This question paper contains 3 printed pages]

Roll No. | | | | | | | | | | | |

S. No. of Question Paper : **890**

Unique Paper Code : **223505** **G**

Name of the Paper : **Developmental Biology-ZOHT-509**

Name of the Course : **B.Sc. (Hons.) Zoology**

Semester : **V**

Duration : **3 Hours** Maximum Marks : **75**

(Write your Roll No. on the top immediately on receipt of this question paper.)

Attempt *five* questions in all.

Question No. **1** is compulsory.

1. (*a*) Define the following terms : 5

   (*i*) Imaginal disc

   (*ii*) Discoidal cleavage

   (*iii*) Delamination

   (*iv*) Heterolecithal egg

   (*v*) Dauer larva.

   (*b*) Distinguish between the following : 6

   (*i*) Hemimetabolous development and Holometabolous development

   (*ii*) Cytotrophoblast and Syncytiotrophoblast

   (*iii*) Sertoli cells and Follicular cells.

   (*c*) Fill in the blanks with suitable words : 3

   (*i*) Fertilization potential represents ..... block to polyspermy.

   (*ii*) Remodeling of the chromatin during spermatogenesis is a process in which histones are replaced by ..... .

   (*iii*) Accumulation of chalones in tissues results in ..... .

P.T.O.

(*d*) Expand the following abbreviations : 4

(*i*) FAS

(*ii*) GVBD

(*iii*) ICM

(*iv*) ART.

(*e*) Match the following : 3

(*i*) Waddington	(*a*) Fate map of Tunicates
(*ii*) Chalaza	(*b*) Competence
(*iii*) E.G. Conklin	(*c*) Metamorphosis
(*iv*) John Gurdon	(*d*) Chick Embryo
(*v*) Gudernatsch	(*e*) Nowak
(*vi*) Thalidomide	(*f*) Nuclear Transplantation

(*f*) Name the germ layers from which the following are derived : 3

(*i*) Testis

(*ii*) Coelom

(*iii*) Enamel

(*iv*) Parathyroid

(*v*) Spinal cord

(*vi*) Liver.

(*g*) Write the location and function of the following : 3

(*i*) Koller's sickle

(*ii*) Archenteron

(*iii*) Bindin.

2. (*a*) Discuss the various methods employed in the construction of fate maps. Add a note on its significance. 7

(*b*) Explain embryonic induction and enumerate the functions of Primary organizer. 5

3. (*a*) Define morphogenetic movements. Describe its various types with reference to frog gastrulation. 6

(*b*) What is the role of primitive streak in chick gastrulation ? 3

(*c*) How is gray crescent formed in frog embryo ? 3

4. (*a*) Outline the various phases of the period of growth during Oogenesis and mention its importance in embryonic development. 5

(*b*) Discuss the changes that take place during the three main phases of amphibian metamorphosis. Explain the hormonal control in each one of them. 7

5. (*a*) With the help of suitable diagrams describe various types of placenta on histological basis. 6

(*b*) Explain the genetically regulated aging pathway in *C. elegans*. 4

(*c*) What do you understand by the 'second line' regenerative ability of mammalian liver ? 2

6. (*a*) Illustrate the development of amnion and allantois in chick with suitable diagrams and discuss their functions. 6

(*b*) Elaborate on the basic steps involved in IVF. Add a note on Amniocentesis. 6

7. Write short notes on any *three* of the following : 4×3

(*a*) Primary neurulation in vertebrates

(*b*) Spermiogenesis

(*c*) Regeneration of Salamander limb

(*d*) Acrosome reaction

(*e*) Pathogenic Teratogens.