THE OPEN UNIVERSITY OF SRI LANKA

B. Sc. DEGREE PROGRAMME – LEVEL 04: 2017/18

ZYU4302 – ANIMAL DEVELOPMENT
CAT 1 (NO BOOK TEST)

DATE: 11th June 2018 Time: 4.15 p.m. – 5.15 p.m.

REGISTRATION NUMBER: .....

Answer all questions
Answers should be written in the space provided

Q.1. This question is based on the oogenesis of vertebrates.

Figure 1 illustrates the processes of oogenesis in a particular group of vertebrates

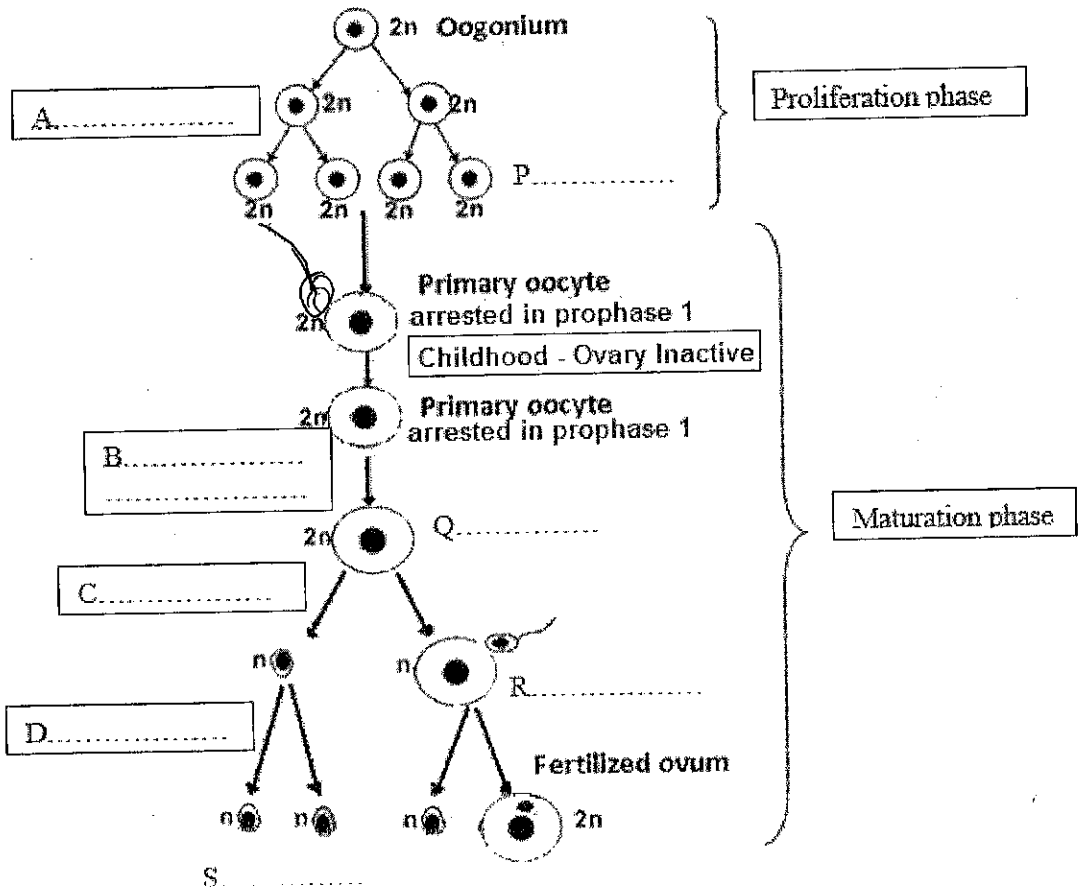

Figure 1

1.1 Name the vertebrate animal group having this kind of oogenesis.

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1.2 Label A→D in the diagram, which are the sub-processes occur during oogenesis.

1.3 Label P→S in the diagram, which are some cell types formed during oogenesis.

1.4 List the changes that occur during the differentiation of oocytes in this animal group.

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1.5 State the significances of the sub-processes A, B and C for the success of oogenesis.

A- .....

B- .....

C- .....

1.6 State the type of follicles in which the cell types P, Q and R occurs.

P- .....

Q- .....

R- .....

Q 2. Answer the following questions based on the cleavage of chordates.

2.1 State two similarities between cleavage cell divisions and normal somatic cell divisions.

1. .....

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2. .....

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2.2 State four characteristic features of cleavage cell divisions.

1. .....

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2. .....

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3.....

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4. .....

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2.3 What are the animal groups in which the radial and spiral cleavages patterns have originated?

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2.4 How does the third cleavage furrow differ in radial and spiral cleavage patterns?

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2.5 Draw median cross sections of blastulae of amphioxus, frog and chick.

Amphioxus Frog Chick

2.6 Explain the effect of the amount and distribution of yolk on cleavage in amphioxus, frog and chick.

Amphioxus: .....

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Frog: .....

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Chick: .....

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Q 3. Answer the following questions on the eye development of vertebrates.

3.1 Name the germinal layers involved in the formation of the vertebrate eye.

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3.2 Name the region of the brain that gives rise to the optic vesicles.

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3.3 How does this brain region get induced to form optic vesicles?

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3.4 How does the epidermis lying outer the optic vesicles get induced to form the lens placode?

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3.5 How do the optic vesicles transformed into optic cups?

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3.6 Name the layer of the eye made by the outer wall of the optic cup.

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3.7 Name the layer of the eye made by the inner wall of the optic cup.

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3.8 Draw a series of diagrams to show the development of retina and the lens of the eye.

3.9 Name the two outermost layers of the eye.

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3.10 Using examples explain how the primary, secondary and tertiary inductions are involved in the formation of the vertebrate eye.

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