

## Embryology questions

1. Which compartment of the blastocyst contributes to the formation of the fetus?

Embryoblast

2. Which layer of the pre-embryo is in direct contact with the endometrium?

Amnion

3. Which of the following issue is derived from the ectoderm?

Adenohypophysis (endocrine cells -> consists of epithelial cells)

4. Insemination is a progress of passage of the spermatozoa through the female genital tract?

Vagina- Cervix uteri - Cavum uteri - Uterine tubes

5. The heart and the blood vessels are derivatives of:

lateral plate mesoderm

6. Which germ layer forms lacunae?

Syncytiotrophoblast

7. The olfactory placode is located on the surface of which structure?

Frontonasal prominence

8. How is the inner mucous layer of the uterus called?

Endometrium

9. What is insemination?

Deposit of sperm into the vagina, its migration to the...

10. From which germ layer originate the nephrogenic cords?

Intermediate

11. Which of the listed structures penetrate deepest into the endometrium?

Tertiary villi

12. The formation of the notochord occurs during?

Third week

13. Teratogens are agents that?

Cause congenital malfunction

14. Which of the following does not originate from the endoderm?

Heart and blood vessels

15. The definitive umbilical cord contains?

Two umbilical arteries and one umbilical vein

16. Gastrulation established?

Ectoderm, mesoderm and endoderm

17. Which structures originate from the lateral plate and mesoderm?

Epithelium of the peritoneal, pleural and pericardial cavities

18. Which components of the seminal fluid contributes for raising the pH from about 3,5-7,5 and activating the sperm?

Seminal vesicle fluid

19. During the process of cleave the cells?

Do not change their size

20. Which are the risks for a pregnant women in case of a tubal pregnancy?

Tuba rupture

21. How many pairs of chromosomes contain the primordial germ cells?

23 pair

22. The conjoined monozygotic twins connected in a head are called?

Craniopagus

23. The sclerotomes differentiate into?

Bone and cartilage, which surround the notochord

24. Which 2 germ layers to the pre-embryo are separated by the extra embryonic cavity?

none of the answers is true

25. Which cells of the spermatogenic population have bivalent chromosomes?

Spermatids

26. The bilaminar discs consist of?

Epiblast and hypoblast

27. In which cell are localized the cortical granules?

Oocyte (peripheral cytoplasm)

28. The preimplantation genetic diagnosis represents analysis of?

Blastomeres

29. Name the most medially located compartment of the intraembryonic mesoderm?

Paraxial mesoderm

30. Which structures originate from the lateral plate mesoderm?

Epithelium of the renal tubes, renal calices

31. What is the rate of assurance of abnormal blastocyst?

20-30%

32. How much is the volume of the seminal fluid of a healthy individual?

0,5-1ml

33. Which of the listed is associated with the acrosomal reaction of the spermatozoa?

All answers are true

34. The initial hemopoiesis is?

Intravasal

35. Which techniques of artificial insemination are available to the public?

A and C

36. Each somite differentiate into all of the following except?

Nephrotome

37. At which embryonic stage form the endocardial heart tubes?

Day 19

38. Chromosome number aberrations (trisomy/monosomy) are most frequently due to?

Non disfunction of homologous chromosome during first meiotic division

39. The notochord serves as the basis for?

The axial skeleton

40. The definitive umbilical chord contains...

Mucous connective tissue (Warton's jelly)

41. Which of the structures originate the exocoelomic cavities (cysts) in 2nd week of development?

Secondary yolk sac

42. Which of the following are functions of the yolk sac?

Takes part in early blood circulation

43. The somatopleure and splanchnopleure originate from...

Lateral mesoderm

44. The process of cleavage (segmentation) is...

Mitosis

45. The first blood cells originate from...

Cells which are around the yolk sac

46. Gastrulation occurs in the beginning of the...

Third week

47. Menopause is usually by...

45-55

48. What is present in the 2nd week of the development of extraembryonic cavity?

Exocoelomic cysts

49. In in-vitro fertilization what is used to stimulate the ovaries?

Gonadotropins

50. On which day does the posterior neuropore close?

Day 23

51. Which of the following are derived from the endoderm?

None of the following

52. Which embryonic layer is in contact with parietal hypoblast?

Cytotrophoblast

53. Which layer is generated by the epiblast?

Epiblast

54. Which layer are the primary villi originated from?

### Cytotrophoblast

55. What structure is under the neural tube?

### Notochord

56. How long does semen capacitation take?

### 10 hours

57. What is the placenta?

### Haemochorial

58. What is the percentage of sperm in sample?

### 140%

59. On which day does the process of Allantosis begin?

### Days 15-16

60. When does second meiosis of the oogenesis occur?

### Fertilisation

61. At the eighth Day of development the hypoblast consists of?

### Small cuboidal cells

62. The amniotic cavity is formed by cells of the?

### Epiblast

63. Approximately how long after fertilization occurs the first cleavage of the zygote?

### 30 days

64. The primitive endothelial cells are formed by?

### Cells lining the yolk sac

65. In the beginning of the 3rd week the paraxial mesoderm differentiates into segments known as?

### Somites

66. The amniotic cavity is formed by cells of the?

### Epiblast

67. Gastrulation begins with formation of?

### Primitive streak

68. The following structures are not derived from the endoderm?

### All answers are true

69. How long does normal capacitation of the semen take?

### About 10 hours

70. The primitive endothelial cells are formed by?

### Cell linings of the yolk sac

71. Trophoblastic overgrowth with lack of embryoblast development may lead to?

### Molar pregnancy (Hydatid mole)

72. Select the correct sequence of formation of the chorionic villi during the III. week of development:

Primary: The chorionic villi are at first small and non-vascular/Secondary: The villi increase in size and ramify, while the mesoderm grows into them/  
Tertiary: Branches of the umbilical artery and umbilical vein grow into the mesoderm, and in this way the chorionic villi are vascularized.

73. Which pharyngeal arch contributes to the formation of the mandible?

First Pharyngeal arch

74. What is the rate of assurance of abnormal blastocysts?

20-30%

75. At the cranial end of the embryonic disc is formed by...

Primitive knot

76. At the presence of how many cells, generated by the zygote, the process of cleavage (segmentation) is assumed to begin?

2

77. The following originate from the endoderm...

Urinary bladder, urethra, alimentary canal liver, pancreas, traches, bronchi alveoli, thyroid thymus, tympanic cavity

78. The conjoined monozygotic twins connected in thoracic region are called?

Thoracopagus

79. Each somite differentiates into all of the following...

Dermatomes, Myotomes, Syndetomes, Sclerotomes

80. Bilaminar disc consists of?

Epiblast&Hypoblast

81. Turner syndrome is?

Monosomy X (absence of an entire sex chromosome)

82. From which germ layers originate the nephrogenic chords?

Intermediate mesoderm

83. How is designated the outermost layer of the embryonic mesoderm?

Ectoderm

84. The umbilical arteries...

Surround urinary bladder

85. Which of the following tissues is derived from the ectoderm?

Epidermis skin cells, Neurons of brain, Pigment cells

86. How is the outermost layer of the pre-embryo called?

Trophoblast

87. What are the two layers of the endometrium?

Stratum functionalis and Stratum basalis

88. What kind of change in the size of the yolk sac occurs during development?

-(growth?)

89. How long lasts the capability of the secondary oocyte to be fertilized?

12-24 hours

90. How many cavities characterize the pre-embryo at the end of the 2nd week of development?

2 (chorionic and amniotic cavity)

91. The first blood cells originate from?

Yolk sac

92. What is the normal sperm count of the sperm in 1/ml?

15-40

93. Which of the cells produce testosterone in the testis?

Interstitial cells

94. Which of the blastocyst's poles is directed to the endometrium at implantation?

Embryonic pole

95. Ectoderm is created by...

Epiblast

96. During which stage of Prophase of the first meiotic division in gametes does the crossing over take place?

Pachytene

97. Which is the optimal window of opportunity for people wishing to conceive a child?

3 days before ovulation and less than a day after

98. Which structure is formed at the dorsal border tip of the neural tube?

neural crest

99. The cells generated by the spermatogonia are...

Primary Spermatocytes

100. The maternal and fetal components of the placenta are?

intervillous/basal (maternal) and chorion plate

101. The cephalic end of the primitive streak is...

Primitive node

102. From which layer originates the chorion?

Extraembryonic mesoderm

103. Amniocentesis is used to investigate and detect?

Prenatal diagnosis of chromosomal abnormalities and fetal infections and genetic abnormalities

104. What is the name of the cells forming the morula?

Blastomeres

105. When does Implantation after fertilization start?

6-7 days

106. How many chromosomes has the fertilized egg?

46

107. Which are the risks of pregnant women in case of a tubal pregnancy?

Rupture, Bleeding, internal Haemorrhage

108. During the second week of development, the embryoblast differentiates into?

**Bilaminar Germ disc Epiblast and Hypoblast**

109. What compartment of the blastocyst contributes to the formation of the placenta?

**Trophoblast**

110. How long does it normally take the sperm to migrate in the female reproductive tract and to achieve the egg?

**18-24h**

111. During which week of development the primordial germ cell migrate to dorsal body wall...

**Third month**

112. Which process is ejaculation?

**ejection of semen/sperm**

113. Which of the following lists are steps in in-vitro fertilization procedure?

**Ovarian hyperstimulation- Natural IVF- Final maturation induction- egg retrieval- Egg&Sperm preparation- co-incubation- Embryo culture- selection-transfer- adjunctive medication**

114. Which of the following structures refers to embryonic membranes?

**Amnion/Chorion/Yolk Sac**

115. What is the average composition of the seminal fluid?

**2-5% sperm/65-75% amino acids/25-30% Acid phosphatase/1% galactose**

116. Which presents a primary villi?

**Cytotrophoblast**

117. What is the average age of the menopause in humans?

**45-55 Years**

118. The somatopleure and splanchnopleure originate from?

**Lateral Mesoderm**

119. Which of the following is not known to be human teratogen?

**Ribociclib (Novartis®) und Palbociclib/Thalidomid**

120. From which germ layer originates the heart and the spleen?

**Mesoderm**

121. What is the name of the inner layer of the blastocyst?

**Embryoblast**

122. What is the mechanism of the clonal expansion of the progenitors of the gametes?

**Mitosis**

123. Which of the listed form the corona radiata?

**Cuboidal granulosa cells**

124. What is the main factor of sperm migration in the female reproductive tract?

**Sperm Chemotaxis eg. Progesterone**

125. In which phase of the menstrual cycle does the endometrium achieve its maximum thickness?

Luteal phase

126. The myotomes consist of...

Epithelial somites

127. After its penetration in the oocyte, the spermatozoa head is transformed into?

Pronucleus of Zygote

128. The initial haemopoiesis is?

Intravasal

129. The umbilical vein...

Carries deoxygenated blood from fetus to placenta

130. Which of the enumerated characteristics of a given semen analysis are normal?

20-40 million sperm per ml

131. Which of the following tissues originates from the endoderm?

Can be lung, thyroid or pancreatic cells

132. Cumulus oophorus is characteristic for which follicle?

Mature (graafian) follicles

133. The embryonic disc gradually becomes elongated with?

Primitive streak

134. The process of cleavage represents a series of?

Mitotic cell divisions

135. Gastrulation establishes:

The trilaminar disc

136. Which component of the pre-embryo aborts its development in a molar pregnancy?

Hydatid form mole

137. True statements of sperm capacitation:

5-6h in genital track increases flagellum motility and acrosome

138. The hypoblast belongs to...

Trophoblast

139. The formation of the fingers in the limb buds takes place via...

Apical ectoderm ridge

140. What is the correct sequence of the extended first meiotic division?

Leptotene-Zytotene-Pachytene-Diplotene-Diakinesis.Synchronous processes

141. At which developmental stage begins the segmentation of the paraxial mesoderm?

Third week

142. From which germ layer structure originate the neurons of the peripheral nervous system?

Neural crest of ectoderm



143. Which pharyngeal arches mostly contribute to the formation of the thymus?

Third arch

144. The formation of the primitive streak occurs on the surface of...

Hypoblast

145. The connecting stalk originates from...

Extraembryonic mesoderm

146. The conjoined monozygotic twins connected in head are called...

Craniopagus

147. Which of the following phases of the menstrual cycle is under estrogen control?

Follicular phase

148. Ejaculation is identical to which process?

none

149. The intervillous space of the placenta contains...

Blood (maternal)

150. Which compartment of the blastocyst contributed to the formation of the fetus?

Embryoblast (inner cell mass)

151. The exocoelomic (heuser) membrane lines the inner surface of...

Cytotrophoblast

152. The secretion of the FSH by pituitary gland is suppressed by a factor secreted by the Sertoli cells. Which is this factor?

Inhibins

153. Where must sperm normally encounter the egg in order to fertilize it?

Ampulla of uterine/fallopian tube

154. How many pairs of chromosomes contain the primordial germ cell?

23

155. Placental villi are best developed in the region of ...

Syncytiotrophoblast

156. The rate for dizygotic twins is...

70% of twins

157. Down syndrome is...

Trisomy 21

158. From which germ layer originate the serous membranes of the body (peritoneum, pleura, pericardium)?

Lateral plate Mesoderm

159. Which type of trophoblastic villi are formed on the 2nd week of development?

Primary villi

160. Which of the following are functions of the yolk sac?

Producing early blood cells/vessels and forming digestive tube

161. Name the most medially located components of the intraembryonic mesoderm:

Intermediate mesoderm

162. The layer of the embryoblast adjacent to the amnionic cavity is...

Epiblast

163. Insemination is a process of passage of the spermatozoa through the female genital tract as follows:

Deposition of sperm....

164. Which component of the pre-embryo continues to develop thus forming molar pregnancy?

Trophoblast

165. The definitive umbilical cord contains?

2 arteries and 1 vein

166. Which is the normal sperm motility?

3mm/min

167. The cardionogenic primordium is formed by...

Epiblast, lateral to primitive streak

168. Which is the sequence of appearance of the limb buds?

Flatten buds- Radial grooves on distal portion of buds- Digits

169. Which requirements of the man must be met for sperm motility?

Increased flagellum motility/High number of mitochondria

170. Which embryonic layer is in a direct contact with the parietal hypoblast until the formation of the extraembryonic mesoderm?

Cytotrophoblast

171. Monozygous twins may have...

Common amnion, placenta and chorion

172. The intraembryonic lateral plate mesoderm generates which of the following...

Limb buds

173. Which of the statements regarding the types of spermatogonia is not true?

Stem cells generating sertolli cells

174. The number of oogonia at birth is approximately?

700000-2000000

175. The primitive endothelial cells are formed by?

Cell linings of the yolk sac

176. The amniotic and yolk sac cavities are temporarily connected by?

The neurenteric canal

177. The intraembryonic intermediate mesoderm forms?

Gonads

178. From which germ layer originates the adenohypophysis?

Surface Ectoderm

179. Which pharyngeal arch contributes to most of middle ear ossicles?

Second arch

180. Which cells are generated by the secondary spermatocytes?

Early Spermatids

181. Which effect have prostaglandin of the semen?

A and C

182. How does the female reproductive tract assist sperm migration?

B and C

183. Which of the following statements is true?

Chorionic villi are not part of the foetal placenta part

184. The merging of which structures contributes to the development of the face?

Maxillary and mandibular processes and frontonasal prominence

185. From which component of the blastocyst can be isolated stem cells capable of organ regeneration in humans?

Embryoblast

186. Which of the zone pellucid proteins acts as a receptor for spermatozoa binding?

ZP3

187. What is the name of the outer layer of the blastocyst?

Trophoblast

188. The processes of the compaction of the pre-embryo leads to a formation of outer and inner cell mass, which differ in their intracellular junctions as follows:

Outer cell mass- Tight junctions- Inner cell mass- Gap junctions

189. From the 3rd month, the hemopoiesis is...

Extravasal

190. The number of the somites at the end of the 5th week of development is?

42-44

191. Which of the following structures originates from the endoderm?

Epithelium of vagina and prostata

192. Which of the following phases of the menstrual cycle is under progesterone control?

Secretory phase

193. Primary villi result from the proliferation of...

Cytotrophoblast

194. In which cavity are localized the exocoelomic cysts during the second week of development?

Extraembryonic cavity

195. How long after ejaculation is the maximum fertile time for most sperm?

48 hours

196. Which of the following originate from the paraxial mesoderm?

Dermis

1. What is present in the 2nd week of development of extraembryonic cavity?

**Exocoelomic cysts**

2. In IVF (In-vitro-Fertilisation), what is used to stimulate ovaries?

**Gonadotropins (sexual hormones) are used to stimulate ovaries**

3. On which day does the posterior neuropore close?

**Day 28**

4. Which of the following are derived from the endoderm?

**None of the following**

5. Which embryonic layer is in contact with parietal hypoblast?

**Cytotrophoblast**

6. Which layer is generated by the Epiblast?

- 
7. Which layer are the primary villi originated from?

**Cytotrophoblast**

8. What structure is under the neural tube?

**Notochord**

9. How long does semen capacitation take?

**5-7h**

10. What is the placenta?

**Haemochorial**

11. What is the percentage of sperm in a sample?

**14/94%**

12. On which day does the process of Allantosis begin?

**Day 15-16**

13. When does second meiosis of oogenesis occur?

**Fertilisation**

14. At the 8th day of development the hypoblast consists of?

**Small cuboidal cells**

15. The amniotic cavity is formed by cells of the?

**Epiblast**

16. Approximately how long after fertilisation occurs the first cleavage of the zygote?

**30 h**

 **4th cleavage after 72h**

17. The primitive endothelial cells are formed by?

**Cells lining the yolk sac**

18. In the beginning of the 3rd week the paraxial mesoderm differentiates into segments known as?

**Somites**

19. Which embryonic layer is in a direct contact with the parietal hypoblast until the formation of the extraembryonic mesoderm?

**Cytotrophoblast**

20. Monozygous twins may have:

**Common amnion, placenta and chorion**

21.The intraembryonic lateral plate mesoderm generates which of the following?

**Limb buds**

22.Which of the following statements regarding the types of spermatogonia is NOT true?

**Stem cells generating Sertoli cells**

23.The number of oogonia at birth is approximately ...

**700.000-2.000.000 – 600.000-800.000**

24.The primitive endothelial cells are formed by?

**Cell linings of the yolk sac**

25.The amniotic and yolk sac cavities are temporarily connected by?

**The neurenteric canal**

26.The intraembryonic intermediate mesoderm forms?

**Gonads**

27.From which germ layer originates the adenohypophysis (anterior pituitary)?

**Surface Ectoderm**

28.Which pharyngeal arch contributes to most of middle ear ossicles?

**Second  1st and 2nd**

29.Which cells are generated by the secondary spermatocytes?

**Early Spermatids**

30.Which effect have prostaglandins (Gewebshormone) of the semen?

**A+C**

31.How does the female reproductive tract assist sperm migration?

**B+C**

32.Which of the following statements is true?

**Chorionic villi are part of the foetal placenta part**

33. The merging of which structures contributes to the development of the face?

### **Maxillary and Mandibular processes and Frontonasal prominence**

34. From which component of the blastocyst can be isolated stem cells capable of organ regeneration in humans?

### **Embryoblast**

35. Which of the zona pellucida proteins acts as a receptor for spermatozoa binding?

### **ZP3**

36. What is the name of the outer layer of the blastocyst?

### **Trophoblast**

37. The process of compaction of the preembryo leads to a formation of outer and inner cell mass, which differ in their intercellular junctions as follows:

**Outer cell mass** ✎ **Tight junctions** ✎ **Inner cell mass** ✎ **Gap junctions**

38. From the 3rd month, the hemopoiesis is?

### **Extravascular**

39. The number of somites at the end of the 5th week is?

**42-44**

40. Which of the following structures originates from the endoderm?

### **Epithelium of vagina and prostate**

41. Which of the following stages is not a process of fertilisation?

### **Gastrulation**

42. Which of the following phases of the menstrual cycle is under progesterone control?

### **Secretory phase**

43.Primary villi result from the proliferation (Wachstum und Vermehrung von Zellen) of?

**Cytotrophoblast**

44.In which cavity are localized the exocoelomic cysts during the second week of development?

**Extraembryonic cavity**

45.How long after ejaculation is the maximum fertile time for most sperm?

**48h**

46.Which of the following originates from the paraxial mesoderm?

**Dermis**

47.The amniotic cavity is formed by cells of the?

**Epiblast**

48.Gastrulation begins with formation of?

**Primitive streak**

49.The following structures are NOT derived from the endoderm?

**ALL answers are true**

50.How long does normally capacitation of the semen take?

**5-7h**

51.The primitive endothelial cells are formed by?

**Cell linings of the yolk sac**

52.Trophoblastic overgrowth with lack of embryoblast development may lead to?

**Molar pregnancy (Hydatidiform mole)**

## Embryology Questions & Answers



1. What is present in the 2nd week of development of extraembryonic cavity? **Exocoelomic cysts.**
2. In IVF, what is used to stimulate ovaries? **Gonadotropins are used to stimulate ovaries.**
3. On which day does the posterior neuropore close? **Day 23.**
4. Which are following are derived from the endoderm? **None of the following.**
5. Which embryonic layer is in contact with parietal hypoblast? **Cytotrophoblast.**
6. Which layer is generated by the epiblast? **Epiblast.**
7. Why layer are the primary villi originated from? **Cytotrophoblast.**
8. What structure is under the neural tube? **Notochord.**
9. How long does semen capacitation take? **10 hours.**
10. What is the placenta? **Haemochoral.**
11. What is the percentage of sperm in a sample? **140%.**
12. On which day does the process of Allantosis begin? **Days 15-16.**

13. When does second meiosis of oogenesis occur? **Fertilisation.**
14. At the eighth day of development the hypoblast consists of? **Small cuboidal cells.**
15. The amniotic cavity is formed by cells of the? **Epiblast.**
16. Approximately how long after fertilization occurs the first cleavage of the zygote? **30 hours.**
17. The primitive endothelial cells are formed by? **Cells lining the yolk sac.**
18. In the beginning of the 3rd week the paraxial mesoderm differentiates into segments known as? **Somites.**
19. Which embryonic layer is in a direct contact with the parietal hypoblast until the formation of the extraembryonic mesoderm? **Cytotrophoblast.**
20. Monozygous twins may have: **Common amnion, placenta and chorion.**
21. The intraembryonic lateral plate mesoderm generates which of the following? **Limb buds.**
22. Which of the statements regarding the types of spermatogonia is NOT true? **Stem cells generating Sertoli cells.**
23. The number of oogonia at birth is approximately? **700 000- 2 000 000.**
24. The primitive endothelial cells are formed by? **Cell linings of the yolk sac.**
25. The amniotic and yolk sac cavities are temporarily connected by? **The neurenteric canal.**

26. The intraembryonic intermediate mesoderm forms? **Gonads.**
27. From which germ layer originates the adenohypophysis (anterior pituitary)? **Surface ectoderm.**
28. Which pharyngeal arch contributes to most of middle ear ossicles? **Second.**
29. Which cells are generated by the secondary spermatocytes? **Early spermatids.**
30. Which effect have prostaglandins of the semen? **A+C.**
31. How does the female reproductive tract assist sperm migration? **B. + C.**
32. Which of the following statements is true? **Chorionic villi are part of the foetal placenta part.**
33. The merging of which structures contributes to the development of the face? **Maxillary & Mandibular processes and Frontonasal prominence.**
34. From which component of the blastocyst can be isolated stem cells capable of organ regeneration in humans? **Embryoblast.**
35. Which of the zona pellucida proteins acts as a receptor for spermatozoa binding? **ZP3.**
36. What is the name of the outer layer of the blastocyst? **Trophoblast.**
37. The process of compaction of the pre-embryo leads to a formation of outer and inner cell mass, which differ in their intercellular junctions as follows: **Outer cell mass --> Tight junctions --> Inner cell mass --> Gap junctions.**

38. From the 3rd month, the hemopoiesis is? **Extravasal.**

39. The number of somites at the end of the 5th week of development is? **42-44.**

40. Which of the following structures originates from the endoderm?  
**Epithelium of vagina and prostate.**

41. Which of the following stages is not a process of fertilisation?

**Gastrulation.**

42. Which of the following phases of the menstrual cycle is under progesterone control? **Secretory phase.**

43. Primary villi result from the proliferation of? **Cytotrophoblast.**

44. In which cavity are localized the exocoelomic cysts during the second week of development? **Extraembryonic cavity.**

45. How long after ejaculation is the maximum fertile time for most sperm? **48 hours.**

46. Which of the following originate(s) from the paraxial mesoderm?  
**Dermis.**

47. The amniotic cavity is formed by cells of the? **Epiblast.**

48. Gastrulation begins with formation of? **Primitive streak.**

49. The following structures are NOT derived from the endoderm? **All**

**answers are true.**

50. How long does normally capacitation of the semen take? **About 10**

hours.

51. The primitive endothelial cells are formed by? **Cell linings of the yolk sac.**

52. Trophoblastic overgrowth with lack of embryoblast development may lead to? **Molar pregnancy (Hydatiform mole).**

53. Select the correct sequence of formation of the chorionic villi during the III week of development:

54. Which pharyngeal arch contributes to the formation of the mandible? **First.**

55. What is the rate of occurrence of abnormal blastocysts? **20-30%.** 56. At the cranial end of the embryonic disc is formed? **Primitive knot.**

57. At the presence of how many cells, generated by the zygote, the process of cleavage (segmentation) is assumed to begin? **16.**

58. The following originate from the endoderm. **Urinary bladder, urethra, alimentary canal, liver, pancreas, trachea, bronchi, alveoli, thyroid, thymus, tympanic cavity.**

59. The conjoined monozygotic twins connected in thoracic region are called? **Thoracopagus.**

60. Each somite differentiates into all of the following: **Dermatomes, Myotomes, Syndetomes, Sclerotomes.**

61. The bilaminar disc consists of? **Epiblast & Hypoblast.**

62. Turner syndrome is? **Monosomy X (absence of an entire sex chromosome, the Barr body) resulting in 45 chromosomes.**

63. From which germ layers originate the nephrogenic cords? **Intermediate mesoderm.**

64. How is designated the outermost layer of the embryonic mesoderm?

Ectoderm.

65. The umbilical arteries: umbilical arteries surround the urinary bladder and then carry all the deoxygenated blood out of the fetus through the umbilical cord

66. Which of the following tissues is derived from the ectoderm?

Epidermis skin cells, Neurons of brain, Pigment cells.

67. How is designated the outermost layer of the pre-embryo?

Trophoblast.

68. What are the two layers of the endometrium? Stratum functionalis & Stratum basalis.

69. What kind of change in the size of the yolk sac (relative to the size of the embryo) occurs during development?

70. How long lasts the capability of the secondary oocyte to be fertilised?

12-24 hours.

71. How many cavities characterize the pre-embryo at the end of II week of development? 2 (chorionic & amniotic cavity).

72. The first blood cells originate from? Yolk sac.

73. What is the normal sperm count of the sperm in 1/mL? 15-40 million.

74. Which of the cells produce testosterone in the testis? **Interstitial cells**

75. Which of the blastocyst poles is directed to the endometrium at implantation? **Embryonic pole.**

76. The ectoderm is created by? **Epiblast.**

77. During which stage of prophase of first meiotic division in gametes does crossing-over take place? **Pachytene.**

78. Which is the optimal window of opportunity for people wishing to conceive a child? **3 days before ovulation and less than a day after.**

79. Which structure is formed at the dorsal border (tip) of the neural tube? **Spinal Cord.**

80. The cells generated by the spermatogonia are: **Primary spermatocytes.**

81. The maternal and fetal components of the placenta are?

82. The cephalic end of the primitive streak is? **Primitive node.**

83. From which layer originates the chorion? **Extraembryonic mesoderm.**

84. Amniocentesis is used to investigate and detect? **Prenatal**

**diagnosis of chromosomal abnormalities and fetal infections and genetic abnormalities.**

85. What is the name of the cells forming the morula? **Blastomeres.**

86. When does implantation after fertilisation start? **6-7 days.**

87. How many chromosomes has the fertilised egg? **46.**

88. Which are the risks for pregnant women in case of a tubal pregnancy?

**Rupture, Bleeding, Internal Haemorrhage.**

89. During the second week of development, the embryoblast differentiates into? **Bilaminar Germ disc composed of Epiblast & Hypoblast.**

90. What compartment of the blastocyst contributes to the formation of the placenta? **Trophoblast.**

91. How long does it normally take the sperm to migrate in the female reproductive track and to achieve the egg? **18-24 hours.**

92. During which week of development the primordial germ cells migrate to the dorsal body wall (approx. at the level of T10 vertebra)?

93. Which process is ejaculation? **It is the ejection of semen (usually carrying sperm) from the male reproductive tract, and is usually**



accompanied by orgasm.

94. Which of the following lists are steps in in-vitro fertilisation procedure? **Ovarian hyperstimulation --> Natural & mild IVF --> Final maturation induction --> Egg retrieval --> Egg & Sperm preparation --> Co-incubation --> Embryo culture --> Embryo selection --> Embryo transfer --> Adjunctive medication.**

95. Which of the following structures refers to as embryonic membranes? **Any from, Amnion, Chorion, Yolk Sac, Allantois.**

96. What is the average composition of the seminal fluid? **2-5% sperm, 65-75% amino acids & citrate, 25-30% acid phosphatase & citric acid, 1% galactose & mucus.**

97. Which figure presents a primary villus?

98. What is the average age of menopause in humans? **40 years.**

99. The somatopleure and splanchnopleure originate from? **Lateral mesoderm.**

100. Which of the following is not known to be a human teratogen?

101. From which germ layer originates the heart and the spleen?

**Mesoderm.**

102. What is the name of the inner layer of the blastocyst?

**Hypoblast.**

103. What is the mechanism of the clonal expansion of the progenitors of the gametes? **Mitosis.**

104. Which of the listed form the corona radiata? **Cuboidal Granulosa Cells.**

105. What is the main factor of sperm migration in the female reproductive track? **Sperm Chemotaxis eg.- Progesterone.**

106. In which phase of the menstrual cycle does the endometrium achieve its maximum thickness? **Luteal phase.**

107. The myotomes consist of? **Epithelial somites.**

108. After its penetration in the oocyte, the spermatozoa head is transformed into? **Pronucleus of Zygote.** 109. The initial haemopoiesis is? **Intravasal.**

110. The umbilical vein: **Carries oxygenated blood from placenta to foetus.**

111. Which of the enumerated characteristics of a given semen analysis are normal? **20 and 40 million sperm per millilitre.**

112. Which of the following tissues originates from the endoderm?

**Can be lung, thyroid or pancreatic cells.**

113. Cumulus oophorus is characteristic for which follicle? **Antral (Graafin) follicles.**

114. The embryonic disc gradually becomes elongated with?

**Primitive streak.**

115. The process of cleavage represents a series of? **Mitotic cell divisions.**

116. Gastrulation establishes: **The trilaminar disc.**

117. Which component of the pre-embryo aborts its development in a molar pregnancy? **Hydatiform mole.**

118. True statements of sperm capacitation: **Takes between 5-6**

hours. Takes place and is complete in female genital track. Increases flagellum motility. Sperm is able to undergo acrosome reaction.

119. The hypoblast belongs to? **Trophoblast.**

120. The formation of the fingers in the limb buds takes place via:

**Apical ectodermal ridge.**

121. What is the correct sequence of the extended first meiotic division?  
**Leptotene --> Zygotene --> Pachytene --> Diplotene --> Diakinesis --> Synchronous processes.**

122. At which developmental stage begins the segmentation of the paraxial mesoderm? **(beginning of) 3rd Week.**

123. From which germ layer structure originate the neurons of the peripheral nervous system? **Neural crest of ectoderm.**

124. Which pharyngeal arches mostly contribute to the formation of the thymus? **3.**

125. The formation of the primitive streak occurs on the surface of:

**Hypoblast.**

126. The connecting stalk originates from: **Extraembryonic mesoderm.**

127. The conjoined monozygotic twins connected in head are called: **Craniophagus.**

128. Which of the following phases of the menstrual cycle is under estrogen control? **Follicular phase.**

129. Ejaculation is identical to which process? **none**

130. The intervillous space of the placenta contains: **Blood (from maternal arteries & veins).**

131. Which compartment of the blastocyst contributes to the formation of the fetus? **Embryoblast (inner cell mass).**

132. The exocoelomic (Heuser) membrane lines the inner surface of? **Cytotrophoblast.**

133. The secretion of FSH by pituitary gland is suppressed by a factor secreted by the Sertoli cells. Which is this factor? **Inhibins.**

134. Where must sperm normally encounter the egg in order to fertilize it? **Ampulla of uterine/fallopian tube.**

135. How many pairs of chromosomes contain the primordial germ cells? **23.**

136. Placental villi are best developed in the region of? **Syncytiotrophoblast.**

137. The rate for dizygotic twins is? **70% of Twins.**

138. Down syndrome is: Also known as trisomy 21, is a genetic disorder caused by the presence of all or part of a third copy of chromosome 21.

139. From which germ layer originate the serous membranes of the body (peritoneum, pleura, pericardium)? (Lateral plate) Mesoderm.

140. Which type of trophoblastic villi are formed in the II week of development. Primary villi.

141. Which are the following are functions of the yolk sac?

Producing early blood cells & vessels. Forming digestive tube.

142. Name the most medially located components of the intraembryonic mesoderm. Intermediate mesoderm.

143. The layer of the embryoblast adjacent to the amniotic cavity is: Epiblast.

144. Insemination is a process of passage of the spermatozoa through the female genital track as follows: Deposition of sperm into vagina --> Migration to uterus --> Uterine tube.

145. Which component of the pre-embryo continues to develop thus forming molar pregnancy? Trophoblast.

146. The definitive umbilical cord contains? 2 arteries & 1 vein.

147. Which is the normal sperm motility? 3mm/min.

148. The cardiogenic primordium is formed by: Epiblast, lateral to primitive streak.

149. Which is the sequence of appearance of the limb buds?

Flatten buds --> Radial grooves on distal portion of buds --> Digits.

150. Which requirements of the semen must be met for sperm motility? Increased flagellum motility. High number of mitochondria.

