This question paper contains **4** printed pages]

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

S. No. of Question Paper : **2420**

Unique Paper Code : **2231802** **F-4**

Name of the Paper : **Foundations of Developmental Biology**

Name of the Course : **B.Sc. (Hons) Biomedical Sciences : Allied Course**

Semester : **IV**

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 including

Quesetion No. **1** which is compulsory.

Draw suitable well labelled diagrams wherever necessary.

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

   (*i*) Zona pellucida

   (*ii*) Totipotency

   (*iii*) Archenteron

   (*iv*) Blastema

   (*v*) Trophoblast

   (*b*) Differentiate between the following : 6

   (*i*) Blastomere and Blastopore

   (*ii*) Area pellucida and Area opaca

   (*iii*) Invagination and Ingression

(*c*) Expand the following :

(*i*) FAS

(*ii*) ASC

(*iii*) FGF

(*iv*) NIMZ.

(*d*) Match the following : 3

(*i*) Spallanzani	(*a*) Metamorphosis
(*ii*) Vogt	(*b*) Induction
(*iii*) Lenz and Mc Bride	(*c*) Preformation
(*iv*) Gudernatsch	(*d*) Fate map
(*v*) Hans Spemann	(*e*) Regeneration
(*vi*) Malpighi	(*f*) Phocomelia

(*e*) State whether the following statements are True *or* False : 3

(*i*) In mammals, release of secondary oocyte takes place during ovulation.

(*ii*) Trophoblast contributes to the formation of embryo in mammalian embryogenesis.

(*iii*) Gray crescent is a part of primitive streak.

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

(*i*) Adrenal cortex

(*ii*) Brain

(*iii*) Lung

(*iv*) Ovary

(*v*) Epidermis

(*vi*) Intestine.

(*g*) Answer the following : 3

(*i*) Give an example of biochemical change during frog metamorphosis.

(*ii*) Specify *two* stages of meiotic arrests that occur during Oogenesis.

(*iii*) What is the significance of Cleavage in animal development.

2. (*a*) What is placenta ? Describe different types of placenta on the basis of its histology. 8

(*b*) Explain acrosomal reaction in Sea-urchin. 4

3. (*a*) Differentiate between Monospermy and Polyspermy. Discuss the processes involved in blocking polyspermy. 8

(*b*) Describe the formation of primitive streak in chick embryo. 4

4. (*a*) Why does the embryological period between weeks 3 and 8 exhibit maximum susceptibility to teratogen ? 2

(*b*) Describe the effect of teratogens on the development of an embryo. 7

(*c*) Differentiate between Isometric growth and Allometric growth. 3

P.T.O.

5. (*a*) Illustrate the process of spermiogenesis with the help of necessary diagrams. 5

(*b*) Describe the development of amnion and chorion in chick and their functions. 7

6. (*a*) Summarise the metamorphic changes and their hormonal regulation during different phases of metamorphosis in frog. 7

(*b*) What is embryonic induction ? Explain. 5

7. Write short notes on any *three* of the following 4,4,4

(*a*) Types of eggs

(*b*) Patterns of cleavage

(*c*) Fate maps

(*d*) Regeneration therapy

(*e*) Morphallaxis.