

**B.Sc. 6th Semester (Honours) Examination, 2025 (CBCS)**

**Subject : Zoology**

**Course : CC-XIII**

**(Developmental Biology)**

**Time: 2 Hours**

**Full Marks: 40**

*The figures in the margin indicate full marks.*

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

**Group – A**

1. Answer *any five* of the following questions: 2×5=10
- (a) What do you understand by embryology and development biology?
  - (b) What is competence in cell fate determination?
  - (c) What do you mean by mid-blastula transition?
  - (d) Differentiate between radial and spiral cleavage.
  - (e) Why is teratogen named so?
  - (f) Why acrosome and cortical granules are called homologous?
  - (g) What is zonary placenta? Give an example.
  - (h) Distinguish between epimorphosis and morphallaxis.

**Group – B**

2. Answer *any two* of the following questions: 5×2=10
- (a) Why the diplotene stage of oogenic meiosis is called dictyate resting stage? Mention the significance of this stage. Comment on spermiogenesis. 1+2+2
  - (b) What is *in vitro* fertilization? Describe different steps of *in vitro* fertilization. 1+4
  - (c) Why is the dorsal lip of blastopore of an amphibian embryo called organizer? State the role of grey crescent cytoplasm in imparting organizer functions to this structure. 1+4
  - (d) Briefly discuss on implantation of human embryo. 5

**Group – C**

3. Answer *any two* of the following questions: 10×2=20
- (a) Justify that Inner Cell Mass (ICM) is a mass of pluripotent cells. Critically discuss the therapeutic potentiality of ICM. Add a note on amniocentesis. 2+5+3

- (b) Elaborate the dynamics of retinal development of any vertebrate with labelled diagrams. Differentiate between homotypic exogenous induction and heterotypic exogenous induction in optic development. (5+3)+2
- (c) Define gastrulation. How is the primitive streak formed and take part in cellular movement during gastrulation of chick embryo? 2+4+4
- (d) What is polyspermy? Explain the mechanisms that prevent polyspermy in animals. 1+9
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