

BZYCT-133

ASSIGNMENT BOOKLET

Bachelor's Degree Programme

(BSCG)

**(COMPARATIVE ANATOMY AND DEVELOPMENTAL BIOLOGY
OF VERTEBRATES)**

Valid from 1st January, 2021 to 31st December, 2021



**School of Sciences
Indira Gandhi National Open University
Maidan Garhi
New Delhi-110068
(2021)**

Dear Student,

Please read the section on assignments in the Programme Guide for Core Courses that we sent you after your enrolment. A weightage of 30 per cent, as you are aware, has been earmarked for continuous evaluation, **which would consist of one tutor-marked assignment** for this course. The assignment is in this booklet, and it consists of three parts, Part A, B and C. The total marks of all the parts are 100, of which 35% are needed to pass it.

Instructions for Formatting Your Assignments

Before attempting the assignment please read the following instructions carefully:

- 1) On top of the first page of your answer sheet, please write the details exactly in the following format:

ROLL NO.:

NAME:

ADDRESS:

.....

.....

COURSE CODE:

COURSE TITLE:

ASSIGNMENT NO.:

STUDY CENTRE: **DATE:**

PLEASE FOLLOW THE ABOVE FORMAT STRICTLY TO FACILITATE EVALUATION AND TO AVOID DELAY.

- 2) Use only foolscap size writing paper (but not of very thin variety) for writing your answers.
- 3) Leave 4 cm margin on the left, top and bottom of your answer sheet.
- 4) Your answers should be precise.
- 5) Complete each of Part A, Part B and Part C of this assignment separately, and **submit them together.**
- 6) The assignment answer sheets are to be submitted to your Study Centre as per the schedule made by the study centre. **Answer sheets received after the due date shall not be accepted.**

We strongly suggest that you retain a copy of your answer sheets.

- 7) This assignment is **valid from 1st January, 2021 to 31st December, 2021.** If you have failed in this assignment or fail to submit it by 31st December, 2021, then you need to get the assignment for the year 2022, and submit it as per the instructions given in the Programme Guide.
- 8) **You cannot fill the exam form for this course** till you have submitted this assignment.

We wish you good luck.

ASSIGNMENT
COMPARATIVE ANATOMY AND DEVELOPMENTAL BIOLOGY
OF VERTEBRATES

Course Code: BZYCT-133
Assignment Code: BZYCT-133/TMA/2021
Maximum Marks: 100

Note: Attempt all questions. The marks for each question are indicated against it.

Part-A

Maximum Marks: 50

1. i) a) Which are the four successive layers present in the integument of mammals? (1)
- b) Which muscle is attached to the hair follicle of human beings and makes hair stand erect? (1)
- ii) Names of some bones are given in column A and the part of the skeleton in which these bones occur in column B. Match them. (5)

Column A

- a) Parietal
- b) Vomer
- c) Maxilla
- d) Clavicle
- e) Pubis

Column B

- i) Pectoral girdle
- ii) Cranium
- iii) Olfactory capsule
- iv) Upper jaw
- v) Pelvic girdle

- iii) Fill in the blank spaces with appropriate words from the text. (3)
- i) Majority of _____ use ciliated surface to produce currents that can draw drifting food particles into their mouth.
 - ii) Fangs are either equipped with _____ which guides the _____ or are hollow, very much like a _____ needle.
 - iii) Raptorial birds capture prey with their _____ or _____.
2. How is the respiratory system of birds modified to meet their high oxygen requirement? How is it different from the respiratory system of mammals? (10)
3. Answer the following questions in short. (10)
- i) What are the three sets of paired veins present in the early embryonic stage of vertebrates?
 - ii) What are the veins in fishes that bring blood from the fins?
 - iii) What is the fate of lateral abdominal veins in teleosts and lung fishes?
 - iv) What are precaval veins?
 - v) Why are large cutaneous veins present in amphibians?

4. i) Write short notes on: (5)
- (a) Kidney blood circulation
 - (b) Types of mammalian uteri.
- ii) Name the flexures and their position, that are present in vertebrate central nervous system. (5)
5. Give a comparative account of thyroid of vertebrates. (10)

Part-B

Maximum Marks: 50

6. i) Write 'T' for true statement and 'F' for false statement: (4)
- a) Embryo is not a living entity. It becomes alive at the moment of hatching or birth as the case may be. []
 - b) Different embryonic stages are the different phenotypic expressions of the same genome at various stages of embryonic development. []
 - c) Morphogenesis is the basic developmental process that is most dependent on cell movement. []
 - d) The amount of yolk in the egg may determine the events of hatching or birth. []
- ii) Fill in the blanks with suitable words. (6)
- a) is the extension of egg cytoplasm around the entering sperm head.
 - b) Inhibitor of microfilament formation such as prevents the formation of fertilization cone.
 - c) The early response for the entry of sperm into the egg is prevention of
 - d) The for polyspermy is mediated by the electrical depolarization of egg plasma membrane.
 - e) The slow block to polyspermy is achieved by reaction.
 - f) is the fusion nucleus of female and male pronuclei.
7. List at least three stages in gene expression that can be regulated to result in differentiated cell types? Explain any one of them with the help of an example. (10)
8. Describe the process of neurulation in frog. (10)
9. Define the following terms: (10)
- a) Blastoderm
 - b) Morphogenetic movements
 - c) Fate maps
 - d) Epiblast
 - e) Inner cell mass

10. i) Draw a flow chart to show how the three germinal layers are derived from the zygote. (5)
- ii) What is a signal transduction pathway? Write out its step in the order they would occur in a target cell. (5)