KATHMANDU UNIVERSITY
End Semester Examination
February, 2025

Marks Scored:

Level : B.Sc.
Year : II

Course : ENVS 202
Semester : II

Exam Roll No. :

Time: 30 mins.

F. M. : 20

Registration No.:

Date : 16 FEB 2025

SECTION "A"
[20Q. × 0.5 = 10 marks]

Choose and mark [X] in the most appropriate answers from the given choices.

1. Which of the following statement is incorrect?
   [ ] Conservation Biology is a crisis discipline.
   [ ] Conservation Biology has philosophical roots too.
   [ ] Conservation Biology is a pure science.
   [ ] Conservation Biology is a synthesis of basic sciences.

2. Conservation values associated with inherent rights or spiritual importance of species is categorized as
   [ ] scientific value
   [ ] moral value
   [ ] utilitarian value
   [ ] naturalistic value

3. The conservation of giant panda also ensures the protection of other species. Therefore, the giant panda is considered as a/an
   [ ] keystone species
   [ ] indicator species
   [ ] umbrella species
   [ ] flagship species

4. The Asian elephant populations from the east, the central and the western regions of Nepal represent
   [ ] homogeneous populations
   [ ] fragmented populations
   [ ] metapopulations
   [ ] contiguous populations

5. Which of the following sampling method would you consider to estimate fish population from a lake?
   [ ] King's census
   [ ] Capture Mark Recapture
   [ ] Distance sampling
   [ ] Fixed point survey

6. Which of the following countries has the highest number of Protected Areas?
   [ ] Russia [ ] Canada [ ] India [ ] Australia

7. Large N_e values imply
   [ ] many breeding individuals
   [ ] low number of breeding individuals
   [ ] more males than females
   [ ] more females than males

8. Which of the following needs to be calculated in distance sampling?
   [ ] N [ ] n [ ] P_a [ ] $\bar{Y}$

9. The SLOSS debate in Conservation Biology is about the
[ ] size of the Protected Areas [ ] distribution of the Protected Areas
[ ] connectivity of the Protected Areas [ ] fragmentation of the Protected Areas

10. Protected Areas in Nepal come under the legal jurisdiction of the
[ ] UNEP [ ] UNESCO [ ] DNPWC [ ] WWF

11. Which of the following species has the highest recognition rate for conservation in Australia?
[ ] Koala [ ] Kangaroo [ ] Tasmanian tiger [ ] Tasmanian devil

12. Based on IUCN categorization, National Parks fall under category
[ ] I Protected Area [ ] II Protected Area
[ ] III Protected Area [ ] IV Protected Area

13. The species associated with Tx2 Project is
[ ] *Panthera leo* [ ] *Panthera tigris* [ ] *Panthera uncia* [ ] *Panthera pardus*

14. Article 1 of the CBD covers the
[ ] in-situ conservation [ ] ex-situ conservation
[ ] objectives of the CBD [ ] official languages of the CBD

15. Which of the following statement in correct?
[ ] A species can act as an umbrella species as well as a flagship species.
[ ] A species cannot act as an umbrella as well as a flagship species.
[ ] The removal of an umbrella species can result in an ecosystem collapse.
[ ] The removal of flagship species result in an ecosystem collapse.

16. Extinction vortex is experienced by
[ ] populations with large N_e [ ] populations with small N_e
[ ] populations of rare species [ ] populations of common species

17. Which of the following depicts the correct sequence of paradigm shift in conservation?
[ ] nature for itself -nature despite people- nature for people - people and nature
[ ] nature despite people- nature for people – nature for itself - people and nature
[ ] nature for people - people and nature - nature for itself -nature despite people
[ ] people and nature - nature for itself - nature for people - nature despite people

18. The present - day cheetah population illustrates
[ ] founder principle [ ] bottle neck effect
[ ] evolution [ ] natural selection

19. First species to be downlisted from IUCN Category Endagered to Vulnerable is
[ ] *Panthera tigris* [ ] *Oryx leucoryx*
[ ] *Loxodonta africana* [ ] *Elephas maximus*

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20. Restriction Endonucleases cleave the
[ ] peptide bonds
[ ] H bonds
[ ] phosphor-di-ester bonds
[ ] ether bonds

SECTION "B"
[4Q. × 0.5 = 2 Marks]

A wildlife ecologist captures and marks 10 rodents. On a subsequent visit, 6 rodents are captured, including 2 recaptures, what is the estimated population size of the rodents?

21. What is the estimated population size based on Lincoln – Petersen method?
[ ] 20 rodents [ ] 60 rodents [ ] 12 rodents [ ] 30 rodents

22. The formula used to estimate the population size is
[ ] P=MC/R [ ] P=M/CR [ ] P=R/MC [ ] P=MC*R

23. M in the L-P method stands for
[ ] marked individuals in the first capture
[ ] marked individuals in the second capture
[ ] total number of captured individuals
[ ] multiple recaptures

24. The most suitable marking for CMR of rodents would be
[ ] mutilation markers
[ ] ear tags
[ ] radio-collaring
[ ] colour- painting

SECTION "C"
[10Q. × 0.5 = 5 Marks]

Fill in the blanks.

25. Releasing individuals into an existing population to increase its size and gene pool _____.

26. Gradual acclimatizing of animals during translocation programs before allowing them to roam freely is called _____.

27. The IUCN category DD stands for _____.

28. The full form of RFLP is _____.

29. _____ is defined as spatially heterogeneous land area composed of a cluster of interacting ecosystems that is repeated in similar form throughout.

30. 1-4 tandem repeats of DNA used as genetic markers are called _____

31. The major criteria for conservation prioritization are _____, _____ and _____.

32. Complete elimination of a species from the face of the earth is referred to as _____.

SECTION "D"

[3Q × 1 = 3 marks]

Define

33. Allee effect:

34. Minimum Viable Population:

35. Genetic drift

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SECTION "E"
[3Q. × 7 = 21 marks]

Attempt *ALL* questions.

1. Define Scatology. What information can you extract from scatological studies? Add a note on the disadvantages of scatology. [1+4+2=7]

2. Explain how Protected Areas are designed in the light of the Theory of Island Biogeography. Add a note on the advantages of having larger PAs than smaller PAs. [5+2=7]

3. List and explain the different IUCN Red List Categories. Add a note on the drawbacks of the IUCN Red List. [2.5+2.5+2=7]

SECTION "F"

4. Differentiate between [4Q × 2=8]
   a. Primary and secondary environmental ethics
   b. Invasive and non-invasive sampling
   c. 1a and 1b Protected Areas
   d. CITES Appendix I and CITES Appendix II

5. Write short notes on: [4Q × 4=16]
   a. Human wildlife conflicts
   b. Pug marks
   c. Climate change impacts on biodiversity
   d. Applications of conservation genetics

6. Give reasons for the following statements: [5Q × 2=10]
   a. Invasive species are concerns for biodiversity conservation.
   b. Marine reserves need to be large.
   c. Captive breeding should be the last alternative in species conservation.
   d. *Loxodonta africana* is a keystone species of the African savannah.
   e. Participatory conservation efforts are considered successful.