M.Sc. ZOOLOGY Second Semester DEVELOPMENTAL & REPRODUCTIVE BIOLOGY MSZ – 201

Duration: 3Hrs. Full Marks: 70

Part-A (Objective) =20 Part-B (Descriptive) =50

(PART-B: Descriptive)

Duration: 2 hrs. 40 mins. Marks: 50

Answer any four from Question no. 2 to 7 Question no. 1 is compulsory.

- 1. Describe briefly on the vulvae development in *Caenorhebditis elegans*. Write a brief note on the use of *C. elegans* as model organism in biology. (5+5=10)
- 2. Describe briefly on the mechanism of dorsal-ventral polarity in *Drosophila*. (10)
- 3. Write a brief note on the different mode of commitment during development stages of an embryo. (10)
- 4. Discuss the ICSI technique and highlight the risks involved in the process. (10)
- 5. In the light of the modern concept describe the process of IVF. (10)
- 6. Discuss the process of embryonic induction citing suitable examples. (10)
- 7. Describe the Luteal Phase of the Ovarian Cycle. (10)

Or

Describe the process of transport of ovum from ovary to the uterus through the Fallopian tube. (10)

2017/06

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Duration: 20 minutes

Marks - 20

(PART A - Objective Type)

I. Choose the correct answer:

 $1 \times 20 = 20$

- 1. Which of the following is the cephalisation morphagen during the development of Dorsophila melanogaster?
 - (a) gruken mRNA
 - (b) bicoid mRNA
 - (c) nanos mRNA
 - (d) oscar mRNA
- 2. Which of the following is not true for stem cell?
 - (a) Pluripotent stem cells are capable to generate all the structures of the embryo.
 - (b) Progenitor cells are no longer stem cells.
 - (c) Stem cell has the capacity to divide indefinitely and give rise to more specialized cell.
 - (d) Progenitor cells do not restricted their fate and capable to generate all structure of the embryo.
- 3. Male sex of Bonellia is maintain by landing of larvae to:
 - (a) Proboscis of female.
 - (b) Proboscis of male.
 - (c) Sea floor.
 - (d) Skin near the uterus.
- 4. Implantation of embryo to the uterus is done by:
 - (a) N-cadherin
 - (b) P-cadherin
 - (c) C-cadherin
 - (d) R-cadherin
- 5. For GIFT to be suitable woman must have:
 - (a) At least one normal fallopian tube.
 - (b) A Uterus and three fallopian tubes.
 - (c) Epididymis.
 - (d) All of the above.
- 6. Development of egg without fertilization is:
 - (a) Fertilization in vitro.
 - (b) Embryogenesis.
 - (c) Egg farming.
 - (d) Parthenogenesis.

- 7. Human chorionic gonadotropin (HCG) is administered:
 - (a) To prevent the inhibition of LH surge by HMG.
 - (b) To prevent fertilization.
 - (c) For ovulation.
 - (d) To increase fertility.
- 8. The ovum with single layer of granulosa cells called:
 - (a) Primary follicle
 - (b) Primordial follicle
 - (c) Theca
 - (d) Antrum
- 9. The process by which developing follicles involute called:
 - (a) Atretic
 - (b) Atresia
 - (c) Involution
 - (d) None of the above
- 10. The psychological manifestation of heat in female brought about by:
 - (a) Estrogen
 - (b) Progesterone
 - (c) FSH
 - (d)LH
- 11.Estrogen secreted by:
 - (a) Primordial follicle
 - (b) Primary follicle
 - (c) Theca interna (d) Theca externa
- 12. The Principal Estrogen secreted by the ovaries:
 - (a) β -estradiole
 - (b) Estrone
 - (c) Estriole
 - (d) Estrone & Estriole together
- 13.Leidig cell produce testosterone in the presence of:
 - (a) FSH
 - (b)LH
 - (c) Anterior pituitary
 - (d) Seminiferous tubule
- 14. Prostaglandin secreted from:
 - (a) Prostrate gland
 - (b) Seminal vesicle
 - (c) Leidig cell
 - (d) Hypothalamus

- 15. The stage of fertilized egg in human entered from fallopian tube to the uterus is:
 - (a) 16-cell stage
 - (b) 32-cell stage
 - (c) morula stage
 - (d) blastocyst stage
- 16.Intracytoplasmic sperm injection is most often used for couples who have had trouble of conceiving due to:
 - (a) The male infertility factor
 - (b) Sterility of female
 - (c) Incomplete Fertilization
 - (d) Motility of Sperm
- 17.Embryo transfer refers to a step in the process of assisted reproduction in which embryos are placed into the:
 - (a) Uterus of a female with the intent to establish a pregnancy.
 - (b) Corpus luteum of female to establish a pregnancy.
 - (c) Ovary.
 - (d) All of the above.
- 18.he technique of selecting only one embryo to transfer to the woman is called:
 - (a) Elective-Single Embryo transfer.
 - (b) Elective-Single double diffusion transfer.
 - (c) Elective and single embryo transfer.
 - (d) None of the above.
- 19. Which of the following is not related to Nanos in anterior-posterior patterning of Drosophila?
 - (a) Hunchback translation is repressed by Nanos.
 - (b) Caudal translation is induced.
 - (c) Hunchback translation is induced.
 - (d)Bicoid activation is inhibited in posterior region.
- 20. The entire genome sequence of Caenorhabditus elegans contains:
 - (a) 19-20,000 protien-encoding genes
 - (b) 10-15,000 protien-encoding genes
 - (c) 5-10,000 protien-encoding genes
 - (d) 4-5000 protien-encoding genes



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