



Total No. of Questions: 5/33

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SECOND YEAR
BIO2411:DEVELOPMENTAL BIOLOGY
(Semester IV)

Program:Biotechnology(04)
Program Specific: Biotechnology
Course Type: Core
Paper:

Credits: 4
Time: 3 Hours
Max. Marks: 60
SET: A

Instructions to the candidate:

- 1) All questions are compulsory.
- 2) Figures to the right indicate full marks.
- 3) Draw a well labelled diagram wherever necessary.

SECTION: A

Q1) Answer the following

[1 X 10 =10]

1. Define embryology.
2. Mention two examples of megalecithal eggs.
3. Zebra fish is a good model organism. Justify.
4. Define neurulation.
5. What is epiboly?
6. Define dedifferentiation with respect to animal development.
7. What are phytomeres?
8. State the role of synergid cells.
9. What are homeobox genes in plants?
10. Define meristem.

SECTION: B

Q2) Answer the following (Attempt any 5/7)

[5 X 2 = 10]

1. Explain fate map.
2. What is vitellogenesis?
3. Comment on different types of cleavages according to the distribution of yolk.
4. Enlist genes involved in development of RAM.
5. Mention any two post fertilization changes in plants.
6. State any two hormones responsible for leaf size.
7. Draw any two types of ovules with examples.

SECTION: C

Q3) Answer the following (Attempt any 5/7)

[5 X 3 = 15]

1. Comment on any two theories of ageing.
2. Explain teratogenesis with examples.
3. Discuss progenitor cells.
4. Elaborate on the concept of cell lineage.
5. Describe competence, determination and commitment with respect to plant.
6. What is phyllotaxy? Explain with two examples.
7. Compare and contrast between phytochrome versus cryptochrome.

SECTION: D

Q4) Answer the following (Attempt any 3/5)

[3 X 5 = 15]

1. With the help of a well-labeled diagram explain the process of fertilization in mammals.
2. Describe the role of maternal effect genes in *Drosophila* patterning.
3. Discuss ABC model of flower patterning.
4. Explain any 4 modes of seed dispersal and give its significance.
5. Elaborate on dicot embryo development.

SECTION: E

Q5) Answer the following (Attempt any 2/4)

[2 X 5 = 10]

1. Describe gastrulation in amphibians.
2. Illustrate diagrammatically the process of spermeiogenesis.
3. Elaborate on limb regeneration with respect to dedifferentiation and redifferentiation.
4. Explain diagrammatically process of development of a functional megaspore.
