

# **GOVERNMENT ZIRTIRI RESIDENTIAL SCIENCE COLLEGE**

Subject: Zoology  
Paper name: Developmental Biology  
Paper No: XIX  
Semester: VI

## **A. Multiple choice questions [25 (5 from each unit)]**

1. The shape of the head of human sperm is
  - a) spear shaped
  - b) pear shaped
  - c) oval
  - d) cylindrical
2. Vitelline membrane is a
  - a) primary egg membrane
  - b) secondary egg membrane
  - c) tertiary egg membrane
  - d) quaternary egg membrane
3. One of the fundamental requirements for the encounter of spermatozoa and egg during fertilization is
  - a) fluid medium
  - b) dry medium
  - c) jelly-like medium
  - d) none
4. Parthenogenesis helps to produce
  - a) haploidy
  - b) diploidy
  - c) both
  - d) polyploidy
5. In centrolecithal eggs, the usual type of cleavages is
  - a) holoblastic
  - b) meroblastic
  - c) spiral
  - d) superficial
6. The blastulae of Amphioxus and frog are
  - a) coeloblastula
  - b) stereoblastula
  - c) amphiblastula
  - d) discoblastula

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7. The cells along the external margin of blastoporal lip move over the lip to the inside edge of the lip. This is called
- a) invagination
  - b) involution
  - c) convergence
  - d) concrescence
8. Vital staining technique was discovered by
- a) Vogt
  - b) Spratt
  - c) Hotta and Benzer
  - d) Waddington
9. In placenta if the allantois is not present, it is called as
- a) chorionic
  - b) allantoic
  - c) chorio-vitelline
  - d) chorio-allantoic
10. After 24 hrs of incubation of chick's egg the number of mesodermal somites is
- a) 2
  - b) 3
  - c) 4
  - d) 5
11. Mesodermalizing agent is required for differentiation according to:
- a) Gradient theory
  - b) Protein denaturation theory
  - c) One factor theory
  - d) Ionic theory
12. Genetic basis of neural induction involves
- a) DNA
  - b) RNA
  - c) Actinomycin-D
  - d) All of these
13. Double gradient systems control morphogenesis and :
- a) differentiation
  - b) cleavage
  - c) blastulation
  - d) gastrulation
14. During morphogenetic movements, the ectodermal cells of the animal half are spreading out by a process called
- a) delamination

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- b) emboly
  - c) epiboly
  - d) None
15. An area which is committed to develop into a particular organ is called
- a) Delamination
  - b) Organiser
  - c) Morphogenetic field
  - d) Transition
16. The time interval between successive moults is called
- a) instar
  - b) stadium
  - c) inter moult
  - d) none
17. The hormone involved in the metamorphosis of tadpole is
- a) prolactin
  - b) thyroxine
  - c) TSH
  - d) somatotrophin
18. Growth, moulting and onset of metamorphosis in insects is controlled by :
- a) TSH
  - b) ecdysone
  - c) juvenile hormone
  - d) Growth hormone
19. Regeneration is similar to :
- a) autotomy
  - b) differentiation
  - c) cleavage
  - d) divisions
20. Among annelids, following animals never regenerates :
- a) Earthworm
  - b) Allolobophora
  - c) Leech
  - d) Polychaetes
21. The branch of study dealing with old age and aging is called as :
- a) Oncology
  - b) Gerontology
  - c) Teratology
  - d) None

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22. Man has an average life span of 100 years that is set by a group of :

- a) growth genes
- b) lethal genes
- c) terminator genes
- d) death genes

23. Transgenesis can be done by

- a) DNA micro-injection
- b) Stem cell mediated gene transfer
- c) Retrovirus mediated gene transfer
- d) All of them

24. The form of cell transformation which involves a change in the genome itself is called

- a) Teratogens
- b) Metastases
- c) Neoplasia
- d) Carcinogens

25. Stem cells have

- a) undifferentiated cells
- b) high self-renewal capacity
- c) multi-lineage differentiation potential
- d) All of them

B. Fill up the blanks [15 (3 from each unit)]

- 1) Spermatozoa get attracted to the ovum by the process of .....
- 2) In man the life span of sperm in female genital tract is .....
- 3) Parthenogenesis helps to avoid ..... in the races.
- 4) The peripheral cells and syncytial layer lying beneath the cavity of discoblastula is called .....
- 5) The migration of cells from outer surface of blastula to external margin of blastoporal lip is .....
- 6) The chick hatches out on ..... day.
- 7) The existence of organizer in amphibian egg was discovered by .....
- 8) In the fertilized egg, the grey crescent acts as .....
- 9) In axial gradient system, the metabolism is higher at ..... pole.
- 10) Two hormones responsible for Insect metamorphosis are ..... and .....
- 11) ..... and morphallactic regeneration are synonym.
- 12) *Drosophila melanogaster*, like all insects have ..... Hox genes.
- 13) With age, chaperones accumulation ..... in tissue.
- 14) Mesenchymal stem cells are responsible for .....
- 15) ..... are the most basic and fundamental cells one can find in a human body.

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## Key Answers

### A. Multiple choice questions [replace x]

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

### B. Fill up the blanks [replace x]

1. chemotaxis
2. 24 hrs
3. .sterility
4. periblast
5. convergence
6. 21<sup>st</sup> day
7. Spemann
8. the organizer
9. animal
10. Ecdysone and juvenile hormone
11. Morphallaxis
12. 8
13. increases
14. tissue regeneration in brain
15. Stem cells

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