



Name :

Roll No. :

Invigilator's Signature :

**CS/B.Sc.(H)/BT/GENET/MOLBIO/MICROBIO /
SEM-4/BDT-403/2012**

2012

BIODIVERSITY AND TAXONOMY

Time Allotted : 3 Hours

Full Marks : 70

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 *ten* of the following :

10 × 1 = 10

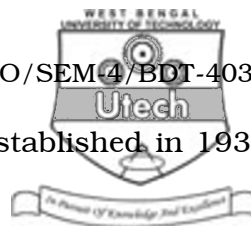
- i) Biodiversity is determined by
 - a) number of individuals in an area
 - b) species richness
 - c) species evenness
 - d) both (b) and (c).
- ii) The most successful story of Endangered Species Act in USA was
 - a) Bald Eagle
 - b) Taxus Bravifolia
 - c) Bird of Paradise
 - d) Black Coral.

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[Turn over



- iii) The act which was taken to protect environment in 1986 is known as
- Forest Act
 - Environment Protection Act
 - Species Board Act
 - None of these.
- iv) One of the notable hotspots of India is the
- Thar desert
 - Sunderbans
 - Eastern Ghats
 - Eastern Himalayas.
- v) Which gene has been chosen as DNA barcode in higher plant ?
- Cytochrome
 - Globin
 - matK and rbcL
 - insulin.
- vi) The probability that two individuals drawn at random from an infinitely large community will belong to same species is measured by
- Simpson's index
 - Shannon index
 - both (a) and (b)
 - Brillouin index.
- vii) Who proposed variety (var) in nomenclature ?
- Linnaeus
 - Waddington
 - Mendel
 - None of them.
- viii) Chromosome painting is
- FISH
 - Western Blot
 - Southern Blot
 - Northern Blot.



- ix) The national park in northern India established in 1936 is
- Kaziranga National Park
 - Hazaribag National Park
 - Corbett National Park
 - Bandipur National Park.
- x) Which of the following is not included in ex-situ conservation ?
- Botanical gardens
 - DNA bands
 - National Park
 - Germplasm collection.
- xi) What is / are the gap(s) taken into account for GAP analysis ?
- Ecological gap
 - Representation gap
 - Management gap
 - All of these.

GROUP – B

(Short Answer Type Questions)

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

- Discuss species reachness and species evenness with example.
- Explain "Latitudinal Gradients of Species Diversity".
- In molecular taxonomy how DNA-DNA hybridization established relation between the species.
- Write short notes on the following : $2 \frac{1}{2} + 2 \frac{1}{2}$
 - Kimura concept.
 - Binomial Nomenclature.
- What are the differences between Cladogram and Phytogram ?



GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. Define exotic species with example. How are they introduced into the nature ? What are the ecological impacts of these species ? Name two invasive species mentioning their impact on our biodiversity. $3 + 4 + 4 + 4$
8. Define succession. What are the types of succession ? Describe the mechanism of succession. $2 + 7 + 6$
9. What is GAP Analysis ? What are the different GAPs in a protected area network ? Why a GAP assessment is done ? Explain the plan of GAP analysis. $2 + 6 + 2 + 5$
10. What are endangered species ? What are the failures of the Endangered Species Act ? Write down the values of Biodiversity. What are exotic species ? How can exotic species become invasive to a particular ecosystem ? $2 + 4 + 5 + 1 + 3$
11. What is Molecular Clock Hypothesis ? How does "DNA Barcoding" complement Taxonomy, Molecular Phylogeny & Population genetics ? Draw a Phylogram from the following Newick format. $4 + 7 + 4$
- (((B : 1, C : 2), A : 2), (D : 1.5, E : 3)).

