

END TERM EXAMINATION, Dec-2020

Examination: B.Sc.-M.Sc. Integrated Program, Chemistry, Semester III

Paper No. and Title: BBT-GE03TH: DEVELOPMENTAL BIOLOGY

Time: 3 Hrs

Max Marks: 75

Note: Attempt questions from all sections as directed.

Question 1: Explain briefly the following terms [1×15 marks]

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|------------------------------|-----------------------|--------------------------|
| 1. Epigenesis | 2. Preformation | 3. Spermiogenesis |
| 4. Sperm-activating peptides | 5. Acrosome Reaction | 6. Polyspermy |
| 7. Cortical Granule Reaction | 8. Sperm Capacitation | 9. Mosaic Egg |
| 10. Meroblastic cleavage | 11. Stereoblastulae | 12. Syncytium |
| 13. Involution | 14. Somitogenesis | 15. Reciprocal Induction |

Question 2: Attempt any *one* of the following questions [15 marks]

A. Explain the process of gametogenesis. Tabulate the differences between spermatogenesis and oogenesis in detail

OR

B. Describe the steps that occur from sperm entry to zygote formation during internal fertilization in mammals?

Question 3: Attempt any *one* of the following questions [15 marks]

A. Considering Sea Urchin as a model organism, explain and draw the process of cleavage and gastrulation.

OR

B. How are fate maps generated and draw representative fate map of frog gastrula.

Question 4: Attempt any *one* of the following questions [15 marks]

A. Describe autonomous and conditional specification? What experiments by Hans Driesch established conditional specification

OR

B. Explain the stages regulating gene expression

Question 5: Attempt any *one* of the following questions [15 marks]

A. What is induction and competence? Explain the Spemann and Mangold experiment to determine induction and organisation.

OR

B. Explain the origin of Central and Peripheral Nervous system?