



THE OPEN UNIVERSITY OF SRI LANKA

M.Sc. In Environmental Sciences Level 08 (2017)

NEP -2214 Biodiversity Conservation and Management
NO BOOK TEXT 1

Date: 09 th September 2017

Time.13.00 -14.00_hrs

Answer all questions

01. Read the following newspaper paragraph and answer the questions below.

“The Kanneliya-Dediyagala-Nakiyadeniya (KDN) forest was accepted into the UNESCO World Network of Biosphere Reserves in 2004. It is known as one of the most diverse forests in terms of plants and animals and has a high percentage of endemic species. Many people visit this forest due to ease of access from Colombo 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 KDN Protected Area 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 Sahara desert 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 and cacti? Explain your answer very briefly in relation to the relevant climatic features of the two biomes and a key defining feature of amphibians and cacti.

2. 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 and once for once 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

2.1 a. To what Kingdom does the component of biodiversity described in the above paragraph belong to?

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

- (i) Indirect value
- (ii) Direct value
- (iii) Bequest value
- (iv) Ethical value

2.2. a. Explain your selection in 2.1.

b. Is there any use value to the truffle? Describe.

2.3.a. Does the paragraph suggest that truffles may become very rare or extinct in: (i) The whole world (ii) forests of Europe, (iii) forests of France only (iv) Forests of Europe and China.?

b. Justify your selection in one sentence.

2.4. What are the main cause/s of "Threat" for the European Truffle as mentioned in the above paragraph ?

2.5. Assuming that the species of truffle is the same in Europe and Asia, what level of biodiversity is mostly under threat?

Question no 3:

Your cousin is visiting the Edinburgh Zoo with his family. He has sent a post card stating that the following animals are exhibited at the Zoo: Golden Palm Civet from Sri Lanka, chimpanzee, the red fox, giant panda, Polar Bear, Ocelot, Fishing Cat from Sri Lanka, Leopard, Jaguar, Royal Bengal Tiger, African Lion, walrus and fur seal.

- a. To what order/s do the species in the table below belong to?
- b. Place the above mentioned animals in the following table (Please reproduce this table in your answer sheet and fill in the blanks)

Super Order ? Ferae	Super Order ? Ferae	Super Order ?	
ORDER ?	ORDER ?	ORDER ?	ORDER Primata
Suborder ?	Suborder?		
Superfamily CANOIDEA	Super family FELOIDEA		
Family CANIDAE	Family VIVERRIDAE	Family Otariidae	
Family URSIDAE	Family FELIDAE	Family Odobenidae	
Family PROCYONIDAE	Family HYAENIDAE	Family Phocidae	
Family MUSTELIDAE	Family HERPESTIDAE		

Ignore shaded cells

- (c) Which of the above mentioned animals is a prominent member of the tundra biome in the northern hemisphere?
- (d) Which animals in the above list from the Family Felidae can be found in the rainforests of the Indo-Malayan region?
- (e) Which felid above is a characteristic and charismatic species in the tropical grassland /savanna biome of Africa ?

Question 4. Your friend's two children have returned from a visit to the Dehiwala Zoo and have brought back a handout. They are asking for your help to fill out a matrix in the leaflet and answer the questions given in it.

4a: Fill in the matrix below: (please copy the matrix on to your exam papers)

	Animal	Class (fill in)	Sub class (fill in for mammals only)	Enter A in relevant box below for species found in the Afrotropic (formerly Ethiopian) biogeographic region and AU for species found only in the Australian region
A	Zebra			
B	Rhinoceros			
C	Reindeer			
D	Orang-utan			
E	Baboons From Tanzania			
F	Jungle fowl (E)			
G	Toque Macaque (E)			
H	Echidna			
I	Giraffe			
J	Oryx			
K	Duck billed platypus			
L	Siberian tiger			
M	Ostrich			
N	Indian gharial - giant crocodile			
O	Red Kangaroo			

(E means endemic to Sri Lanka)

Answer the questions below.

4b. What Artiodactyle species above is/are characteristic of the tundra biome?

4c. What other species could be found in the Taiga biome?

4d. How many birds, reptiles, amphibians and fishes are listed above?

4e. What species in the above matrix belong to mammalian infra-class Metatheria?

4g. Which species in the above matrix is the most closely related to humans ?

4h. Which primate species in the above matrix is found only in Sri Lanka and no where elsewhere in the world?

4i. Crocodiles are farmed in India and there is a lucrative market for its skins. If so, what is the most appropriate biodiversity value and use for this species in an economic sense? Give reasons for your answer.