

# **GOVERNMENT ZIRTIRI RESIDENTIAL SCIENCE COLLEGE**

Subject: **Zoology**

Paper name: **Developmental Biology**

Paper No: **X**

Semester: **Sixth**

A. Multiple choice questions:

1. Energy for swimming of spermatozoan is provided by
  - a) acrosome
  - b) Golgi rest
  - c) mitochondria
  - d) flagellum
2. Eggs produced by the female contain varying quantities of food matter produced from
  - a) vitellin
  - b) yolk
  - c) vitellogenesis
  - d) None of the above
3. The developing embryo is afforded protection by
  - a) amnion
  - b) chorion
  - c) allantoin
  - d) None of the above
4. Parthenogenesis is the production of young ones
  - a) without interaction of male
  - b) without interaction of female
  - c) without interaction of egg
  - d) without interaction of sperm
5. Holoblastic radial cleavage is shown by
  - a) *Amphioxus*
  - b) molluscs
  - c) nematodes
  - d) amphibians
6. The cleavage plane which divides the embryo into unequal hemispheres in frog is
  - a) 1st
  - b) 2nd
  - c) 3rd
  - d) 4th
7. Involution at the blastopore is initiated by the
  - a) ectoderm
  - b) endoderm

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- c) mesoderm
  - d) flask cells
8. Human placenta is classified as
- a) epitheliochorial
  - b) endotheliochorial
  - c) haemochorial
  - d) haemoendothelial
9. The strongest maternal-foetal bond is observed in
- a) epitheliochorial placenta
  - b) endotheliochorial placenta
  - c) haemochorial placenta
  - d) haemoendothelial placenta
10. The use of fate maps as a tool to study development was introduced by
- a) Lovtrup
  - b) Balinsky
  - c) Vogt
  - d) Keller
11. Nobel Prize for discovery of neural induction and for discovery of organizer was awarded to
- a) Balinsky
  - b) Waddington
  - c) Spemann and Mangold
  - d) Berrill
12. Noggin, chordin and follistatin are secreted factors that
- a) induce neural tissues in isolated animal cap
  - b) dorsalize mesoderm
  - c) inhibit mesoderm ventralizing BMP-4
  - d) All of the above
13. The movement of the presumptive ectoderm layer is called
- a) epiboly
  - b) emboly
  - c) convergence
  - d) None of the above
14. The inward rolling of presumptive notochordal cells along the dorsal lip of blastopore, followed by the inward rolling of the presumptive mesodermal cells along the lateral and ventral lips of blastopore is termed
- a) epiboly
  - b) emboly
  - c) involution
  - d) convergence

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15. Gradient concept was proposed by
  - a) Runnstrom
  - b) Boveri
  - c) Horstadius
  - d) Child
  
16. The moulting hormone is
  - a) ecdysone
  - b) JH
  - c) testosterone
  - d) prolactin
  
17. *Ubx* helps in formation of
  - a) limb
  - b) wing
  - c) eye
  - d) segmentation
  
18. The changes in shape, size, and habitat of an organism is called
  - a) metamorphosis
  - b) growth
  - c) moulting
  - d) cleavage
  
19. Incomplete metamorphosis is also called
  - a) hemimetabolism
  - b) ametabolism
  - c) holometabolism
  - d) heterometabolism
  
20. Which one of the following does not show holometabolic development
  - a) bees
  - b) moths
  - c) beetle
  - d) grasshopper
  
21. The study of individual and collective ageing processes
  - a) Ethology
  - b) Psychology
  - c) Gerontology
  - d) Chronology
  
22. Examples of stressors do not include
  - a) Illness
  - b) Infections
  - c) Success
  - d) Injuries

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23. There is gradual loss of bone mass starting around the age of  
a) 20  
b) 13  
c) 25  
d) 30
24. The process of introducing a gene from one organism into the genome of another is called  
a) Transgenesis  
b) Cloning  
c) Transplant  
d) Surgery
25. IVF stands for  
a) In vivo fertilization  
b) In vitro fertilization  
c) In vital fertilization  
d) In vitro fertility

B. Fill in the blanks:

1. \_\_\_\_\_ enzymes are contained in the spermatzoan acrosome.
2. Centrolecithal and macrolecithal eggs are a characteristic feature of \_\_\_\_\_ .
3. Reduced or haploid parthenogenesis (haplodiploidy) or arrhenotoky is exhibited by \_\_\_\_\_ .
4. The larger yolk laden cells in cleavage are called \_\_\_\_\_ .
5. Movement of cells during gastrulation and neurulation are called \_\_\_\_\_ movements.
6. During chick development, a diverticulum of the mid gut spreads over and encloses the yolk mass, forming the \_\_\_\_\_ .
7. The inward rolling of presumptive notochordal cells along the dorsal lip of blastopore, followed by the inward rolling of the presumptive mesodermal cells along the lateral and ventral lips of blastopore is termed \_\_\_\_\_ .
8. Morphogenetic movements end with the formation of the embryonic gut and the establishment of the \_\_\_\_\_ primary germinal layers.
9. Splitting of blastoderm anteriorly into the outer epiblast (ectoderm) and inner hypoblast (endoderm) is known as \_\_\_\_\_ .
10. Grasshopper, cockroaches, cicadas and mantids have a terrestrial young called \_\_\_\_\_ .
11. \_\_\_\_\_ hormone is secreted by the corpora allata.
12. Prothoracicatropin (PTTH) is a family of protein hormones of molecular weight \_\_\_\_\_ to 50 kD.
13. A cell with unique ability to develop into specialized cell types in the body is called \_\_\_\_\_ .
14. As we get older the \_\_\_\_\_ of eye loses fluid and become less flexible, making it more difficult to focus at the near range.
15. \_\_\_\_\_ is a pattern of life changes that occurs as one grows older.

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### **Key Answers**

A. Multiple choice questions :

- |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|
| 1. (c)  | 2. (a)  | 3. (b)  | 4. (d)  | 5. (a)  | 6. (c)  | 7. (d)  |
| 8. (c)  | 9. (d)  | 10. (c) | 11. (c) | 12. (d) | 13. (a) | 14. (c) |
| 15. (b) | 16. (a) | 17. (d) | 18. (a) | 19. (a) | 20. (a) | 21. (c) |
| 22. (c) | 23. (d) | 24. (a) | 25. (b) |         |         |         |

B. Fill in the blanks :

1. Proteolytic
2. insects
3. hymenoptera: bees and wasps (any answer is acceptable)
4. megameres or macromeres
5. morphogenetic
6. yolk sac
7. involution
8. three
9. delamination
10. nymph
11. juvenile
12. 10
13. stem cells
14. lens
15. Ageing