

## Part A

Choose the most suitable answer and indicate with a "X" on the answer sheet provided.

1. Phylogenetic development involve with

- a) Sexual reproduction of animals.
- b) Development biology.
- c) Evolutionary relationships of species.
- d) Ontogenetic development.

2. Which one of the following statement is incorrect regarding the disease Haemophilia?

- a) Human males are the carriers of the gene.
- b) The disease involves with 'X' chromosome.
- c) Haemophiliac condition is shown by human males.
- d) Females do not show the disease.

3. Which one of the following cells is a diploid cell?

- a) Spermatozoa
- b) Ova
- c) Gamete cell
- d) Somatic cell

4. Which one of the following statements is incorrect?

- a) Heredity is the passage of characteristics from one generation to another.
- b) DNA molecule is made of only four nucleotides.
- c) Chromomeres contain nucleoprotein particles.
- d) DNA molecule is the key molecule of heredity.

5. Eggs of Some species secrete "fertilizin" which

- a) directs the sperm to contact with the egg.
- b) does not direct the sperm to contact with the egg.
- c) dissolve the glue and fixing the follicle cells to the egg.
- d) involves in cleavage.

6. First chordates evolve in

- a) Jurassic period.
- b) Triassic period.
- c) Cambrian period.
- d) Cretaceous period.

7. In humans the chromosome number is 46. How many chromosomes are present in man's brain cells?

- a) 23
- b) 46
- c) 69
- d) variable

8. Which one of the following is not related with human embryo?

- a) Chorion
- b) Amnion
- c) Allantois
- d) Chalaza

9. Human being belongs to the species of

- a) *Homo erectus*
- b) *Homo sapiens sapiens*
- c) *Homo habilis*
- d) *Hominidae*

10. Which of the following strands of DNA would be the complement strand to C-C-A-T-C-G?

- a) G-G-T-A-G-C
- b) G-G-A-T-G-C
- c) A-A-C-G-A-T
- d) T-T-G-C-T-A

11. The egg of a frog is:

- a) telolecithal
- b) microlecithal
- c) centrolecithal
- d) alecithal

12. Which one of the following is not an example of analogous structures?

- a) Wings of bat and butterfly
- b) Wings of bat and forelimb of cattle
- c) Wings of bird and an insect
- d) Legs of vertebrates and insects

13. The type of cleavage that divides a small amount of active cytoplasm at the animal pole is?

- a) Meroblastic
- b) Holoblastic
- c) Determinate
- d) Unequal holoblastic

14. In the study of genetics the appearance of animals are named as

- a) genotypes
- b) phenotypes
- c) heterozygous
- d) homozygous

15. Evidences of evolutionary relationships is found in

- a) Ocean beds
- b) atmosphere
- c) River beds
- d) fossils

16. Epiboly involves

- (a) inward movement of megameres.
- (b) movement of micromeres over megameres.
- (c) rapid proliferation of cells at the rim of the blastopore.
- (d) invagination of cells at the blastopore.

17. The component of a chromosome that controls heredity is

- a) proteins
- b) histones
- c) DNA
- d) RNA

18. The offspring resulting from a crossing between two pure homozygous recessives would be

- a) 50% homozygous recessive and 50% homozygous dominant.
- b) 75% homozygous recessive and 25% heterozygous dominant.
- c) 75% homozygous recessive and 25% homozygous dominant.
- d) 100% homozygous recessive.

19. Which of the following statement/s is/are correct?

(A) In chick, the notochord is ectodermal in origin.

(B) In chick, the brain is mesodermal in origin.

(C) In chick, the stomach endodermal in origin.

- a) A and B are correct.
- b) B and C are correct.
- c) Only A is correct.
- d) Only C is correct.

20. Why are there more males with color blindness than females?

- a) The gene for color blindness is found on the Y chromosome.
- b) The recessive gene is usually masked by another X chromosome in females.
- c) Color blindness is an X-linked dominant trait.
- d). All the sons of an affected male will have the disorder.

**Part B**

**REGISTRATION NUMBER .....**

2.

2.1. Describe primordial germ cells?

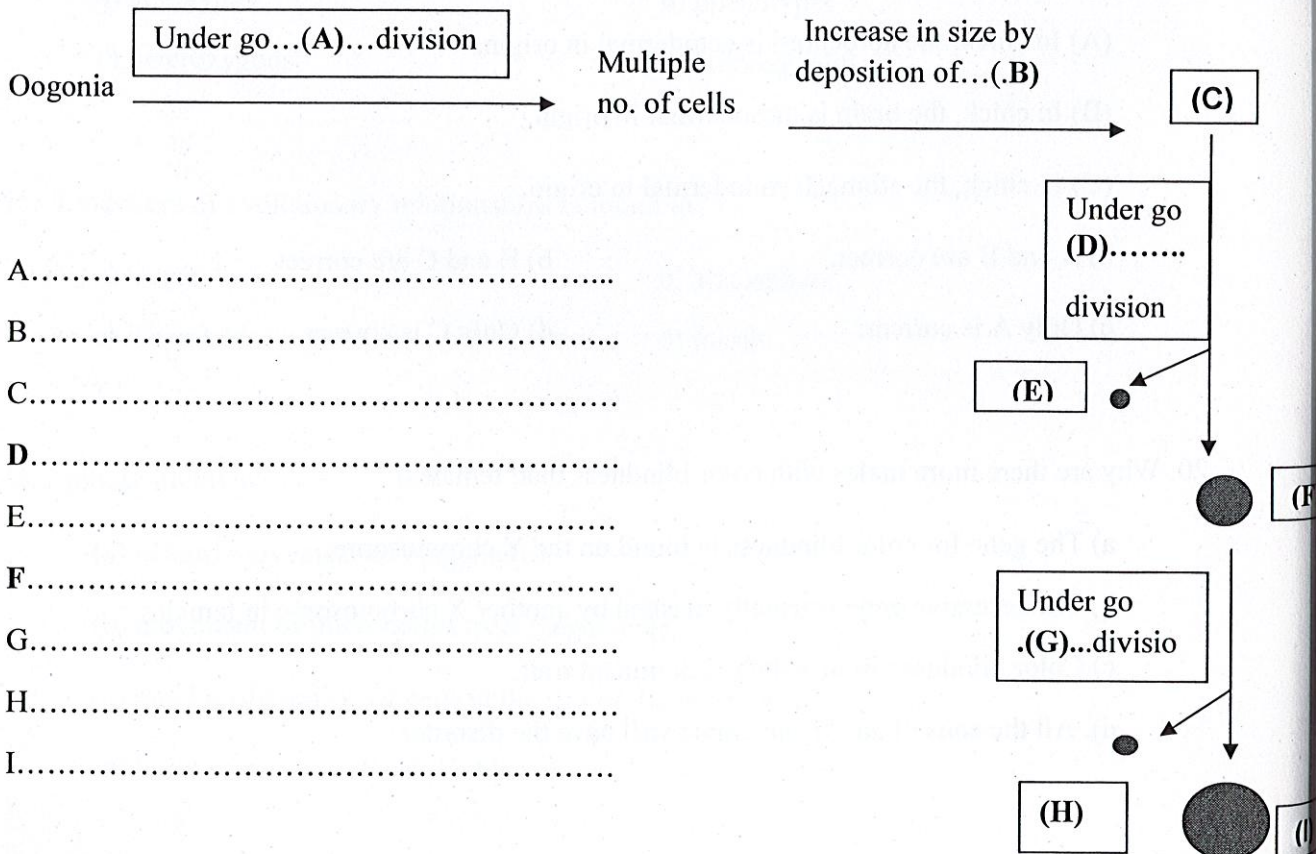
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2.2. What is meant by "Oogonia"?

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2.3. Complete the following flow diagram by identifying A to I



2.4. Considering the flow diagram (2.3), identify the “chromosome number” found in the stages given below?

Oogonia ....., E....., F....., H....., and I.....

2.5. What is the ultimate fate of E and H, in the above process (2.3)?

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2.6. Briefly describe the animal pole and the vegetal pole of an egg..

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2.7. Giving two examples of animals, explain the immediate process that follows after formation of their zygotes.

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