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

(i) partial

(ii) unequal holoblastic

(iii) equal holoblastic

(iv) superficial

(c) Mesoderm gives rise to all the structures except

(i) gonads

(ii) circulatory system

(iii) nervous system

(iv) muscular system

(d) In mammalian development, the embryo will form from

(i) the blastocyst

(ii) the inner cell mass

(iii) the trophectoderm

(iv) the blastocoel

(e) The process by which extracellular messages translate into intracellular changes is termed as

(i) cell signalling

(ii) cell adhesion

(iii) signal transduction

(iv) cell transformation

(f) In mammalian sperm, spirally arranged mitochondria are present in

(i) head portion

(ii) end piece of the tail

(iii) middle piece

(iv) principal piece of the tail

(g) In mammalian gonads, germ cells are produced by

(i) only mitosis

(ii) only meiosis

(iii) Both mitosis and meiosis

(iv) Without mitosis and meiosis

2. Write short notes on : 2×4=8

(a) Pluripotent cells

(b) Amphiblastula

(c) Radial cleavage

(d) Importance of fate map

3. Answer ***any three*** of the following : 5×3=15

(a) Describe the process of pattern formation.

(b) Application of Amniocentesis

(c) Describe the regional specificity of induction.

(d) 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
