

Reg. no.:

Date: 21-04-2018 ( 1pm )

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| **ST. JOSEPH’S COLLEGE (AUTONOMOUS), BANGALORE-27** |  |
| **B.Sc. ZOOLOGY - VI SEMESTER** |  |
| **SEMESTER EXAMINATION: APRIL 2018** |  |
| **ZO 6215- Developmental Biology and Evolution** |  |
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| **Time : 2 ½ Hours**  |  |  Max. Marks : 70 |
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| **This paper contains 2 printed pages and three parts** |  |

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

**Indicate the question numbers clearly.**

**PART A**

1. **Answer the following 1 X 15 = 15**
2. Biogenetic law was proposed by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
3. Embryogenesis refers to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_kind of reproduction
4. Asexual b. Sexual c. Parthenogenesis d. Both a & b
5. Spiral Cleavage is best studied in\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
6. Discoidal meroblastic cleavage is seen in\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
7. Alecithel b. Heavily macrolecithel c. Mesolecithel d. Microlecithel
8. Centrally located large blastocoel is seen in\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
9. Amphioxus b. Frog c. Chick d. Salamander
10. Convergence is exhibited by\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_cells during gastrulation.
11. Macromeres only b. Micromeres only c. Macro and micromeres d. None of them
12. Which part of the nucleo-protein imparts inducing action by organisers?
13. Nucleic acid b. Protein c. Both together d. Both alternate
14. Gonads develop from\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.mesoderm.
15. Splanchnic b. Somatic c. Both d. Dermatome
16. Hypermetabolism during pregnancy is induced by\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
17. hCG b. human Thyrotropin c. Relaxin d. Progesterone
18. Ovulation occurs on \_\_\_\_\_\_\_\_\_\_ day of menstrual cycle

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_is an example of analogous organs.
2. Golden age of reptiles is\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ era.
3. Merichippus has\_\_\_\_digits compared to equus with\_\_\_\_.
4. The Major trends in the evolution of horse were connected to feeding and locomotion (True /False)
5. Java man walked upright (true/false)

**PART B**

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

1. Draw and compare the features of an eccentric and discoidal blastula.
2. Differentiate between the three layers of albumin, their arrangement and significance in Hen’s egg.
3. Define placenta and differentiate between diffuse and cotyledonary types of placenta with examples.
4. Describe the changes in trophoblast during implantation of pre-embryo.
5. Mention the evolutionary principle involved in the following.

a. Loss of limbs in snakes

b. Sharp reduction in the population size due to environmental events

c. White eye in drosophila

d. Beak variation in Galapagos finches

1. Where in India were fossils of Ramapithecus discovered? Give two significant life skills possessed by Peking man and Cro-magnon.
2. Explain pre-zygotic isolating mechanisms.

**PART C**

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

1. Explain the events during gastrulation in chick embryo.
2. ‘Early newt gastrula cells are not committed to a specific fate’- Substantiate the statement based on heteroplastic transplantation experiment.
3. State Hardy-Weinberg law. Explain natural selection as an elementary force of evolution.
4. Define dating of fossils and explain three methods of dating fossils.
5. ‘Fertilization restores parental diploid configuration’. Explain the steps involved in accomplishing it.

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