



**THE OPEN UNIVERSITY OF SRI LANKA**

**M.Sc. In Environmental Sciences Level 10 (2019)**

**ZYPA 602 Biodiversity Conservation and Management**

**NBT examination 2019**

Date: 24 th November 2019

Time.13.00 hrs -14.30 hrs

Answer all the questions

01. Read the following paragraph in your nieces' text book and answer the questions below.

“The Sinharaja forest was accepted into the UNESCO World Network of Biosphere Reserves in 1978. It is known as one of the most diverse forests in terms of plants and animals and has an exceptional percentage of endemic species. Many people visit this forest due to its value as a pristine forest in Sri Lanka despite the heavy rains and abundant leeches that you find here during the south-west monsoon rains.”

- a. To which IUCN category of Protected Area does the Sinharaja forest belong to as inferred from the above paragraph? (give name and IUCN category number)
- b. What are the characteristic zones that should be there in the above protected area to qualify inclusion in the World Network of Biosphere Reserves. Explain briefly the function of each zone in terms of management objectives and legal status.
- c. To what (i) biogeographic region and (ii) biome, does the KDN forest belong to ?
- d. What is the global geographic spread of the biome you mentioned in (c) above?
- e. Describe the most characteristic features of the biome to which this Protected Area belongs, in terms of climate and soil, forest structure, richness of plant and animal life, and specific features of trees:
- f. If you compare the above mentioned biome with the biome to which the great temperate deserts belongs, what one climatic feature would be most different in these two biomes:
- g. In which of the two biomes mentioned above would you expect to have the greater diversity of amphibians? Explain your answer very briefly in relation to the relevant climatic features of the two biomes and a key defining feature of amphibians.

2.0 Your neighbor's child has been given an assignment from school after a visit to the Dehiwala Zoo which she finds very difficult. Your help has been requested.

2.1 Help her to classify these animals and identify the biogeographic regions in which these animals are found naturally.

Animal	Class	Sub-class (only for mammals)	Order (only for mammals)	Biogeographic region <i>Mark whether</i> <i>Australian (A)</i> <i>Afrotropical/Eithiopean</i> <i>(AF)</i> <i>Oriental/Indo-Malayan (IM)</i> <i>Nearctic (N)</i> <i>Palaearctic (P)</i>
Kangaroo				
Giraffe				
Polar bear				
Gorilla				
Duckbilled platypus				
Gelada baboons of Ethiopia				
Sri Lankan crocodile				
Laughing kookaburra of Australia				
Hippopotamus				
Asian elephant				
Brown bear				
Ostrich				
Toque Macaque				

(You need not copy the above table in your answer scripts)

2.1 Answer the questions below:

a) How many species are represented in the above table under the following vertebrate "classes"

(i) Mammalia ... (ii) Aves .... (3) (iii) Reptilia ....

(Write the # against each class in your answer script)

(b) (i) What animal/s belong to the subclass Prototheria? What is the basis for this classification?

(ii) What animal/s belong/s to the infraclass Metatheria,? and what is the basis for this classification?

(iii) In what biogeographic region/s is/are these (Metatheria) animals found?

(iv) What other animal/s in the table above is/are from the same biogeographic region/s?

- c). (i) Which of the species in the table above is most closely related to humans ?
- (ii) In which of the following biome is the Polar bear found naturally: Tundra Biome, Rainforest biome or Savanah biome ?
- (iii) Are other species from the above table found in the same biogeographic region as the polar bear? If so, name them.
- d) (i) Which mammalian species in the table above is/are indigenous to Sri Lanka but is also found elsewhere in the world?
- (ii) What species in the above table are endemic to Sri Lanka ? (Explain why you say so).

2.2 What type of conservation can be expected from the Dehiwala zoological gardens? Answer in one sentence.

3. Read this paragraph and answer the questions below

*"Just a couple of shavings of black truffles from France known as black diamonds can cost hundreds of dollars in a restaurant in Paris. White truffles from Italy can cost three times as much. Truffles are a fancy delicious delicacy in restaurants and ounce for ounce the most expensive food in the world. If you go to France or Italy you will learn that Truffles are under siege, because they are becoming scarce. They are being trafficked like drugs, stolen by thugs and threatened by inferior imports. It's a combination of European Red soil and rainy summers that produce the rich fruity flavour of the European Truffle. Because of climate change the harvest is down from an annual 2000 tons of Truffles 100 years ago to merely 30 tons at present. The scarcity of the truffles and the high price it claims has led to organised crime around the truffle trade and mixing of the expensive European Truffles with the Imported and cheap Asian truffles. Due to the imports there is fear that the cheap imported truffle may take over some of the fields with the more expensive and tasty European Truffle. Import of truffles is now banned in Italy, but illegal imports continue, especially in France."*

Source: From a film clip

Use only the information in the above paragraph for your answers:

3.1. What type of biodiversity value is seen exemplified by this organism as mentioned in the above paragraph ?

- (i) Indirect value (ii) Direct value (if so it is subsistence or  
(iii) Bequest value (iv) Ethical value

3.2 Explain your selection with definitions of the different values in

- (i) to (iv) (ii) Indicate whether there is any value to the truffle, and if yes, describe briefly the different types of biodiversity values using the truffle as an example where appropriate.

- 3.3. The paragraph suggests that truffles may become very rare or extinct in forests of Europe. Assuming that conservation measures are needed should it be in-situ or ex-situ conservation measures or both. Justify your selection in detail indicating advantages of your selection.
- 3.4. According to this film clip what are the main cause/s of "Threat" for the European Truffle that would lead to it becoming extinct in the wild or mixed? Are measures being taken to address this threat and how?