BRAINWARE UNIVERSITY

Term End Examination 2022
Programme – B.Sc.(BT)-Hons-2018
Course Name – Developmental Biology
Course Code - BBTH010501
(Semester I)

Full Marks : 70 **Time : 3:0 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question) 1 x 15=15

1. *Choose the correct alternative from the following :*

(i) Cell junction is abundant in _____

a) Hepatic cells
b) Cardiac cells
c) Epithelial cells
d) Prokaryotic cells

(ii) State, In the regulation of gene expression, this is an incorrect statement

a) in the bacteria, it permits to replicate with no control
b) in the bacteria, it permits to adapt to changing environments
c) permits the maintenance of homeostasis in multicellular entities
d) permits the functioning of multicellular entities on the whole

(iii) Predict which of the following does not carried by placenta from mother to foetus?

a) Oxygen
b) Carbondioxide
c) Glucose
d) Antibodies

(iv) Deduce the fate of a cell depends on

a) on its potency and its environment
b) on its potency only
c) on its environment only
d) none of the above

(v) interpret the ability of cells, to achieve their respective fate of differentiation by interaction with other cells is known as

a) Inductive determination
b) Facultative differentiation
c) Autonomous specification
d) Conditional specification

(vi) Define In 4 cells stage of fog embryo, one blastomere separates and allows to develop it will _____ ?

a) Not develop as separated from other blastomeres
b) It will develop as each blastomere is capable of regulate its development
c) Half embryo will form, as other nuclear determinants are present in other blastomeres.
d) Develop in mosaic pattern

(vii) Evaluate if prospective neural ectoderm of late gastrulae transplanted to prospective skin ectoderm region of other gastrula it give rise to _____, as cells become _?

a) Neural plate, committed
b) Epidermis, committed

c) Neural plate, Determined d) Epidermis, Determined

(viii) Explain the ability of the cell or tissue to respond to a specific induction signal is known as

a) Competence b) Equivalence group
c) Receptor d) Potency

(ix) Explain which property of Embryonic stem cells proposed them to be employed as useful tools for both research and regenerative medicine ?

a) Embryonic stem cells are widely circulated by the blood b) Embryonic stem cells can only be grown in a test tube
c) Embryonic stem cells are totipotent d) Embryonic stem cells are capable of propagating themselves indefinitely

(x) Estimate cells differentiation is important because _____.

a) different functions require different structures b) it creates diversity on Earth
c) it creates diversity within your body d) all choices are correct

(xi) Identify in autonomous specification; the blastomere contains

a) Pattern information b) Positional information
c) Signal for concentration gradient d) Competence to induce from neighboring cells

(xii) State nuclear determinants are also called as

a) Inducers b) Organizers
c) Morphogens d) Maternal genes

(xiii) Select the type of cells that secondary oocyte divides in oogenesis.

a) Ovum and first polar body b) Ovum and second polar body
c) First polar body and second polar body d) Primary oocyte and second polar body

(xiv) Predict the stage where oocyte released from the ovary

a) Primary oocyte b) Secondary oocyte
c) Tertiary oocyte d) Ovum

(xv) Identify the gap junction in nerves called?

a) Chemical synapse b) Electrical synapse
c) Post synapse d) Pre synapse

Group-B

(Short Answer Type Questions) 3 x 5=15

2. Explain epimorphosis with an example (3)
3. Write the types of eggs present on the basis of embryonic development (3)
4. Devise the role of embryonic stem cells in research and development. (3)
5. Infer the major potential teratogens that affect embryonic development. (3)
6. Indicate how cell to cell interaction can effect developmental stages (3)

OR

Indicate the functions of an egg membrane in developmental biology (3)

Group-C

(Long Answer Type Questions) 5 x 8=40

7. Summarize embryonic induction and its types (5)
8. Determine various phases of development in developmental biology (5)
9. Explain the development of eye in vertebrates (5)
10. Discriminate between epimorphosis, morphallaxis and compensatory regeneration (with one example each) (5)
11. What are extraembryonic membranes? Explain the different types of extraembryonic membranes of birds and their functions. (5)
12. Summarize the various stages of chick development including gastrulation (5)
13. Explain the various stages of embryonic development of a human being (5)

14. Describe in brief the structure and function of placenta. (5)

OR

Discuss the fate of three germ layers in embryonic development. (5)

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