatids b. 23 chromosomes, 46 chromatids

c. 46 chromosomes, 92 chromatids d. 46 chromosomes, 46 chromatids

One of the following statements about the cleavage is true.

a. Cleavage occurs when the embryo travels through uterus
b. During cleavage, the amount of DNA inside the embryo decrease
c. Embryo is closed inside zona pellucida during cleavage
d. Cleavage continues after implantation

What is an allantois?

a. Finger-like protrusion in the site of pharyngeal membrane
b. Finger-like protrusion in the site of syncytiotrophoblast
c. Finger-like protrusion in the site of connecting stalk
d. Finger-like protrusion in the site of cytotrophoblast

Which statement about the amniotic sac is true:

a. It is lined up by cells of ectoderm from its beginning
b. It is lined up by cells of endoderm from its beginning
c. It is composed of cells derived from the epiblast
d. It disappears completely during the second week

How to describe the origin of the intraembryonic mesoderm:

a. Cells from the primitive node (node of Hensen) migrate between ectoderm and endoderm.
b. Cells from the wall of the amnionic sack migrate between ectoderm and endoderm
c. Cells from the wall of the yolk sack migrate between ectoderm and endoderm
d. Cells from primitive streak migrate between ectoderm and endoderm

When does implantation start:

a. immediately after fertilization b. 3d day after fertilization
c.7th day after fertilization d.9th day after fertilization

Journey of the morula through the Fallopian tube takes usually:

a.1 to 2 days b.3 to 4 days c5 to 7 days d.8 to 10 days

Only one statement about ' origin of gametes is true. Which one؟

a. They originate from different type of cells, which is not mentioned here

b. They originate from either spermatogonia or oogonia

c. They originate from spermatogonia only

d. They originate from oogonia only

Both somatopleura and splanchnopleura originates from…of mesoderm

a. Intermediate b. lateral plate c. Somites
d. Paraxial

Primitive streak originates:

a. In lateral parts of hypoblast b. In lateral parts of epiblast

c. In the medial line of hypoblast d. In the medial line of epiblast

Which are three parts of the intraembryonic mesoderm؟

a**.** Paraxial, transitional and superficially located

b. Paraxial, intermediate and lateral plate

c. Medial, intermediate and profundus

d. Paraxial, aboral and adoral

What is a capacitation?

a. Capacitation is a process in which the glycoprotein layer over the acrosome is dissolved
b. Capacitation is a process in which sperm penetrates zona pellucida
c. Capacitation is a process in which the tail of the sperm is inactivated
d. Capacitation is a process in which the tail of the sperm is activated

Where does the extraembryonic mesoderm originate?

a. It is a result of the migration of cells from the neuroectoderm
b. In a site between trophoblast and embryoblast
c. In a site between hypoblast and epiblast
d. In a site between endoderm and ectoderm

Which statement about the neural plate is true

a. Neural plate forms itself between the node of Hensen and cloacal membrane
b. Neural plate is the basic structure for neural tube and neural crests
c. Neural plate originates at the ventral side of the germ disc
d. Neural plate is of endodermal origin

Which structure does not take place in the late blastocyst

a. Zona pellucida b. Trophoblast

c. Embryoblast d. Cavity

ENDBLOCK EXAM

Multiple choice questions (1 mark each)

1) The first week of human development is characterized by all except:
   a) inner cell mass
   b) trophoblast
   c) blastocyst
   d) dchorionic vesicle

2) the number of ova and sperms that would be produced from 100 secondary oocytes and 100 secondary spermatocytes during gametogenesis is :
   a. 50 ova, 100 sperms
   b. 100 ova, 100 sperms
   c. 100 ova, 200 sperms
   d. 200 ova, 200 sperms

3) About the CHORIONIC VESICLE all are true except:

   a) shows the appearance of amniotic cavity
   b) Shows the appearance of yolk sac
   c) shows the appearance of secondary mesoderm
   d) shows the appearance of blood vessels

4) About Placenta previa all are true except

a) blastocyst implants in the cervix
b) Partial placenta previa: partially overlies internal os
c) Low-lying placenta is the least dangerous placenta placed below the fetus

5) About fertilization all are true except:

a) a)Penetration of Corona radiata occurs 1st
b) b)only one sperm penetrating the ovum.
c) c)secondary oocyte completes the 2nd meiotic division after penetration of the zona pellucida
d) d)The formed zygote is surrounded by the zona pellucida.

6) All are true about Meiosis EXCEPT:

a) One cell divides twice to form four daughter cells
b) Meiosis occurs through 2 stages (meiosis I) followed by (meiosis II)
c) Meiosis II produces 4 diploid daughter cells
d) Meiosis I produces 2 haploid daughter cells

7) after a difficult labor ,a female received a twin babies that are fused at their sacral region: What is the name of such condition:

a) Twin to twin transfusion
b) Vanishing twin
c) conjoint twins
d) surviving twin

8) One of the following have 23 chromosomes :

a) Sertoli cells
b) 1ry spermatocyte
c) Spermatogonia
d) 2ry spermatocyte.

9) Which statement about the amniotic sac is true:

a) It is lined up by cells of ectoderm from its beginning
b) It is lined up by cells of endoderm from its beginning
c) It is composed of cells derived from the epiblast
d) It disappears completely during the second week

10) Which statement about the amniotic sac is true:

A. It is lined up by cells of ectoderm from its beginning
B. It is lined up by cells of endoderm from its beginning
C. It is composed of cells derived from the epiblast
D. It disappears completely during the second week

11) Which structure forms the floor of the primary yolk sack?

a) Splanchnopleur
b) Heuser's membrane
c) Trophoblast
d) Mesoderm

12) In oogenesis, the second meiotic division is completed at the time of

a. Ovulation
b. Fertilization
c. Luteinization
d. Implantation

13) About The decidua all are true EXCEPT:

a) decidua cells develop from the distended uterine glands
b) Decidua capsularis covers the superficial aspect of the blastocyst
c) decidua capsularis comes in contact with the decidua parietalis
d) Decidua parietalis lines the walls of the uterus away from blastocyst.

14) About the neural tube all are true EXCEPT

a) A Ventral tubular structure
b) Cells of lateral margin form the neural crest
c) dorsal to the notochord
d) lies underneath the ectoderm

15) About menstrual cycle all are true except:

A. the menstrual blood flows about 3-5 day
B. follicular phase under effect of estrogen
C. luteal phase shows oedematous endometrium
D. Proliferative phase corresponds to the formation of corpus luteum

16) The first two intraembryonic germ layers to differentiate are the:

a. ectoderm and hypoblast
b. epiblast and hypoblast
c. epiplast and endoderm
d. ectoderm and hypoblast

17) Guide the ovulated oocyte to enter the uterine tube

A. Theca externa
B. fimbriae

C. Antrum
D. zona pellucida

18) The blood in intervillous space is

a. Maternal
b. Fetal
c. Mixed
d. from yolk sac

19) About Spermiogenesis which false?

a) supported by Sertoli cells
b) Golgi apparatus forms the head cap
c) centriole forms the middle piece
d) chromosomal changes in spermatid

ENDBLOCK EXAM

Multiple choice questions (1 mark each)

1. **About gametogenesis all are true <u>EXCEPT:</u>**

   a. It is called spermatogenesis in males.
   b. It is called oogenesis in females.
   c. It is continuous process in male and female.
   d. It begins with primitive sex cells.

2. **All are results of fertilization except?**
   a. Endometrial implantation occurs
   b. Restoration of a diploid genome
   c. Determination of genetic sex of the embryo
   d. Initiation of Cleavage

3. **which contains 46 chromosomes**
   A. primary oocyte
   B. secondary oocyte
   C. 1st polar body
   D. 2nd polar body

4. **<u>the main source of estrogen hormone</u>**
   a) Theca externa
   b) Theca interna
   c) Antrum
   d) zona pellucida

5. **What is the correct developmental order for the following: 1: Neural crest; 2: Notochord; 3: Neural plate; 4: Neural tube; 5: Neural groove:**

a) 3-2-5-4-1
b) 3-5-4-2-1
c) 2-3-5-4-1
d) 5-2-1-4-3

6. Under the influence of oestrogen hormone (which phase of menstrual cycle)

a) Phase of menstrual flow
b) Proliferative phase
c) Secretory phase
d) luteal phase

7. **First polar body is formed from**

b. Primordial germ cells b. Oogonia C. Primary oocyte
f. Secondary oocyte

8. About Implantation which <u>incorrect</u>

a) By the end of the 1st week after fertilization
b) Commonly at upper part of the posterior wall of the uterus
c) Occurs at morula stage
d) Occurs after disappearance of the zona pellucida

9. About The notochord all are true <u>EXCEPT</u>

a. the first longitudinal midline axis of the embryo
b. around which the vertebral bodies are organized
c. develops from the endodermal cells of the primitive node
d. The notochordal process stops at the cloacal membrane

10. Medial umbilical Ligaments are results of

A. Umbilical veins
B. Umbilical arteries
C. Allantois
D. vitello-intestinal duct

11. Following structures are derived from ectoderm, EXCEPT:

A. brain.
B. spinal cord
C. adrenal cortex
D. adrenal medulla

12. placenta will develop from each one of the following

a-decidua capsularis b-decidua parietalis

c-decidua basalis d. embryoblast

13. Both somatopleura and splanchnopleura originates from…of mesoderm

a. Intermediate b. lateral plate c. Somites d. Paraxial

14. Called primary mesoderm

A. Intra-embryonic mesoderm
B. extra-embryonic mesoderm
C. Intermediate mesoderm
D. Paraxial mesoderm

15. Which structure <u>does not take place</u> in the late blastocyst

a. Zona pellucida b. Trophoblast
c. Embryoblast d. Cavity

16. About the neural tube all are true <u>EXCEPT</u>

a) a Ventral tubular structure in the embryo
b) Cells of lateral margin of the plate form the neural crest
c) forms the brain from its cranial broad part
d) forms the spinal cord from its caudal narrower part

17. In humans, cleavage begins in the _____.

a. ovary
b. Fallopian tube
c. Uterus
d. Vagina

18. All are true about corpus luteum <u>EXCEPT</u>

a. Without fertilization it degenerates within 10 days of ovulation
b. With fertilization it remains for 4-5 months
c. secrete progesterone hormone
d. formed under effect of FSH

ENDBLOCK EXAM

1. placental barrier(membrane)consists of all of the following <u>EXCEPT</u>:

A. Syncytiotrophoblast
B. Cytotrophoblast
C. Endothelium of the fetal vessels
D. Cotyledons

2. All of the following are result of folding <u>except</u>:

a) formation of gut tube

b) Buccopharyngeal membrane: comes to lie most cranial .
c) Cloacal membrane: comes to occupy the most caudal
d) Connecting stalk: comes to lie caudal to the disc.

3. The amniotic cavity appears on the eighth day as a slit-like space between the trophoblast and the

A. Extraembryonic mesoderm
B. Embryoblast
C. Exocoelomic membrane
D. Connecting stalk

4. Regarding the placenta all of the following is true <u>except</u>:

A. temporary organ
B. 15-25 cm
C. maternal surface formed by the chorionic plate
D. maternal blood never mixes with fetal blood

5. In monozygotic twins if separation occurs at two cell stage each twin will has:

a) a.2 separate placenta and one common amnion
b) 2 separate amnions.
c) One common chorion
d) One common amnion

6. About The decidua all are true <u>EXCEPT</u>

a) It is the endometrium under the effect of the estrogen hormone
b) Decidua capsularis covers the superficial aspect of the blastocyst
c) Decidua basalis lies deep to the blastocyst
d) Decidua parietalis lines the walls of the uterus away from the site of the blastocyst.

7. About The notochord all are true <u>EXCEPT</u>

e. the first longitudinal midline axis of the embryo
f. around which the vertebral bodies are organized
g. develops from the endodermal cells of the primitive node
h. The notochordal process stops at thecloacal membrane

8. About the neural tube all are true <u>EXCEPT</u>

e) a Ventral tubular structure in the embryo
f) Cells of lateral margin of the plate formthe neural crest
g) forms the brain from its cranial broad part
h) forms the spinal cord from its caudal narrower part

9. About chorion all are true <u>EXCEPT</u>

A. It forms the wall of the chorionic vesicle

B. Syncytiotrophoblast share in its formation
C. Intra-embryonic mesoderm share in its formation
D. Cytotrophoblast share in its formation

10. **In which menstrual cycle phase does implantation occur?**
a) Menses
b) Ovulation
c) Secretary
d) Proliferative

11. **Mesoderm gives rise to all the structures except _____.**

A. Gonads

B. Circulatory system

C. Nervous system

D. Muscular system

12. The primary oocyte contains

a-23 chromosomes b-46 chromosomes

c-x and Y chromosomes d- one x chromosome

13. corona radiate is the name given for

a) stroma cells outside of the stratum granulosum
b) granulose cells attached to the zona pellucida after ovulation
c) granulose cells surrounds the primary oocyte
d) primordial follicle

14. Correct sequence of hormone secretion from beginning of menstruation is

A. FSH, progesterone, estrogen
B. Estrogen, FSH, progesterone
C. FSH, estrogen progesterone
D. Estrogen, progesterone, FSH

15. In humans, cleavage begins in the _____.

e. ovary
f. Fallopian tube
g. Uterus
h. Vagina

16. -During implantation, about the blastocyst all are true except:

A. implants in the endometrium
B. usually attaches to endometrial epithelium at its embryonic pole
C. usually implants in the lower part of the body of the uterus
D. causes change in the endometrial tissues

17. a married 35 year old female noticed delayed in her menstrual cycle for month ,doctor examined heir suspected pregnancy which hormone suspect to be elevated in this case :

a-LH b-F.S.H

c-H.C.G d-estrogen

18. Definitive yolk sac named after

a) Implantation
b) Folding
c) Allantois formation
d) birth

19. The blood in intervillous space is …….

A. Maternal
B. Fetal
C. Mixed
D. from yolk sac

20. After normal labor to awoman and placental separation and expulltion,this woman has severe bleeding the doctor examined her,and found small lobe of the placenta persists,this anomaly is called

A. membranous placenta
B. Accessory placenta
C. Placenta accrete
D. placenta previa

21. During labor, what membrane ruptures ("water breaks")?

a) Decidua basalis
b) Decidua capsularis
c) Amnion
d) Yolk sac

22. Derivatives of the yolk sac all are true <u>EXCEPT</u>:

a- Blood cells are derived from mesoderm.
b- Primordial sex cells migrate to the gonads
c- The gut is derived from the floor of the sac
d- Allantois will share in bladder formation

23. About Spermatogenesis all are correct <u>except</u> ....

a. it occurs in somniferous tubules of testis
b. starts before Puberty
c. it takes about 74 days
d. sperms complete maturation in the epididymis

24. spermiogenesis means .....

a) process of development of sperm from spermatogonia
b) Process of development of sperm from primary spermatocyte
c) morphological changes of secondary spermatocyte to mature sperm
d) morphological changes of spermatid to mature sperm

25. About oogenesis all are correct <u>except</u> .....

A. it starts intrauterine
B. primary oocyte complete the first meiosis division before Puberty
C. primordial follicle has only one raw of flat follicular cells

D. it occurs in the cortex of the ovary

26. …… is the primary female sex organ.

a. The uterus
b. The ovary
c. Fallopian tubes
d. vagina

27. The third layer formed in gastrulation is the _____.

a. ectoderm
b. endoderm
c. mesoderm
d. blastocoel

28. The central nervous system is derived from _____, the axial skeleton is derived from _____, and the muscles of the trunk are derived from _____?

A. ectoderm, mesoderm, endoderm
B. ectoderm, mesoderm, mesoderm
C. all are derived from mesoderm
D. all are derived from ectoderm

29. …….Refer to the death of one fetus (The fetal tissue is absorbed by the other twin) this condition is:

a. Conjoint twins
b. Vanishing twin.
c. Twin to twin transfusion syndrome.
d. Craniopagus

30. All are true about Meiosis <u>EXCEPT</u>

A. **one** cell Divides *twice* to form **four** daughter cells
B. Meiosis occurs through 2 stages (meiosis I) followed by (meiosis II)
C. Meiosis I produces 2 diploid daughter cells.
D. Meiosis II produces 4 haploid daughter cells

31. 1st polar body contains

a) 46 chromosomes
b) 23 chromosomes
c) 2 chromosomes
d) 3 chromosomes

32. All are true about Fertilization <u>EXCEPT</u>

a) process by which the male and female gametes fuse
b) takes place in the medial part of the uterine tube
c) only one sperm is capable of penetrating the ovum
d) only the head of the sperm which enters the ovum

33. The ovum, if not fertilized, loses its viability and degenerates within

A) 72 hours
B) 72 days
C) 24 hours

D) 24 days

34. All are true about blastocyst <u>EXCEPT</u>

a) formed about the 6day of fertilization
b) having a cavity called blastocoele
c) implanted into the endometrium
d) Inner cell mass develop into trophoblast

35. About implantation all are true <u>EXCEPT</u>

A. Adhesion of blastocyst to the endometrium
B. Occurs by the end of the 2nd week after fertilization
C. blastocyst invades the endometrium by the embryonic pole
D. during it corpus luteum still secreting progesterone and oestrogen hormones

36. About events during 3rd week of development all are true <u>EXCEPT</u>

a) embryonic disc becomes bilaminar
b) chorionic villi become tertiary
c) notochord is completely developed
d) cardiovascular system starts its differentiation

37. Extra-embryonic mesoderm

a. called primary mesoderm
b. called secondary mesoderm
c. called tertiary mesoderm
d. called definitive mesoderm

38. Cavity ventral to the embryonic disc

a) amniotic cavity
b) yolk sac
c) neural tube
d) Notochord

39. Correct answer about sperm transport

a) Rete testis➔ duct deferens➔ epididymis ➔ejaculatory duct
b) Rete testis➔ epididymis➔ duct deferens➔ ejaculatory duct
c) Ejaculatory duct➔ rete testis➔ epididymis➔ duct deferens
d) Duct deferens➔ rete testis➔ epididymis ➔ejaculatory duct