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**Date: 1-7-19**

# ST. JOSEPH’S COLLEGE (AUTONOMOUS), BANGALORE – 27

**B.Sc. ZOOLOGY – VI SEMESTER**

**Special Supplementary Examination, JUNE 2019**

**ZO 6215 – Developmental Biology and Evolution**

Supplementary candidates only.

**Time: 2.5 hours Max. Marks: 70**

**This paper contains two printed pages and three parts.**

**Note: Draw neat labelled diagrams wherever necessary**

**Indicate the question numbers clearly.**

**PART A**

**Answer the following 15 X 1 = 15**

1. Preformed embryo in a spermatozoan was referred as \_\_\_\_\_\_\_\_\_\_
2. \_\_\_\_\_\_\_\_ proposed the theory of epigenesis
3. Superficial Cleavage is the characteristic feature of \_\_\_\_\_\_\_\_\_\_ lecithel eggs
4. The oblique shift in spindle fibers causes \_\_\_\_\_\_\_\_\_\_ cleavage
5. The figure depicts gastrula of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. Frog blastula is referred as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. In the frog gastrula grey crescent area develops into \_\_\_\_\_\_\_\_\_ .
8. Maternal part of the placentome is called\_\_\_\_\_\_\_\_\_\_\_\_\_\_
9. Name the phenomemon: The optic vesicle and lens induce each other.
10. \_\_\_\_\_\_\_\_\_\_ homone is secreted by trophoblast cells of pre-embryo
11. Fill in the blank: GnRH 🡪 \_\_\_\_\_\_\_🡪Leydig cells 🡪 Testosterone
12. Phylogeny recapitulates\_\_\_\_\_\_\_\_\_\_
13. Era of mammals: \_\_\_\_\_\_\_\_\_
14. Evolution of horse exhibits transition from plantigrade to\_\_\_\_\_\_\_\_\_\_\_\_ foot
15. Premolars becoming successively molariform during evolution of horse is attributed to their transformation from browsers to \_\_\_\_\_\_\_\_\_\_

**PART B**

**Answer any FIVE of the following 5 X 5 = 25**

1. Explain the formation and role of primitive streak in chick embryo.
2. Explain the types of eggs based on distribution and quantity of yolk with suitable examples.
3. With a diagram explain the structure and functions of yolk sac in chick embryo.
4. a. Explain cortical changes during fertilization and its significance **(3m)**
5. Draw and label a implanting blastocyst **(2m)**
6. Name the evolutionary concept depicted in the following images using the hint

|  |  |  |
| --- | --- | --- |
| Image result for theory of use and disuse by lamarck | Image result for insect mouthparts | Related image |
| 1. Lamarck
 | 1. Homology
 | 1. Variation
 |
| Image result for natural selection peppered moth | Related image |
| 1. Industrial revolution
 | 1. Darwin
 |

1. Mention any four features of hominization. List three differences between Neanderthal and Cro-magnon man.
2. Explain potassium- argon method of radiometric dating and give reason why 40Ca is less useful as a geochronometer?

**PART C**

 **Answer any THREE of the following 3 X 10 = 30**

1. Why morphogenetic movements are called so? Explain their role during gastrulation in frog embryo.
2. Diagrammatically explain neurulation and mesogenesis in frog embryo.
3. a. State H-W Equilibriumand give reason why it cannot be achieved in a population. b. Explain how genetic drift and migration alter gene pool. **(3 + 7m)**
4. Define the term species. Explain the allopatric and sympatric modes of speciation.
5. With neat diagrams explain the histological changes in the endometrium during menstrual cycle and deliberate on the role of Hypothalamo-hypophyseal-ovarian axis.

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