(6 pages) **Reg. No. :** .....

Code No. : 9086 **Sub. Code : PZOM 13**

M.Sc. (CBCS) DEGREE EXAMINATION, NOVEMBER 2017.

First Semester

Zoology

DEVELOPMENTAL BIOLOGY

(For those who joined in July 2017 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer.

1. Oogenesis takes place in
   (a) endometrium
   (b) cortical part of the ovary
   (c) inner cell mass
   (d) inner part of the ovary

2. Unfertilized egg develop into females
   (a) virgin birth (b) thelytoky
   (c) deuterotoky (d) arrehenotoky

3. Attachment of blastocyst to the uterine wall is
   (a) capacitation (b) implantation
   (c) condensation (d) convolution

4. When the first three division planes do not stand at right angles to each other the cleavage is
   (a) biradial cleavage
   (b) spiral cleavage
   (c) rotational cleavage
   (d) bilateral cleavage

5. Ontogeny recapitulates phylogeny - proposed by
   (a) Ernst Haeckal (b) Von Baer
   (c) Aristotle (d) Friedrich Wolff

6. The posterior pocket bordering on the mass of yolk laden cells of the midgut is known as
   (a) hepatic diverticulujm
   (b) foregut diverticulum
   (c) hindgut diverticulum
   (d) midgut diverticulum

7. The roof of the diencephalon is richly supplied with blood cells and becomes

(a) infundibulum (b) choroid plexus

(c) hypothalamus (d) hypophysis

8. The rudiments of the wings in the form of flat outgrowth is visible in this larval stage known as

(a) imago stage (b) nymphal stage

(c) adult stage (d) larval stage

9. The phase of development which brings the animal to its functional state is

(a) degrowth

(b) differentiation

(c) organogenesis

(d) induction

10. Which of the following cells would be considered differentiated

(a) blastornere

(b) spemann organizer

(c) muscle cell

(d) stem cell

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Brief about the subdivisions of developmental biology.

Or

(b) Give in detail the vitellogenesis.

12. (a) Explain the cleavage and blastulation in Ascidian.

Or

(b) Give in detail the mammalian cleavage and blastulation.

13. (a) Explain the development of spinal cord.

Or

(b) Brief the development of derivatives of digestive system.

14. (a) Explain briefly the neurosecretion in insects.

Or

(b) Explain the morphological changes in amphibian metamorphosis.

15. (a) Explain the different types of induction.

Or

(b) Brief the theories of organizer.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Explain in detail the theories of developmental biology.

Or

(b) Describe the biochemical and molecular changes during fertilization.

17. (a) What is cleavage? Explain types, patterns, planes and laws of cleavage.

Or

(b) Define gastrulation. Explain the morphogenetic movement of gastrulation.

18. (a) Explain in detail the development of heart in amniotes.

Or

(b) Describe in detail the development of metanephric kidney.

19. (a) Explain in detail the molting and metamorphosis in insects.

Or

(b) Give in detail the hormonal control of amphibian metamorphosis.

20. (a) Define differentiation. Explain the differentiation gone out of control.

Or

(b) Explain embryonic induction and neural induction.

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