

M.Sc. ZOOLOGY
SECOND SEMESTER (REPEAT)
DEVELOPMENTAL AND REPRODUCTIVE BIOLOGY
MSZ-201

SET
A

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 3 hrs.

Full Marks: 70

(Objective)

Time: 30 mins.

Marks: 20

Choose the correct answer from the following:

1 × 20 = 20

1. Which of the following hormone has anti-antibody affect and hence protecting embryo from being rejected by mother's body?
 - a. Corpus luteum
 - b. Graafian follicle
 - c. Decidua
 - d. Secondary oocytes
2. Which one of the following is a steroid hormone?
 - a. Human placental lactogen
 - b. Estrogen
 - c. Neuropeptide- Y
 - d. Gonadotrophin releasing hormone
3. Select the protein molecule related with formation of Dorsal-Ventral axis in *Drosophila* embryo.
 - a. Gurken
 - b. Pipe
 - c. Cactus
 - d. All of these
4. The vulval precursor cell in *C. Elegans* that gets maximum induction signal from Anchor cell:
 - a. P₄P
 - b. P₅P
 - c. P₆P
 - d. P₇P
5. Which is a correct statement for cytoplasmic influence of nucleus?
 - a. Cytoplasm influences nuclear maturation
 - b. Cytoplasm influences nuclear division
 - c. Cytoplasm inhibits some nuclear activities
 - d. All of these
6. For GIFT to be suitable woman must have:
 - a. At least one normal fallopian tube
 - b. A Uterus and three fallopian tube
 - c. Epididymis
 - d. All of the above
7. The oocyte is enclosed by a membrane called:
 - a. The pellucida
 - b. The perineum
 - c. The zona pellucida
 - d. The trigone
8. Which of the following regulates the female reproductive cycle?
 - a. Progesterone
 - b. Testosterone
 - c. Estrogens
 - d. Glucocorticoids
9. In vitro fertilization differs from natural fertilization in a way that:
 - a. In IVF sperm and egg unite outside the body
 - b. In IVF the egg is already fertile
 - c. In IVF a single sperm fertilizes multiple eggs
 - d. It is similar to cloning

10. The function of the Peg cell in the Fallopian tube is:
- To secrete estrogen
 - To provide nutrition to ovum
 - To generate ovulation
 - None of the above
11. After ovulation, the empty follicle inside the ovary changes to a structure called:
- Progesterone
 - Human chorionic gonadotropin
 - Human chorionic somatomammotrophin
 - Relaxin
12. Which one of the following is the innermost layer of uterus?
- Perimetrium
 - Myometrium
 - Endometrium
 - None of the above
13. Which of the following hormone is secreted in response to baby's suckling reflex?
- Progesterone
 - Estrogen
 - Adrenal steroid
 - Prolactin
14. Find out the wrong maternal gene for pattern formation in Drosophila during development.
- Bicoid gene
 - Pair rule gene
 - Nanos gene
 - Caudal gene
15. Which one is not a morphogen?
- RanBP
 - Sonic Hedgehog
 - β catenin
 - Transforming growth factor-beta
16. Fertilizin is a chemical substance produced from:
- Mature eggs
 - Acrosome
 - Polar bodies
 - Middle piece of sperm
17. In rare cases fertility drugs may cause ovarian hyperstimulation syndrome (OHSS). This builds up fluid in:
- Abdomen and chest
 - Kidney
 - Heart
 - Liver
18. The origin of progesterone biosynthesis:
- Graffian follicle
 - Corpus luteum
 - Fallopian tubes
 - Peg cells
19. Ovulation in mammals refers to:
- Release of ovum from ovary
 - Formation of primary oocyte in ovary
 - Degeneration of unfertilized ovum
 - Fertilization of mature ovum
20. The compound pregnenolone is the source of:
- Cholesterol
 - Acetyl Co A
 - Mevalonate
 - All sex steroids

(Descriptive)

Time : 2 hr. 30 mins.

Marks : 50

[Answer question no.1 & any four (4) from the rest]

1. In the light of the modern concept discuss the process of In vitro Fertilization (IVF). 10
2. Discuss the process of fertilization with special emphasis on fertilizin-antifertilizin reactions in humans. 10
- Or
- Discuss the salient features of Intra Cytoplasmic Sperm Injection (ICSI). 10
3. What is placenta? Write a note on hormones secreted by placenta. 2+8=10
4. Mention the four stages of lactation process. Discuss the role of oxytocin and prolactin on lactation. 2+8=10
5. Write the structure of a Cadherin molecule. Mention different types of Cadherins. Explain mechanism of action of cadherin molecules with suitable diagram. 3+2+5=10
6. Explain the mechanism of vulva formation in *Caenorhabditis elegans*. 10
7. What do you mean by ovarian cycle? Write about various stages of menstrual cycle in primate. 2+8=10
8. What is meant by steroids? What is the source of pregnenolone molecule? Give the mechanism of steroid biosynthesis from the Pregnenolone molecule. 2+8=10
- Or
- Define gametes. Write briefly on the transport of ovum to the uterine bed of a mammal. 10

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