KATHMANDU UNIVERSITY
End Semester Examination
March/April 2017

Marks Scored:

Level : B.Sc.
Year : II

Course : ENVS 212
Semester: I

Exam. Roll No. :

Time: 30 mins.

F.M. : 20

Registration No.:

Date : APR 6 2017

SECTION "A"
[20 Q.×0.5=10 marks]

1. The term *biological diversity* was used first by wildlife scientist and conservationist:
[ ] Raymond F. Dasmann [ ] Norman Myers
[ ] Whittaker [ ] E. P. Odum

2. Number of species recorded globally in recent times are approximately:
[ ] 1.2 million [ ] 1.7 million [ ] 8.7 million [ ] 7.8 million

3. Which one of the following area is not a part of Nearctic biogeographical realm?
[ ] North America [ ] Alaska [ ] Himalayas [ ] North Pole

4. Which of the following mechanisms is not considered to be pre-mating isolation mechanism:
[ ] Temporal [ ] Ecological [ ] Mechanical [ ] Gametic sterility

5. According to ..... species concept "A species is a set of organisms that look similar to each other and distinct from other sets".
[ ] Phenetic [ ] Isolation [ ] Phylogenetic [ ] Recognition

6. ..... is the full diversity (species richness) of an entire sampled landscape or gradient.
[ ] α diversity [ ] ß diversity [ ] γ diversity [ ] Ω diversity

7. *Soil and water conservation* by floral sector of biodiversity comes under which of the following values:

[ ] Extrinsic [ ] Utilitarian [ ] Instrumental [ ] Indirect use

8. Which of the following forest ecosystems are dominated by *Schima wallichii* and *Castanopsis indica:*
[ ] Tropical [ ] Subtropical broadleaf
[ ] Subtropical conifer [ ] Subalpine

9. Based on NBSAP by government of Nepal 2014, endemic fresh water fish recorded in Nepal are ..... in number.
[ ] Fifteen [ ] Sixteen [ ] Seventeen [ ] Eighteen

10. Species threatened with extinction, which are or may be affected by trade is listed in ..... of CITES Appendices.
[ ] Appendix I [ ] Appendix II [ ] Appendix III [ ] Appendix IV

11. Nepal celebrated World Wetlands Day 2016 with a special celebration to declare ..... lakes in Kaski district under the Ramsar Convention.
[ ] Three [ ] Six [ ] Nine [ ] Twelve

12. ..... focuses that the correct formal scientific name for an animal taxon, the valid name, correct to use, is the oldest available name that applies to it.
[ ] Principle of priority [ ] Principle of coordination
[ ] Principle of homonymy [ ] Principle of typification

13. CITES entered into force on:
[ ] 1955 [ ] 1965 [ ] 1975 [ ] 1985

14. Which of the following approach is not an *ex situ* conservation technique for species:
[ ] Seed banks [ ] *in vitro* storage [ ] Protected area [ ] Captive breeding

15. Terai Arc Landscape (TAL) is landscape approach to preserve biodiversity that covers.....districts of Nepal.
[ ] 14 [ ] 24 [ ] 34 [ ] 44

16. The most severe mass extinction was occurred during the ..... period:
[ ] Permian [ ] Ordovician [ ] Devonian [ ] Cretaceous

17. Among which of the following man-made wetland is registered as Ramsar sites of Nepal?
[ ] Gokyo lakes [ ] Jagadishpur reservoir
[ ] Goshaikunda lake [ ] Mai Pokhari

18. Among which of the following cause is single greatest threat to species:
[ ] Loss of habitat [ ] Climate change [ ] Invasive species [ ] Pollution

19. Hindu Kush Himalaya (HKH) includes..... UNESCO natural heritage sites.
[ ] Two [ ] Six [ ] Ten [ ] Sixteen

20. Convention on Biological Diversity (CBD) was ratified by Nepalese parliament on
[ ] November 23, 1993 [ ] June 5, 1993
[ ] December 23, 1994 [ ] November 23, 1994

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SECTION "B"

[20 Q.×0.5=10 marks]

Fill in the blanks with appropriate word/words.

21. RFLP method is used to measure genetic diversity. The full form of RFLP is .....
22. In biological taxonomy, *circumscription* is the definition of a ...., that is, a group of organisms.
23. A ..... is a scientific name of a species in which both parts of the name have the same spelling.
24. Major two criteria to designate an ecosystem a hotspot are ..... and .....
25. Carolus Linnaeus, who is also called as *Father of Taxonomy* developed the modern system of naming known as .....
26. ..... is the variant form of a given gene that can sometime result in different observable phenotypic traits, such as different pigmentation.
27. Among various IUCN categories, a taxon is ..... when it is known only to survive in cultivation, in captivity or as a naturalized population (or populations) well outside the past range.
28. According to typological species concept, every ..... is a type.
29. The loss of biodiversity over the past years has become so great that many ecologists state we are approaching a .....
30. A species of uniparental (asexual) organisms is called .....
31. There are ..... number of National Parks presently in existence in Nepal.
32. Translocation processes began in 1986 in Nepal with the translocation of rhino from ..... to .....
33. ..... is eliminating species through killing, poaching and hunting.
34. Sum of all genes and alleles in a population is called .....
35. Holdridge (1967) classified ecosystem based on chief ..... variables.
36. The loss of biodiversity over the past years has become so great that many ecologists state we are approaching a .....
37. α, ß and γ diversity explain .....patterns of species diversity.
38. The zoological name of Indian cobra is .....
39. A species is said to be ..... when its numbers are reduced to such an extent that any further decline will warrant its designation as an endangered species.
40. The botanical name of saal tree is .....

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SECTION "C"

[3Q.×7=21 marks]

Attempt *ANY THREE* questions. Provide appropriate illustration wherever necessary.

1. Briefly describe principles of ICN and ICZN. [7]

2. Define biodiversity hotspot. What are major threats and conservation approaches to biodiversity hotspots? [2+5]

3. What is species diversity? Calculate Shanon Index of General Diversity [$\bar{H}$] and Simpson's Diversity Index in a forest community containing following hypothetical species: [7]

	Number of Individuals
• Species A	55
• Species B	48
• Species C	19
• Species D	5
• Species E	3

4. Categorically describe various values of biodiversity? What provisions are emphasized by Nepal Biodiversity Action Plan for the protection of biodiversity? [4+3]

SECTION "D"

5. Write short notes on *ANY FOUR*: [4Q.×2.5=10]
   a. Unchartered realms of biodiversity.
   b. IUCN red list categories
   c. RAMSAR sites of Nepal.
   d. Institutional development on NBSAP.
   e. Cladograms.

6. Differentiate between *ANY TWO*: [2Q.×4=8]
   a. Biological species concept and ecological species concept.
   b. Pre-mating isolation mechanism and post-mating isolation mechanism.
   c. In-situ and Ex-situ conservation techniques.

7. Give reasons *ANY FOUR* [4Q.×3=12]

a. The richness of endemic species in Nepal increases steadily from low to high elevations.
b. Cultural diversity plays a pivotal role in maintaining biodiversity.
c. Ecosystem level and landscape level are the only way to handle a large number of species.
d. Every year several numbers of species are discovered.
e. Specific characteristics of certain species put them in greater danger of extinction.

8. Write a common name for all these taxa [8Q.×0.5=4]

a. *Brassica oleracea*
b. *Zea mays*
c. *Allium sativum*
d. *Helianthus annuus*
e. *Muscadomestica*
f. *Elephasmaximus*
g. *Lophophorusimpejanus*
h. *Schizothoraxrichardsonii*