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# ZOO 102
# a) Cell and Developmental Biology (New)
# (151502)

**P. Pages : 2**

***Time : Three Hours*** ***Max. Marks : 60***

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Instructions to Candidates :

1. Do not write anything on question paper except Seat No.
2. Graph or diagram should be drawn with the black ink pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. Figures to right indicates full marks.
5. All questions are compulsory.

**1.** a) *Select and write the appropriate answer from given options.* **6**

i) A process by which solvent molecules pass through a semipermeable membrane from less concentration into a more concentration is called ———.
   a) Diffusion b) Osmosis
   c) Reverse Osmosis d) Passive transport

ii) Cytoskeleton is made up of ——— present in the cell.
   a) Microtubules b) Actin filament
   c) Intermediate filaments d) All of these

iii) Cyclin dependent kinases (CDKs) play role in regulation of ———.
   a) Cell cycle b) Cell death
   c) Cell aggregation d) Cell ageing

iv) One of the core processor of developmental biology is the non uniform distribution of a substance called ——— to govern pattern of tissue development.
   a) Oncogene b) Transgene
   c) Monohagen d) Jumping gene

v) Sperm-egg recognition in animals is mainly due to interaction of ———.
   a) Fertilin & integrin b) Fertilin & Lactin
   c) Lactin & integrin d) None of these

vi) The first cleavage plane normally splits —— equally into two blastomeres.
   a) Blastopore b) Grey Crescent
   c) Area pellucida d) Amnion

b) Define/ Explain the following. 6

i) Blastocoel.

ii) Go stage.

iii) Potency.

2. Attempt **any two** of the following. 12

a) Describe structure and functions of mitochondria.

b) Explain signal transduction pathway using glucagon as signaling molecules.

c) Describe the process of differentiation of neurons.

3. Attempt **any two** of the following. 12

a) Explain any two models of plasma membrane.

b) Describe steps involved in cell cycle.

c) Explain the concept of cell fate and cell lineage.

4. Attempt **any two** of the following. 12

a) Define apoptosis. Explain the process of apoptosis.

b) What is gastrulation? Describe the steps involved in formation of double layered embryo.

c) Describe the pattern of axis formation in Drosophila.

5. Write short note of **any two** of the following. 12

a) Cell aggregation in Dictyostelium.

b) Gametogenesis.

c) Regeneration in invertebrates.

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