



DAMIETTA UNIVERSITY
FACULTY OF SCIENCE
ZOOLOGY DEPARTMENT



FINAL TERM EXAM.
May 2024



Molecular Biology 2nd Level		Vertebrates Embryology (207 Z)	
Date: 29/5/2024	Time: 2 Hours	Marks: 90	الإمتحان في 3 صفحات

Question One: Choose the one best answer to the following statements..... (20 Marks).

- The process in which the three germ layers are formed known as:**
(a) Fertilization. (b) Cleavage. (c) Organogenesis. (d) Gastrulation.
- The oocyte of chick is fertilized after the deposition of.....**
(a) Yolk. (b) Albumen. (c) Shell. (d) Shell membranes.
- Which cells that enter meiosis during spermatogenesis?**
(a) Spermatogonium. (b) Primary spermatocytes.
(c) Secondary spermatocytes. (d) Spermatid.
- In the growth phase of oogenesis, the germ cell is known as.....**
(a) Primary oocyte. (b) Oogonium. (c) Secondary oocyte. (d) Ootid.
- Which of the following are NOT events of Maturation?**
(a) Breakdown of the germinal vesicle. (b) Beginning of cleavage.
(c) Resumption and completion of meiosis I. (d) Progression to metaphase of meiosis II.
- During fertilization, membrane potential shifts to a positive level due to influx ofion.**
(a) Magnesium. (b) Potassium. (c) Calcium. (d) Sodium.
- Which of the following is derived from ectoderm?**
(a) Gonad. (b) Kidney. (c) Mammary glands. (d) Pancreas.
- Which of the following statements IS/ARE CORRECT?**
(a) The notochord is ectodermal in origin. (b) The brain is mesodermal in origin.
(c) The stomach is endodermal in origin. (d) The amnion is endodermal in origin.
- Which of the following is derived from mesoderm?**
(a) Spinal cord. (b) Melanocytes. (c) Salivary glands. (d) Dermis.
- Under the influence ofcorpus luteum secretes progesterone.**
(a) FSH. (b) LH. (c) LH & FSH. (d) Estrogen.

Question Two: Determine which of the following statements are false or true...(20 Marks).

1. An amphibian embryo containing 16 to 64 cells is commonly called a blastula.
2. The cortical granules of mouse eggs contain an enzyme that clips off the terminal sugar residues of ZP1.
3. The adhesion of early embryo cells is usually dominated by the cadherins.
4. The activation of egg metabolism appears to depend on an increase in the concentration of free calcium ions within the egg.
5. The avian eggs are released from the ovary as secondary oocytes.
6. Isometric growth in which the shape is preserved because all components grow at the same rate.
7. Granulosa cells express the enzymes necessary to convert cholesterol to androgens.
8. The chorion enables the fetus to get oxygen and nourishment from the mother.
9. The mammalian genome is activated during late cleavage.
10. The intercalation in which a sheet of cells expands to surround and enclose another population.

Question Three: Fill in the blanks with suitable statements.....(20 Marks).

1. The DNA of the sperm nucleus is bound by basic proteins called.....
2. In late fetal life, all oocytes are arrest at.....stage.
3.is defined as spontaneous series of cell mitotic divisions.
4. The mechanisms of asexual reproduction are..... and.....
5. Ovarian production of steroid hormones areand
6. multiply by mitosis and once they have reached the gonadal ridge they are called

- 7. The set of physiological changes that allow the sperm to be competent to fertilize the egg is called.....
- 8. is the migration of individual cells from the surface layer into the interior of the embryo.
- 9. The most crucial difference between mammalian cleavage and all other types involves the phenomenon of.....
- 10. The process of implantation is classified into.....andstages.
- 11..... is a marker of corpus luteum function under the control of LH.

Question Four: Answer the following question.....(30 Marks).

- 1. Explain the stages of amphibian cleavage.....(9 Marks).
- 2. What are the differences between mammalian and nonmammalian cleavage.....(9 Marks).
- 3. Explain the ovulation in chicken.....(6 Marks).
- 4. List the events of fertilization.....(6 Marks).

With Best Wishes

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