U.G. 2nd Semester Examination - 2020

Molecular Biology & Biotechnology

[HONOURS]

Course Code : MBTH/CC-202-T-CCR4

Full Marks : 40 Time : $2\frac{1}{2}$ Hours

The figures in the right-hand margin indicate marks.

Candidates are required to give their answers in their own words as far as practicable.

1. Answer any **five** questions: 2×5=10

   a) The pattern of embryonic cleavage particular to a species is determined by two major parameters. What are those?

   b) Define discoidal pattern of cleavage.

   c) What does the primitive streak define? What is primitive groove?

   d) The existence of the organizer was discovered by ——. The tissue on which an evacuator or inductor acts is called the ————-.

   e) What is Blastocyst?

   f) What does a Fate Map tell us? What is cytogeny or cell lineage study?

   g) Epigenetic change is a regular and natural occurrence. Explain.

   h) Mention the types of epigenetic modifications that always silences the gene and tightens or loosens the DNA coils.

   i) Neural fate is revealed by factors secreted by the dorsal mesoderm. Name the factors.

2. Answer any **two** questions: 5×2=10

   a) Describe the cortical reaction and the zona reaction.

   b) State the functions of Yolk. How does the distribution of Yolk influence the Cleavage?

   c) Write short notes on invagination and involution.

   d) Name the four extra-embryonic membranes. What is the function of allantois?

3. Answer any **two** questions : 10×2=20

   a) What is Neurulation? What are two major ways of forming a neural tube? What are MHP and DLHPs? 2+4+2+2

   b) Define Epigenetic Landscape. Conrad Waddington proposed the concept of an epigenetic landscape. Explain. 2+8

c) Name the layers that separate maternal and fetal blood. What are the two possible sources of chorionic vascularization in mammals? Explain choriovitelline placenta and chorioallantoic placenta. 4+2+4

d) What is Morphogen? Define Morphogenetic fields. Explain Thomas Hunt Morgan's principle in development of polarity in the organization of the hydra. 2+2+6

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