



K24U 0091

Reg. No.:

Name :

**Sixth Semester B.Sc. Degree (C.B.C.S.S.-OBE – Regular/Supplementary/
Improvement) Examination, April 2024
(2019 to 2021 Admissions)
CORE COURSE IN ZOOLOGY
6B12ZLG : Developmental Biology**

Time : 3 Hours

Max. Marks : 40

Instruction : Give illustrations and figures wherever necessary.

- I. **Essay questions. Each question carries 8 marks. Answer any two.**
- 1) Explain the development of eye in frog with required illustrations.
 - 2) Describe the techniques used in infertility management.
 - 3) Using suitable diagrams, classify the different types of eggs seen in the animal kingdom. Add a note on the influence of yolk in the types of cleavage in eggs.
 - 4) Write a description on the structure, development and role of extraembryonic membranes in chick, using a diagram. Add a note on placenta and its role in mammals. (2×8=16)
- II. **Short Essay questions. Each question carries 4 marks. Answer any two.**
- 5) Explain neurulation in *Amphioxus*, with necessary diagrams.
 - 6) Describe Spemann's constriction experiments on amphibian embryos. Add a note on the significance.
 - 7) Comment on the properties and applications of stem cells. (2×4=8)

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- III. **Short Answer questions. Each question carries 2 marks. Answer any six.**
- 8) What is primitive streak ? Comment on its significance.
 - 9) Write notes on the theories of preformation and epigenesis in developmental biology.
 - 10) Differentiate arrhenotoky and thelytoky with examples.
 - 11) What is capacitation ?
 - 12) What are teratogens ? Give two examples of teratogenicity.
 - 13) Write a note on the hormonal control of metamorphosis in insects.
 - 14) Differentiate between coeloblastula and stereoblastula with examples.
 - 15) What are the stages of parturition in humans ? (6×2=12)
- IV. **Multiple Choice questions. Each question carries 0.5 marks. Answer all.**
- 16) _____ is not a primary egg membrane.
 - a) vitelline membrane of birds
 - b) zona radiata of bony fishes
 - c) zona pellucida of mammals
 - d) corona radiata of mammals
 - 17) Metamorphosis in amphibians is triggered by environmental cues like temperature and light, that stimulates the neurosecretory cells of the

a) hypophysis	b) thyroid
c) hypothalamus	d) adrenals
 - 18) Insect eggs show
 - a) Holoblastic equal cleavage
 - b) Meroblastic superficial cleavage
 - c) Holoblastic unequal cleavage
 - d) Meroblastic discoidal cleavage



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- 19) Formation of fertilization membrane around the egg
 - a) Blocks polyspermy
 - b) allows easy implantation of the embryo
 - c) Prevents fertilization events
 - d) causes sperm agglutination on egg surface
- 20) The number of functional ovaries in adult hen is

a) 1	b) 2	c) 3	d) 4
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- 21) Name of the first 'test tube baby'

a) Robert Edwards	b) Louis Joy Brown
c) Leslie Brown	d) Patrick Steptoe
- 22) One among the following cannot be employed for fate map construction

a) Carbon particle marking	b) Radioactive tracing
c) Neutral red staining	d) Methylene blue staining
- 23) The movement of ectoderm cells over the surface of the embryo during gastrulation.

a) Emboly	b) Epiboly
c) Invagination	d) Involution

(8×0.5=4)