

Total number of printed pages-4

**3 (Sem-6/CBCS) ZOO HC 1**

**2023**

**ZOOLOGY**

(Honours Core)

Paper : ZOO-HC-6016

**( Developmental Biology )**

Full Marks : 60

Time : Three hours

**The figures in the margin indicate full marks for the questions.**

1. Choose the correct answer of the following :  
1×7=7

(a) In humans, fertilization occurs in

- (i) vagina
- (ii) ovary
- (iii) fallopian tube
- (iv) uterus

*Contd.*

- (b) Meroblastic cleavage is also known as
- partial
  - unequal holoblastic
  - equal holoblastic
  - superficial
- (c) Mesoderm gives rise to all the structures except
- gonads
  - circulatory system
  - nervous system
  - muscular system
- (d) In mammalian development, the embryo will form from
- the blastocyst
  - the inner cell mass
  - the trophoctoderm
  - the blastocoel
- (e) The process by which extracellular messages translate into intracellular changes is termed as
- cell signalling
  - cell adhesion
  - signal transduction
  - cell transformation

- (f) In mammalian sperm, spirally arranged mitochondria are present in
- head portion
  - end piece of the tail
  - middle piece
  - principal piece of the tail
- (g) In mammalian gonads, germ cells are produced by
- only mitosis
  - only meiosis
  - Both mitosis and meiosis
  - Without mitosis and meiosis

2. Write short notes on : 2×4=8
- Pluripotent cells
  - Amphiblastula
  - Radial cleavage
  - Importance of fate map
3. Answer **any three** of the following : 5×3=15
- Describe the process of pattern formation.
  - Application of Amniocentesis
  - Describe the regional specificity of induction.
  - Describe the process of construction of fate map by natural marking.



(e) Classify stem cells based on differentiation potential.

4. (a) What is cell-cell interaction ? Describe stable cell interactions with labelled diagram.  $1+9=10$

**Or**

(b) What is the importance of asymmetric segregation of cellular determinants ? Describe the process with diagram.  $2+8=10$

5. (a) Describe the process of gastrulation in chick embryo development with diagram.  $6+4=10$

**Or**

(b) Describe the process of complete metamorphosis in insect. Write the role of hormone involved in insect metamorphosis.  $5+5=10$

6. (a) Describe the structure of human placenta with diagram. Mention the functions of placenta.  $6+4=10$

**Or**

(b) Describe the process of Morphallactic regeneration in Hydra with diagram.  $8+2=10$