

PhD BOTANY
COURSE WORK EXAMINATION - 2022
PAPER CODE: PHBO 103
PAPER TITLE: ENVIRONMENTAL AND DEVELOPMENTAL
BOTANY

Time: Three Hours

Maximum Marks: 100

Attempt ALL questions. All parts of a question must be attempted in continuation. Answer each question on a new page. Cite examples and draw labelled diagrams wherever necessary.

Q I. Answer any TEN of the following, briefly. (10 x 2 = 20 M)

- a. Which layer of atmosphere is linked to weather and issues related to air pollution?
- b. Differentiate between 'fume' and 'plume'.
- c. Name the pollutant which when present in the upper atmosphere shields life forms from all harmful UV radiations.
- d. Differentiate between BOD and COD.
- e. What is leaf 'stippling'?
- f. Why do plants absorb and accumulate heavy metals in their cells?
- g. In which year EPA was enacted?
- h. Give **TWO** points of significance of **Tunica Corpus theory**.
- i. Name the type of parenchyma found in hydrophytes.
- j. What is 'wood' in morphological sense or morphologically?
- k. Differentiate between 'idioblasts' and 'lactifers'.
- l. Highlight the role of 'hydathodes' in plants.
- m. List any **TWO** causes for the occurrence of anomalous secondary growth in stems of dicots.
- n. What is the ploidy level of endosperm in gymnosperms and angiosperms?
- o. Name the innermost layer of anther wall which provides nutrition for pollen maturation.

Q II. Answer any FOUR of the following. (4 x 5 = 20 M)

- a. What is 'nutrient cycling' and what is its role in nature?
- b. Explain the role of 'phytochelatins' in detoxification of heavy metals,
- c. Classify stomata on the basis of arrangement of the guard and subsidiary cells.
- d. Comment on the factors that influence activity of cambium.
- e. Justify how the transfer of energy across the members of a food chain is unilateral.
- f. Describe the structure of a typical dicot seed with the help of a labelled diagram.

Q III. Discuss the physiological and biochemical responses of ozone and sulphur-di-oxide stress in plants. (1X20 =20M)

OR

Write notes on
a. Eutrophication

(4 x 5 = 20 M)

- b. Sources of water pollution
- c. Influence of heavy metal stress on plant growth and development
- d. Environmental Impact Assessment (EIA)

Q IV.Describe the **FIVE** most important environment related Acts.(1X20 =20M)

OR

Write notes on

(4 x 5 = 20 M)

- a. CBD
- b. ABC model of flower development
- c. Polyembryony
- d. Apomixis

Q V.What is anomalous secondary growth? How is it different from normal secondary growth? Illustrate and describe the anomalous secondary growth **EITHER** in stem of *Boerhavia***OR***Dracaena*.
(1X20 =20M)

OR

Write notes on

(4 x 5 = 20 M)

- a. Trichomes
- b. Lenticels
- c. Lateral meristems
- d. Sclereids
