



Name :

Roll No. :

Invigilator's Signature :

CS/M.Sc. (GE)/SEM-3/MSGEN (MBT)-304-B/2010-11

2010-11

HUMAN DEVELOPMENTAL GENETICS

Time Allotted : $1\frac{1}{2}$ Hours

Full Marks : 35

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *five* of the following :

5 × 1 = 5

i) In order to function, Hedgehog protein must become complexed with a molecule of

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|----------------|-------------------|
| a) cholesterol | b) alcohol |
| c) benzene | d) none of these. |

ii) In mammals, the homologues of the CED-9 protein of nematode are members of

- | | |
|-------------------|--------------------|
| a) the Bax family | b) the Bcl2 family |
| c) the Bid family | d) none of these. |



GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

2. What is CASPASE ? Apoptosis is an evolutionary conserved process. Justify the statement.
3. Write short note on 'canonical' Wnt pathway.
4. With appropriate example describe the use of genetic markers in fate map studies.
5. Write a short note on 'teratogenesis'.
6. How are developmental anomalies caused by 'genetic mutation' ? Describe with an example from 'Piebaldism'.

GROUP – C

(Long Answer Type Questions)

Answer any *one* of the following. $1 \times 15 = 15$

7. In which pathway the TGF- β ligand binds to a type-II and then type-I TGF- β receptor respectively ? Describe the pathway with diagram. Draw the diagrams only to state the following events :
 - a) In the absence of hedgehog binding to patched
 - b) When hedgehog binds to patched. $1 + 8 + 3 + 3$
8. What are the causes of aging ? Describe briefly about three important factors of aging with examples. $3 + (3 \times 4)$

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