



# LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – ZOOLOGY

FIRST SEMESTER – NOVEMBER 2022

**PZO1MC02 – ADVANCED DEVELOPMENTAL BIOLOGY**

Date: 25-11-2022

Dept. No.

Max. : 100 Marks

Time: 01:00 PM - 04:00 PM

## SECTION A

Answer ALL the questions

1	Define the following	(5 x 1 = 5)	
a)	Pluripotent	K1	CO1
b)	Gap junction	K1	CO1
c)	Epigenetics	K1	CO1
d)	Blastocyst	K1	CO1
e)	Cloning	K1	CO1
2	Fill in the blanks	(5 x 1 = 5)	
a)	_____ is the process of moving cells or tissues from one part of the embryo to another, or to another embryo.	K2	CO1
b)	When Nanos proteins are injected on both the ends of the developing <i>Drosophila</i> larva _____ will be formed	K2	CO1
c)	Chick egg consists of high yolk content hence it undergoes _____ type of cleavage.	K2	CO1
d)	In down syndrome the accumulation of fluid at the back of the baby's neck is called _____	K2	CO1
e)	Regeneration of whole sponge body from new archaeocytes refers to _____	K2	CO1

## SECTION B

Answer any THREE of the following in 500 words

(3 x 10 = 30)

3	Explain specification with suitable examples.	K3	CO2
4	Describe the histone proteins and their role in stabilising chromatin structure.	K3	CO2
5	Choose any two invasive techniques of prenatal diagnosis and explain them.	K3	CO2
6	Explain how regeneration play a major role in invertebrates with suitable examples.	K3	CO2
7	Define infertility and highlight its causes due to anatomy.	K3	CO2

## SECTION C

Answer any TWO of the following in 500 words

(2 x 12.5 = 25)

8	Illustrate and explain the general models of pattern formation.	K4	CO3
9	Relate the migration of epiblast cells in the formation of trilaminar embryo.	K4	CO3
10	Estimate the elongation of cells leads to the development of lens in vertebrates with illustrations.	K4	CO3
11	Analyse the role of hormones in relation to insect metamorphosis.	K4	CO3

**SECTION D****Answer any ONE of the following in 1000 words****(1 x 15 = 15)**

12	'Model organisms are vital tool in developmental biology.' Justify.	K5	CO4
13	Assess the role of maternal determinants in axis formation in <i>C. elegans</i>	K5	CO4

**SECTION E****Answer any ONE of the following in 1000 words****(1 x 20 = 20)**

14	Infer how Infertility can be corrected by ART.	K6	CO5
15	'Cloning is a boon or bane.' Justify based on the ethical and medical implications.	K6	CO5

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