Total No. of Questions: 25

Enrollment No : _____

MEDICAPS UNIVERSITY

Faculty of Science

End Semester Examination May 2025

BT3GE02 Developmental Biology

Programme	:	B.Sc.	**Branch/Specialisation**	:	BT
Duration	:	3 hours	**Maximum Marks**	:	60

Note: *All questions are compulsory. Internal choices, if any, are indicated. Assume suitable data if necessary. Notations and symbols have their usual meaning.*

Section 1 (Answer all question(s))

		Marks	CO	BL
Q1.	In animal cells typically which organelle is only provided by the sperm to the oocytes following fertilization? ○ Nucleolus ○ Peroxisomes ○ Mitochondria ◉ Centrioles	1	1	1
Q2.	The onset of oogenesis occurs during- ○ Puberty ○ Birth ○ Adulthood ◉ Embryonic development	1	1	1
Q3.	The process in which the three germ layers form is called- ○ Fertilization ○ Cleavage ◉ Gastrulation ○ Organogenesis	1	1	1
Q4.	What is the single cell called that is a result of fertilization? ○ Zygote ○ Morula ◉ Blastula ○ Embryo	1	1	1
Q5.	What is the association between obesity and epigenetic age? ◉ There is no association between obesity and epigenetic age ○ Epigenetic age is higher among people with obesity ○ Epigenetic age is lower among people with obesity ○ None of the Above	1	1	1
Q6.	What are the two types of embryonic induction? ○ Early and Late embryonic induction ○ Simple and complex embryonic induction ◉ Primary and secondary embryonic induction ○ Octal embryonic induction	1	1	1
Q7.	The extra embryonic membranes of the mammalian embryo are derived from- ◉ Trophoblast ○ Inner cell mass ○ Formative cells ○ Follicle Cells	1	1	1
Q8.	Which of the following hormone is not produce by placenta? ○ hCG ○ hPL ◉ Androgens ○ Estrogen	1	1	1
Q9.	The development of eye in vertebrate embryology is studied under- ○ Notogenesis ○ Neurogenesis ○ Mesogenesis ◉ Organogenesis	1	1	1

Q10. The process which begins after the fertilization is known as- **1 1 1**

- (•) Cleavage
- ( ) Spermiogenesis
- ( ) Organogenesis
- ( ) Embryogenesis

Section 2 (Answer any 2 question(s))

Marks CO BL

Q11. Explain the process of Gametogenesis. **5 2 2**

Rubric	Marks
process of Gametogenesis.	3
Diagram	2

Q12. Define fertilization. Explain different type of eggs on the basis of yolk. **5 2 2**

Rubric	Marks
Fertilization definition	2
different type of eggs on the basis of yolk	3

Q13. Write briefly on history of developmental biology. **5 2 2**

Rubric	Marks
History with development	5

Section 3 (Answer any 2 question(s))

Marks CO BL

Q14. Explain the formation and differentiation of primary germ layers. **5 2 2**

Rubric	Marks
Formation primary germ layers.	2.5
Differentiation of primary germ layers.	2.5

Q15. Define cleavage. Explain different type of cleavage with example. **5 2 2**

Rubric	Marks
Cleavage Definition	2
Explanation of different type of cleavage with example	3

Q16. Write a detailed note on gastrulation. **5 2 2**

Rubric	Marks
Gastrulation process	3
Diagram	2

Section 4 (Answer any 2 question(s))

Marks CO BL

Q17. Define embryonic induction and explain different type of embryonic induction. **5 2 2**

Rubric	Marks
Embryonic induction definition	2
Explanation of different type of embryonic induction.	3

Q18. Explain epigenetic landscape model. **5 2 2**

Rubric	Marks
Explanation of epigenetic landscape model.	3
Diagram	2

Q19. Write a note on Neural induction. **5 2 2**

Rubric	Marks
Neural induction introduction	2
Explanation with example	3

Section 5 (Answer any 2 question(s))

Marks CO BL

Q20. Explain the role and development of placenta in mammals. **5 2 2**

Rubric	Marks
Explanation of role of placenta in mammals	3
Development of placenta in mammals	2

Q21. Write a note on notogenesis. **5 2 2**

Rubric	Marks
Notogenesis	5

Q22. Write a note on constancy and plasticity. **5 2 2**

Rubric	Marks
Constancy	2.5
Plasticity.	2.5

Section 6 (Answer any 2 question(s))

Marks CO BL

Q23. Describe the role of vitamins and minerals in embryonic development. **5 2 2**

Rubric	Marks
Role of vitamins and minerals in embryonic development	5

Q24. Write a note on genetic and biochemical factors affecting embryonic development. **5 2 2**

Rubric	Marks
Genetic factors affecting embryonic development	2.5
Biochemical factors affecting embryonic development	2.5

Q25. Write a note on Neurulation. **5 2 2**

Rubric	Marks
Neurulation.	5

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