

G-3/389/22

Roll No.

III Semester Examination, January, 2022

M.Sc.

ZOOLOGY

Paper I

(Developmental Biology)

Time : 3 Hours]

[Max. Marks : 80

Note : *All questions are compulsory. Question Paper comprises of 3 Sections. Section A is objective type/multiple choice questions with no internal choice. Section B is short answer type with internal choice. Section C is long answer type with internal choice.*

SECTION A

1×8=8

(Objective Type/Multiple Choice Questions)

Choose the correct answer :

- 1.** If a boy has sexual characters of that of a girl, its genotype would be :
(a) XYY (b) XO
(c) XXY (d) XXX
- 2.** What stage is the Oocyte released from the ovary ?
(a) Primary Ovary (b) Secondary Oocyte
(c) Tertiary Oocyte (d) Ovum

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- 3.** Which among the following is the cell division without growth ?
(a) Cleavage (b) Conjugation
(c) Fertilization (d) Development
- 4.** During gastrulation in xenopus, the blastocoel :
(a) becomes the gut
(b) is filled with endodermal cells and disappear
(c) is filled with mesoderm and disappear
(d) does not change but develops into what is called the archenteron
- 5.** In embryo cloning one embryo is split to form a number of identical embryos which are then implanted into surrogate mothers. Which of the following statement is not true about embryo cloning ?
(a) It is a form of artificial twinning
(b) Each animal born is identical to the others
(c) It is used to replicate embryos which have been genetically modified to produce human therapeutic proteins
(d) None of the above
- 6.** The major cause of infertility in women :
(a) Anovulation (b) Weight
(c) Age (d) All of these

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7. Which of the following is/are the method of transfection for making transgenic animals ?
- Transfer of DNA
 - Transfer of whole individual chromosome or fragment
 - Transfer of whole nuclei
 - All of the above
8. Control of nucleus over cytoplasm in Amoeba was noticed by :
- Balbani
 - Hammerling
 - Fiscbery and Gordon
 - H. Harris

SECTION B**6×4=24****(Short Answer Type Questions)**

Note : Answer the following questions in **250** words.

Unit-I

1. Write the formation of yolk in egg.

Or

Discuss the process of Ootid formation.

Unit-II

2. Discuss the patlests of cleavage.

Or

Discuss the fate map of frog with diagram.

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Unit-III

3. What is IVF ? Write its medical ubes.

Or

Define stem cells and write the sources and importance of stem cells.

Unit-IV

4. Write on knockout mice with its advantages and disadvantages.

Or

Discuss the nucleo-cytoplasmic interaction in Acetabularia.

SECTION C**12×4=48****(Long Answer Type Questions)**

Note : Answer the following questions in **500** words.

Unit-I

1. Describe the process of spermato genesis with its hormonal control.

Or

Define sex differentiation and discuss the theories related with sex differentiation.

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Unit-II

- 2.** Discuss the process of fertilization in detail.

Or

Discuss the process of metamorphosis in insect and compare it with frog.

Unit-III

- 3.** What is Organizer ? Discuss different types of organizers with examples.

Or

Write a detailed note on Teratology.

Unit-IV

- 4.** Define parthenogenesis and discuss the types of parthenogenesis.

Or

Describe the production and application of transgenic animals.

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