



Name :

Roll No. :

Invigilator's Signature :

CS/B.Sc (H), Genetics, MolBio, MicroBio, BT/SEM-4/BDT-403/2011

2011

BIODIVERSITY & 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 : $10 \times 1 = 10$
- i) Which one of the following is not included under in situ conservation ?
 - a) National park
 - b) Sanctuary
 - c) Botanical garden
 - d) Biosphere reserve.
 - ii) Which of the following is correctly matched pair of an endangered animal and a national park ?
 - a) Great Indian bustard : Keoladeo National Park
 - b) Lion : Corbett National Park
 - c) Rhinoceros : Kaziranga National Park
 - d) Wild ass : Dudhwa National Park.
 - iii) A system of classification in which a large number of traits are considered, is
 - a) artificial system
 - b) natural system
 - c) phylogenetic system
 - d) synthetic system.



- iv) Which one of the following pairs of geographical areas show maximum biodiversity in our country ?
- a) Sunderbans and Rann of Kutch
 - b) Eastern ghats and West Bengal
 - c) Eastern Himalaya and Western ghat
 - d) Kerala and Punjab.
- v) A population of strictly monogamous swans consists of 40 males and 10 females. The effective population size for this is
- a) 50
 - b) 40
 - c) 20
 - d) none of these.
- vi) If the Bengal tiger becomes extinct
- a) Hyenas and Wolves will become scarce
 - b) The wild areas will be safe for man and domestic animals
 - c) Its gene pool will be lost for ever
 - d) The population of beautiful animals like deer will get stabilized.
- vii) Organization responsible for maintaining Red Data Book/Red List is
- a) IUCN
 - b) CITES
 - c) WWF
 - d) IBWL.
- viii) The World Biodiversity Day is celebrated annually on
- a) 5th June
 - b) 29th December
 - c) 22nd April
 - d) 16th September.
- ix) Identify the odd combination of the habitat and the particular animal concerned.
- a) Sunderbans Bengal Tiger.
 - b) Periyar Elephant.
 - c) Rann of KutchWild Ass.
 - d) Dachigam National Park Snow Leopard.



- x) Which one of the following pairs of organisms are exotic species introduced in India ?
- Lantana camara, Water hyacinth
 - Water hyacinth, Prosopis cineraria
 - Nileperch, Ficus religiosa
 - Ficus religiosa, Lantana camara.
- xi) The full form of UNEP is
- United Nations Environment Programme
 - Union Nations Engineering Policy
 - United Nations Environment Policy
 - None of these.
- xii) The full form of QTL is
- Quantitative Trait Loci
 - Qualitative Trait Loci
 - Quantitative Taxon Loci
 - Qualitative Taxon Loci.

GROUP - B

(Short Answer Type Questions)

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

- Write Criticism on GM crops.
- Explain 'ring species' with example.
- What are the productive use values of biodiversity ? What is species area curve ?
- Write a short note on cladistic classification.
- Describe briefly about 'Molecular Phylogeny'.



GROUP – C

(Long Answer Type Questions)

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

7. a) Define 'Species Diversity'. 1
b) How can species diversity be measured ? 1
c) Describe the pattern of species diversity with proper diagram. 6
d) What are the potential mechanisms leading to species diversity ? 2
e) Write down the ideas behind species richness in the tropical region. 3
f) Differentiate in between *ex situ* conservation & *in situ* conservation. 2
8. a) What is 'Molecular Clock Hypothesis' ? 3
b) Define 'DNA Barcode'. 3
c) Which sequence has been selected for this purpose and why ? 1 + 2
d) What is molecular evolution ? 2
e) State Kimura's 'Neutral Theory of Molecular Evolution'. 4
9. What is macro-taxonomy ? Define the working principle of micro-taxonomy. How plesiomorphous and apomorphous characters are shorted out ? Explain karyotypic orthoselections. 2 + 3 + 6 + 4
10. Differentiate between *k* & *r* strategic species ? Why do the less competitive *r* species not disappear even though they are less competent to *k* type ? Describe the dominance diversity curve in brief. Discuss briefly the values of biodiversity. 6 + 2 + 3 + 4
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