

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

**SET
A**

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 3 hrs.

Full Marks: 70

Time: 30 mins.

Marks: 20

(Objective)

Choose the correct answer from the following:

1 × 20 = 20

- Which one of the following hormones act as a signal for initiation of pregnancy?
 - Progesterone
 - Human chorionic gonadotrophin
 - Human chorionic somato-mammotrophin
 - Insulin
- In which part of the female reproductive system implantation of fertilized egg occur?
 - Ovary
 - Oviduct
 - Uterus
 - Cervix
- During 1st trimester of pregnancy, endometrium is renamed as:
 - Decidua
 - Placenta
 - Myometrium
 - Decidua basalis
- Which of the following group of hormones are steroid in nature? -
 - Oxytocin & Prolactin
 - Estrogen & Progesterone
 - Inhibin & Activin
 - HCG & HCS
- Which one of the following is the innermost layer of uterus?
 - Perimetrium
 - Myometrium
 - Endometrium
 - None of the above
- The inductor causes induction by liberating a chemical substance called:
 - Inductor
 - Evocator
 - Modulator
 - None of the above
- In amphibian embryos, the dorsal ectodermal cells in the mid-longitudinal region differentiate to form a neural plate, only when the chorda mesoderm is:
 - Below it
 - Above it
 - Laterally dorsal to it
 - Dorsal to it
- Fertilization of the egg by the sperm is the first step in the process of:
 - Oogenesis
 - Blastogenesis
 - Embryogenesis
 - None of the above
- Process of removal of nucleus from cell is:
 - Translocation
 - Enucleation
 - Degranulation
 - Hybridization

10. In rare cases fertility drugs may cause ovarian hyperstimulation syndrome (OHSS). This builds up fluid in:
- | | |
|----------------------|-----------|
| a. Abdomen and chest | b. Kidney |
| c. Heart | d. Liver |
11. Fertilizin is a chemical substance produced from:
- | | |
|-----------------|--------------------------|
| a. Mature eggs | b. Acrosome |
| c. Polar bodies | d. Middle piece of sperm |
12. 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 |
13. 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 |
14. Thyroid cells are derived from embryonic.....
- | | |
|-------------|----------------|
| a. Ectoderm | b. Mesoderm |
| c. Endoderm | d. Archenteron |
15. Which one of the following is not a morphogen?
- | | |
|------------------|-------------------|
| a. Calmodulin | b. Wnt |
| c. Retinoic acid | d. Sonic hedgehog |
16. The protein which is displaced by the signaling effect of Wnt to express Wnt responsive gene in DNA is.....
- | | |
|------------------------|-----------|
| a. Dishevelled protein | b. GROCHO |
| c. GSK-3 | d. Axin |
17. Number of small units in Extracellular domain of a cadherin molecule is:
- | | |
|------|------|
| a. 3 | b. 4 |
| c. 5 | d. 6 |
18. Which ions are essential for binding of EC-domains of two cadherin molecule?
- | | |
|---------------------|---------------------|
| a. Na ⁺ | b. K ⁺ |
| c. Mg ⁺⁺ | d. Ca ⁺⁺ |
19. Select the protein which is not related to axes formation in drosophila.
- | | |
|-----------|-------------|
| a. Dorsal | b. Pipe |
| c. Cactus | d. Frizzled |
20. Select the energy source for nuclear import process.
- | | |
|--------|--------|
| a. ATP | b. GTP |
| c. CTP | d. TTP |

(Descriptive)

Time : 2 hr. 30 mins.

Marks : 50

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

- | | |
|---|--------|
| 1. What is placenta? Write about the structure and physiology of placenta. | 2+8=10 |
| 2. In the light of the modern concept discuss the process of In vitro Fertilization (IVF). | 10 |
| 3. Discuss the salient features of Intra Cytoplasmic Sperm Injection (ICSI). | 10 |
| 4. What is Embryo transfer? Discuss the process of embryo transfer in the light of the modern concept. | 2+8=10 |
| 5. Discuss briefly the GIFT process with suitable examples. | 10 |
| 6. Describe the process of vulva formation in <i>Caenorhabditis elegans</i> . | 10 |
| 7. Mention the stages of lactation process. Discuss the role of Oxytocin and prolactin on lactation. | 2+8=10 |
| 8. Discuss the process of fertilization with special emphasis on fertilizin-antifertilizin reactions in humans. | 7+3=10 |

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