

# Histology MCQs/General Embryology

1 All but one of following statements about the **cleavage** are true. Which of them is false?

- ☐ Cleavage occurs when the embryo travels through the Fallopian tube
- ☐ During cleavage, the amount of DNA inside the embryo increases
- ☐ Embryo is closed inside zona pellucida during cleavage
- ☐ Cleavage continues after implantation

2 All but one of the following statements are true. Which of them is false?

- ☐ Number of oogonia grows especially during puberty
- ☐ Common fate of oogonia is death by apoptosis
- ☐ Oogonia are able undergo mitotic division
- ☐ Oogonia are diploid cells

3 What is an **allantois**? (*Possible formulation is also: "Allantois:"*)

- ☐ Finger-like protrusion in the site of pharyngeal membrane
- ☐ Finger-like protrusion in the site of syncytiotrophoblast
- ☐ Finger-like protrusion in the site of cloak membrane
- ☐ Finger-like protrusion in the site of cytotrophoblast

4 Which statement about the **amniotic sac** is true? (*Possible formulation is also: "Amniotic sac:"*)

- ☐ It is lined up by cells of ectoderm from its beginning
- ☐ It is lined up by cells of endoderm from its beginning
- ☐ It is composed of cells derived from the epiblast
- ☐ It disappears completely during the second week

5 Which structures form the **bilaminar germ disk**?

- ☐ Mesoderm and mesenchyme
- ☐ Epiblast and hypoblast
- ☐ Endoderm and ectoderm
- ☐ Laurel and Hardy

6 Which embryonic structure gives rise to cells in our bodies? (*note: you can assume "the majority of cells" instead of "all cells" as the application of the rule "the best-fitting answer is correct"*)

- ☐ Both epiblast and hypoblast
- ☐ Hypoblast
- ☐ Epiblast

7 **Chorda dorsalis** (dorsal chord) is a source of signaling molecules driving the development of: (*note: Instead of "driving", words like "controlling" or "checking" can be used in the same meaning*)

- ☐ Axial structures
- ☐ Umbilical cord
- ☐ Placenta
- ☐ Hearth

8 **Chorda dorsalis** (dorsal chord):

- ☐ Completely disappears during prenatal life
- ☐ Is fully preserved nearly till the birth
- ☐ Is a solid chord composed of cells
- ☐ Is the tubular structure

9 When start differentiation of somites (**somitogenesis**)?



Calf embryo about 1 month in the amniotic sac.

- ☐ In 3<sup>rd</sup> week
- ☐ In 4<sup>th</sup> week
- ☐ In 5<sup>th</sup> week
- ☐ In 6<sup>th</sup> week

**10** Does the **morula** change its volume in the Fallopian tube?

- ☐ Yes, the volume undergoes three to five cycles of changes
- ☐ Yes, the volume decreases
- ☐ Yes, the volume increases
- ☐ No, the volume does not change

**11** Ductus venosus (Arantii): *(note: This short formulation means: "Select correct or best-fitting statement about the structure")*

- ☐ Originates as the connection of anterior and posterior cardinal veins
- ☐ Connects umbilical vein with inferior caval vein
- ☐ Is the venous side of the primitive heart tube
- ☐ Gives rise to the portal vein

**12** Which statement about 'formation of somites' is correct?

- ☐ Formation of somites is gradual: Cranial somites start, caudal somites continue later on
- ☐ Formation of somites is gradual: Caudal somites start, cranial somites continue later on
- ☐ Timing of formation of somites is less or more chaotic
- ☐ All somites are formed at the same time

**13** When can be recognized **germ line for gametes**?

- ☐ In the 4<sup>th</sup> week of embryonic development
- ☐ In the 4<sup>th</sup> month of embryonic development
- ☐ In the 4<sup>th</sup> month after birth
- ☐ In the 4<sup>th</sup> year after birth

**14** How to describe the origin of the **intraembryonic mesoderm**?

- ☐ Cells from the primitive node (node of Hensen) migrate between ectoderm and endoderm
- ☐ Cells from the wall of the amniotic sac migrate between ectoderm and endoderm
- ☐ Cells from the wall of the yolk sac migrate between ectoderm and endoderm
- ☐ Cells from primitive streak migrate between ectoderm and endoderm

**15** When starts the implantation?

- ☐ Immediately after fertilization
- ☐ 3<sup>rd</sup> day after fertilization
- ☐ 6<sup>th</sup> day after fertilization
- ☐ 9<sup>th</sup> day after fertilization

**16** Journey of the **morula** through the Fallopian tube takes usually:

- ☐ 1 to 2 days
- ☐ 3 to 4 days
- ☐ 5 to 7 days
- ☐ 8 to 10 days

**17** Only one statement about 'origin of gametes' is true. Which one?

- ☐ They originate from different type of cells, which is not mentioned here
- ☐ They originate from either spermatogonia or oogonia
- ☐ They originate from spermatogonia only
- ☐ They originate from oogonia only

**18** **Paraxial mesoderm** give rise:

- ☐ Both somatopleura and splanchnopleura
- ☐ Intermediate mesoderm

- ☐ Chordal plate
- ☐ Somits

**19** What is a **prechordal plate**?

- ☐ Ventral thickening of endoderm
- ☐ Ventral thickening of ectoderm
- ☐ Dorsal thickening of endoderm
- ☐ Dorsal thickening of ectoderm

**20** Which structure delineates the **primary yolk sack**?

- ☐ Heuser's membrane
- ☐ Splanchnopleura
- ☐ Trophoblast
- ☐ Mesoderm

**21** **Primitive node** (node of Hensen) takes place:

- ☐ On the anterior (cranial) end of the primitive streak
- ☐ On the posterior (caudal) end of the primitive streak
- ☐ In the middle of the primitive streak
- ☐ Outside of primitive streak

**22** Primitive streak originates:

- ☐ In lateral parts of hypoblast
- ☐ In lateral parts of epiblast
- ☐ In the medial line of hypoblast
- ☐ In the medial line of epiblast

**23** Two haploid gametes form together one cell which is called:

- ☐ Diploid gamete
- ☐ Embryoblast
- ☐ Zygote
- ☐ This question is wrong, gametes are diploid

**24** Which are three parts of the intraembryonic mesoderm?

- ☐ Paraxial, transitional and superficially located
- ☐ Paraxial, intermediate and lateral plate
- ☐ Mesial, intermediate and profundus
- ☐ Paraxial, aboral and adoral

**25** What is a **capacitation**?

- ☐ Capacitation is a process in which the glycoprotein layer over the acrosome is dissolved
- ☐ Capacitation is a process in which sperm penetrates zona pellucida
- ☐ Capacitation is a process in which the tail of the sperm is inactivated
- ☐ Capacitation is a process in which the tail of the sperm is activated

**26** Where the **fertilization** occurs usually?

- ☐ In the infundibular part of the Fallopian tube
- ☐ In the ampullary part of the Fallopian tube
- ☐ Horn of the uterus (*cornua uteri*)
- ☐ Cavity of the uterus

**27** Where originates the **extraembryonic mesoderm**?

- ☐ It is a result of the migration of cells from the neuroectoderm
- ☐ In a site between trophoblast and embryoblast
- ☐ In a site between hypoblast and epiblast
- ☐ In a site between endoderm and ectoderm

**28** Where originates **gonocytes**?

- ☐ In the extraembryonic mesenchyme

- ☐ In the endoderm of the yolk sack
- ☐ In the ectoderm of yolk sack
- ☐ In the dorsal mesentery

**29** Which statement about the **neural plate** is true?

- ☐ Neural plate forms itself between the node of Hensen and cloacal membrane
- ☐ Neural plate is the basic structure for neural tube and neural crests
- ☐ Neural plate originates at the ventral side of the germ disc
- ☐ Neural plate is of endodermal origin

**30** Which statement is true about the **trophoblast**?

- ☐ It differentiates into outer cytotrophoblast and inner syncytiotrophoblast
- ☐ It differentiates into inner cytotrophoblast and outer syncytiotrophoblast
- ☐ Structure called "trophoblast" does not exist during the development of human
- ☐ It does not differentiate further

**31** Which statement about the **neural crest** is not true?

- ☐ Some kind of mesenchyme can develop from the neural crest
- ☐ Neural crest give rise to the medula of the suprarenal gland
- ☐ Neural crest gives rise to the cortex of the suprarenal gland
- ☐ Melanocytes originate from the neural crest

**32** Which statement about the **primitive streak** is true?

- ☐ It takes place between primitive node (node of Hensen) and cloacal membrane
- ☐ It sits perpendicular to the long axis of the germ disc
- ☐ It is the main structure-forming channel of Lieberkühn
- ☐ It is the main material for the formation of neural tube

**33** Which statement about the **zona pellucida** is true?

- ☐ Zona pellucida is a membrane surrounding the oocyte, it is composed mainly of glycoproteins
- ☐ Zona pellucida is a membrane surrounding the oocyte, it is composed mainly of glycolipids
- ☐ Zona pellucida is on the border between theca folliculi interna and externa
- ☐ Zona pellucida is another name for Slavjanski's membrane

**34** Which structure does not take place in the late blastocyst?

- ☐ Zona pellucida
- ☐ Trophoblast
- ☐ Embryoblast
- ☐ Cavity

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