



Name :

Roll No. :

Invigilator's Signature :

CS/B.Sc. (H)/BT/GEN/Micro-Bio/Mol-Bio/SEM-4/BDT-403/2013

2013

BIODIVERSING & 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) The coral reef is the diverse community of
 - a) tropical rain forests
 - b) oceans
 - c) deserts
 - d) lakes.

- ii) The full form of IUCN is
 - a) International unit of conservation of nature
 - b) International union for conservation of nature & natural resources
 - c) International union of conserve natural resources
 - d) International unit for conservation of nature & natural resorurces.



- iii) The Red data books contain
- a) names of extinct species
 - b) names of endangered species
 - c) both of these
 - d) none of these.
- iv) Loss of biodiversity is
- a) reversible
 - b) irreversible
 - c) sometime reversible
 - d) any of these.
- v) The total no. of hot-spots found in India is
- a) 18
 - b) 3
 - c) 2
 - d) 6.
- vi) Simlipal National Wildlife Park is situated at
- a) Gujarat
 - b) West Bengal
 - c) Orissa
 - d) Maharashtra.
- vii) When two different species share a common resource, then it is called
- a) Ecological equivalence
 - b) Ecological succession
 - c) Niche width
 - d) Niche overlap.



viii) Which statement(s) about gamma taxonomy is/are correct ? A taxonomic level

- a) deals with various biological aspects of taxa
- b) ranges from the study of intraspecific populations to the study of specification
- c) is the study of evolutionary rates & trends.
- d) all of these.

ix) The aim of modern taxonomy is

- a) describe, identify and arrange organisms in convenient categories
- b) understand organisms, evolutionary histories & mechanisms
- c) both of these
- d) none of these.

x) Which national park is situated in India ?

- a) Kaziranaga National Park
- b) Akan National Park
- c) Ujung Kulon National Park
- d) Green Island National Park.

xi) Rambutan, the fruit is native to

- a) Japan
- b) China
- c) Malay Archipelago
- d) India.



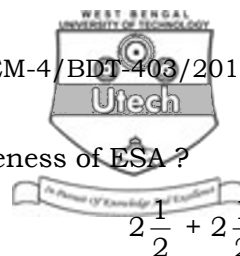
- xii) In 1995 USDA's appeal was overturned for patenting an antifungal agent from
- a) *Azadirachta indica* b) *Lawsonia inermis*
c) *Vinca rosea* d) None of these.
- xiii) According to IUCN, when a taxon faces extreme high risk of extinction in the immediate future, it was taken to protect environment in 1986. It is known as
- a) extinct in wild b) endangered
c) critically endangered d) vulnerable.
- xiv) Protected areas are example of
- a) In situ conservation
b) Ex situ conservation
c) Cryopreservation
d) Greenhouses.

GROUP - B

(Short Answer Type Questions)

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

2. How will you measure biodiversity ?
3. What is overexploitation ? Write in brief how overexploitation is brought about in marine ecosystem and forests. $2 + 3$



4. What are the positive and negative effectiveness of ESA ? $2\frac{1}{2} + 2\frac{1}{2}$
5. What is cladiastics ? What is cladogram ? $2\frac{1}{2} + 2\frac{1}{2}$
6. What is nucleic acid hybridization ? How is it helpful in classification ? $2 + 3$

GROUP – C

(Long Answer Type Questions)

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

7. State the working principle of numerical taxonomy. Define data matrix. Draw the phylogenetic tree from given data matrix :

CHARACTER	1	2	3	4	5
A	0	0	0	0	0
B	1	1	0	0	0
C	0	1	1	1	1

$6 + 2 + 7$

8. a) Define Molecular evolution.
- b) State Kimura's Neutral Theory of Molecular Evolution.
- c) Discuss molecular clock hypothesis.
- d) Define DNA barcode. $2 + 5 + 5 + 3$



9. Write short notes on any *three* of the following : 3×5

- i) Binomial nomenclature
- ii) Karyotypic orthoselection
- iii) DNA-DNA hybridization
- iv) Taxonomy & systematics
- v) Biopiracy.

10. a) What do you mean by species richness, species evenness and species dominance ?

b) What is species area curve ? Write down the steps and uses of species area curve.

c) Write down the difference between *k* and *r* strategies of species. $3 + 2 + 5 + 5$

11. a) What is exotic species ? Give example.

b) What are the detrimental aspects of exotic species ?

c) How are species introduced and established in new places ? Explain with proper example.

d) Give example of one extinct and one vulnerable species.

$3 + 5 + 5 + 2$



12. a) Write down the threats of biodiversity.
- b) Describe the process of conservation of biodiversity.
- c) What is hybridized plant ? Write the pros and cons of GM crops.
- d) Write the failures of Endangered Species Act.

5 + 4 + 1 + 3 + 2
