Total number of printed pages–7

63/1 (SEM–6) CC13/ZOOHC6136

2024

ZOOLOGY

Paper : ZOOHC6136

(Developmental Biology)

Full Marks : 60

Pass Marks : 24

Time : Three hours

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

1. Choose the correct answer from the following ***(any five)*** : 1×5=5

   (a) The gradual growth through a series of progressive changes is called

   (i) Cleavage

   (ii) Blastula

   (iii) Development

   (iv) Transduction

Contd.

(b) Spermiogenesis Changes

(i) Spermatogonium to primary spermatocyte

(ii) Primary Spermatocyte to secondary spermatocyte

(iii) Secondary spermatocyte to spermatid

(iv) Spermatid to mature sperm

(c) Which cells of the testis provide nourishment to spermatozoa ?

(i) Interstitial cells

(ii) Spermatogonia

(iii) Sertoli cells

(iv) Leydig cells

(d) The correct sequence of the process of development after fertilization is

(i) Cleavage → Gastrulation → Blastulation → Development

(ii) Cleavage → Gastrulation → Organogenesis → Growth

(iii) Organogenesis → Morulation → Cleavage → Implantation

(iv) Gastrulation → Morulation → Blastulation → Growth

(e) The hormone which is not produced by the placenta

(i) Tri-iodothyronine

(ii) Progesterone

(iii) Chorionic gonadotropin

(iv) Estrogens

(f) Morula is an embryonic developmental stage which is formed

(i) Between blastocyst and Gastrula

(ii) Between Zygote and Blastocyst

(iii) Between Gastrula and Fertilization

(iv) Between Implantation and Parturition

(g) The organ that acts as the organ of nutrient, waste and gas exchange between mother and the developing offspring is

(i) Heart

(ii) Lungs

(iii) Placenta

(iv) Nerve

(h) The hormone that regulates gene expression during molting of insects is

(i) 20-hydroxyecdysone

(ii) Progesterone

(iii) Juvenile hormone

(iv) Thyroxine

(i) The part of the oviduct where fertilization of the ovum takes place is

(i) Fimbriae of oviduct

(ii) Isthmus of oviduct

(iii) Ampulla of oviduct

(iv) Any region of oviduct

(j) During oogenesis, the first primary oocyte arrest occurs at which stage ?

(i) Prophase

(ii) Metaphase

(iii) Anaphase

(iv) Telophase

2. Write short notes on ***any five*** of the following : 2×5=10

(a) Cell-Cell interaction

(b) Organogenesis

(c) Gametogenesis

(d) Bilateral Cleavage

(e) Regeneration during the embryonic development

(f) Zona Pellucida

(g) Amniocentesis

3. Write answer on ***any five*** of the following: 5×5=25

(a) Spermiogenesis

(b) Differentiation and growth

(c) Cytoplasmic determinants

(d) Implantation of human embryo

(e) Planes of Cleavage

(f) Fate map

(g) Teratogenesis and its causes

(h) Egg membranes and their functions

(i) Embryonic induction

4. Answer the following questions : ***(any two)*** 10×2=20

(a) What do you mean by fertilization ? Describe the process of fertilization in mammal.

(b) What is extra-embryonic membrane of a bird ? Describe the various functions of extra-embryonic membrances.

(c) Describe the different types of eggs with suitable diagrams.

(d) Write the structure, types and function of placenta in human.
