

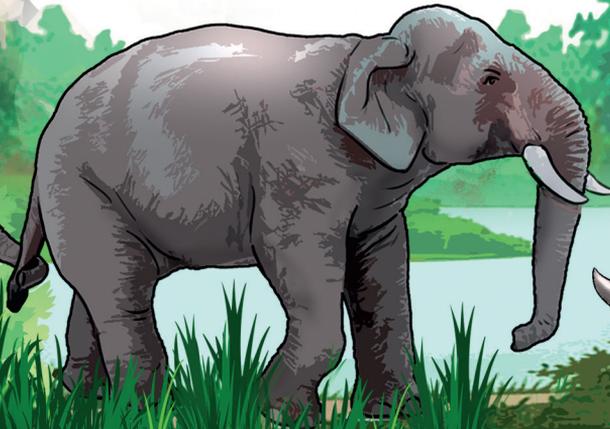


WWF

NEPAL



# Wild Wisdom Quiz Book





**WILD  
WISDOM  
QUIZ BOOK**

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# ABOUT WWF NEPAL

WWF started working in Nepal from 1967 when it launched a rhino conservation program in Chitwan. To keep up with the evolving face of conservation and environmental movement, WWF Nepal's focus progressed from its localized efforts in conservation of single species in the 1960s, integrated conservation and development approach in 1990s, to a new horizon of landscape level conservation encompassing national, regional and global scales of complexity in the early 2000s.

WWF Nepal is focused on the Terai Arc Landscape (TAL) and Sacred Himalayan Landscape (SHL), including Koshi River Basin, and Chitwan Annapurna Landscape (CHAL) under the USAID-funded Hariyo Ban program.

WWF Nepal works to conserve flagship and priority key species, forests, freshwater, and to mitigate the pervasive threat of climate change to communities, species and their habitats.



# ABOUT WWF NEPAL WILD WISDOM QUIZ

Initiated by WWF India in 2008, and by WWF Nepal in 2017, this quiz is considered to be Asia's biggest wildlife quiz. The quiz is aimed at raising awareness regarding biodiversity and wildlife conservation among the younger generation, through participatory and interactive means. Now in its fourth edition, Wild Wisdom Quiz (WWQ) has managed to reach over 3000 students nationwide and is expanding every year.

WWQ starts every year from July-December, if you're interested in being a part ask your school to contact us at [info@wwfnepal.org](mailto:info@wwfnepal.org) immediately.



# I

# BIOMES

A biome is a large area or a region with specific vegetation, soil, climate, and wildlife. It can be imagined as different bubbles of life on earth. Each biome is unique and have its own characteristic features. The Forest, Grassland, Desert, Tundra and Aquatic are five major types of biomes found on earth. These biomes are further divided into other specific categories, like the aquatic biome is again divided into two sub categories like freshwater and marine biomes. The freshwater biomes include ponds, rivers, and lakes while the marine biomes include ocean, coral reefs, and estuaries.

Similarly forests are divided into Tropical Rainforest, Temperate Rainforest, and Taiga depending on specific conditions like the prevailing climate, soil, and other geographic factors in that area at different latitudes. About one third of the earth is covered with forests. Grassland biomes on the other hand are vast open areas with grass as its predominant plant and it has warm and dry climate. Savannas or Tropical Grasslands and Temperate Grasslands are two types of grassland biomes. Savannas are characterized by few scattered trees and are close to the equator whereas Temperate Grasslands are located further away from the equator and don't have trees or shrubs and receives very little rainfall.

Desert biomes are dry areas and cover around 20% of the earth's surface. Deserts can be either hot or cold. Deserts have extreme conditions and based on their geographic and climatic conditions. Deserts can be hot and dry, semiarid or coastal and cold.

Tundra biomes is of three types: Arctic, Antarctic and Alpine. The arctic tundra biome is the northernmost biome and covers the lands north of the Arctic Circle up to the polar ice cap. It covers approximately 11.5 million sq.km. The Antarctic tundra is found on Antarctica and the surrounding Antarctic islands. The Alpine tundra is found on the mountains. The main differences between Alpine and tundra at poles are their locations and drainage. While the Arctic and Antarctic tundra experience very limited drainage, the Alpine tundra is well drained. Due to its poor soil quality and low amount of rainfall, they do not support much of biodiversity. Shrubs, grasses, mosses, and lichens are the common vegetation.

In Nepal, different kinds of biomes are found due to its remarkable altitudinal variation. The biomes range from Tropical Savannas in the south to Coniferous Forest and Alpine tundra in the Himalayas in Nepal is amazing! There are six biomes in Nepal, which includes 35 different types of forests and 118 ecosystems.

## BIOMES OF THE WORLD



FOREST



GRASSLAND



DESERT

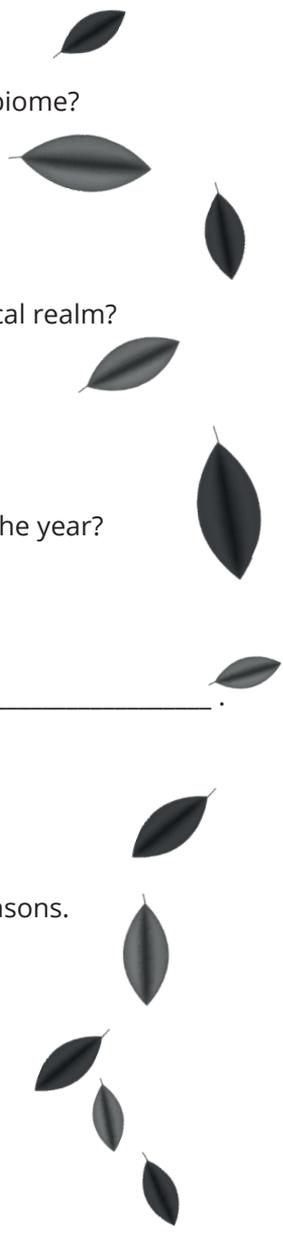


TUNDRA



AQUATIC

# Questions

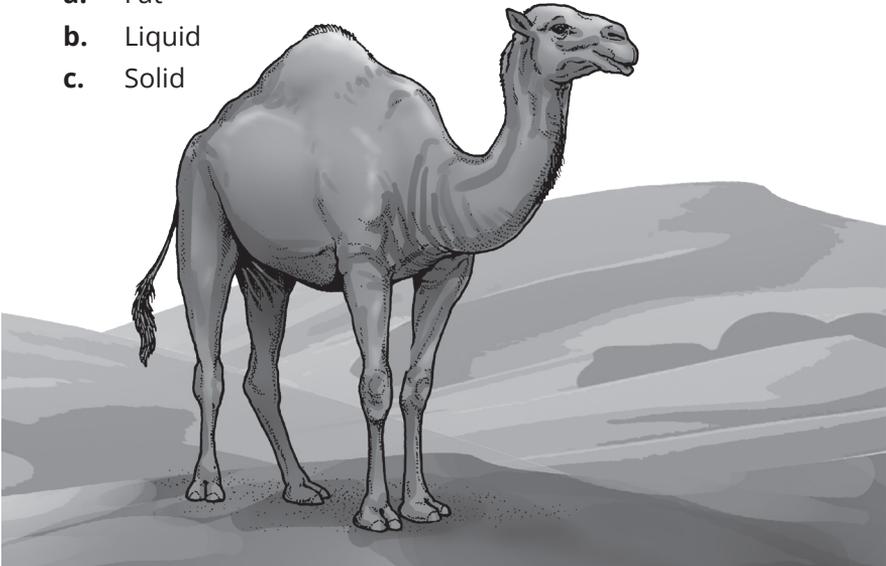
- 
- 1** Which of the following is a biotic factor in biome?
    - a. The quality of soil.
    - b. The kind of grasses.
    - c. Amount of rainfall.
  
  - 2** \_\_\_\_\_ is not a biogeographical realm?
    - a. Chaparral
    - b. Palaearctic
    - c. Nearctic
  
  - 3** Do biomes change and move throughout the year?
    - a. Yes
    - b. No
  
  - 4** The largest terrestrial biome on earth is \_\_\_\_\_.
    - a. Tundra
    - b. Taiga
    - c. Desert
  
  - 5** \_\_\_\_\_ biome has four seasons.
    - a. Tropical Rainforest
    - b. Grassland
    - c. Temperate Deciduous Forest

## BIOMES

- 6 Life on earth exists in \_\_\_\_\_.
- The atmosphere
  - The biosphere
  - The stratosphere
- 7 \_\_\_\_\_ cell is the “atmospheric movement pattern” that affects biomes that are present nearest to the equator.
- Hadley
  - Polar
  - Ferrell
- 8 Which international agreement was signed by nations to protect freshwater biomes of wetlands & their resources?
- Convention on the International Trade in Endangered Species of Wild Flora and Fauna (CITES)
  - Ramsar Convention
  - Kyoto Protocol
- 9 Which of the following is NOT an adaptive feature of plants in hot desert biomes?
- Upside down triangle shaped growth
  - Nocturnal stomatal opening
  - Lengthy dormant season
- 10 Subtropical deserts lie between \_\_\_\_\_ latitudes.
- Temperate and Tropical
  - Equatorial and Subtropical
  - Boreal and Temperate

## BIOMES

- 11** Many of the plants in subtropical deserts are not frost-tolerant.
- True
  - False
- 12** In \_\_\_\_\_, species diversity is usually much higher than it is in temperate arid lands.
- hot and dry deserts
  - cold deserts
  - semi-arid deserts
- 13** The Deserts of the world are under \_\_\_\_\_ pressure system.
- Subtropical high
  - Equatorial low
  - High-low
- 14** The camel stores its food as \_\_\_\_\_ in large humps on its back.
- Fat
  - Liquid
  - Solid



## BIOMES

- 15** Which Biome is often transitional between Tropical Rainforests and hot deserts?
- a. Savanna
  - b. Deciduous Forest
  - c. Chaparral Forest
- 16** In tropical rainforest, large wide tree roots above ground are called \_\_\_\_\_ .
- a. Mega roots
  - b. Buttress roots
  - c. Fortress roots
- 17** Large scale agriculture in rainforest biomes are unsustainable because \_\_\_\_\_ .
- a. soils are nutrient poor
  - b. temperatures are too warm
  - c. it is too wet
- 18** Which of the following is NOT an adaptation for temperate deciduous forest plants?
- a. Large seeds
  - b. Colorful leaves
  - c. Tall and narrow structure
- 19** \_\_\_\_\_ is a substance that provides protection to trees in the Pacific Northwest and also has the potential for use in treating cancer.
- a. Taxol
  - b. Aspirin
  - c. Yew

## BIOMES

- 20** Some insects of the temperate deciduous biome cannot survive winter so they \_\_\_\_\_.
- lay eggs before they die which survives harsh winters
  - go under metamorphosis and live in cocoons
  - attempt to go for Hibernation
- 21** The tundra biome covers \_\_\_\_\_.
- about 7% of the Earth
  - about 20% of the Earth
  - about 12% of the Earth
- 22** Tundra's biodiversity is mostly \_\_\_\_\_.
- animals
  - flowering and other plants
  - non-flowering plants
- 23** The plants in the Tundra region are dark and some red, that helps them to \_\_\_\_\_ heat.
- reflect
  - absorb
  - transmit
- 24** Taiga forests have \_\_\_\_\_ leaves that prevent water loss in freezing weather and sheds snow easily.
- broad
  - needle-like
  - foliage

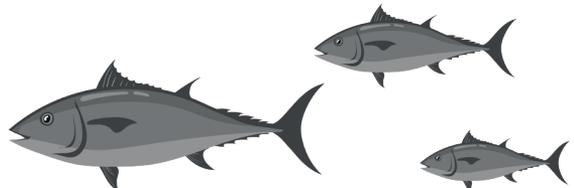
## BIOMES

- 25** Arctic Tundra has trees.
- True
  - False
- 26** Majority of softwood timber that makes paper comes from the Taiga Biome.
- True
  - False
- 27** The melting in the tundra will have real bad consequences as it will release \_\_\_\_\_.
- massive heat from under its surface
  - carbon trapped under the soil
  - poisonous mixture of radioactive gases
- 28** Which of the following zones is at 23.5 degree latitude north and south of the equator?
- Temperate
  - Polar
  - Tropics
- 29** How do coniferous trees lose excess snow?
- They have small, thin and compact leaves
  - The branches droop downwards
  - None of above



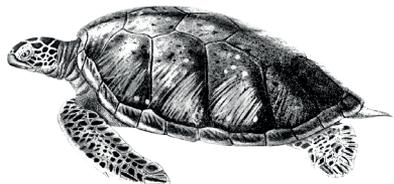
## BIOMES

- 30** Which of the following are the factors that determine the type of aquatic biome?
- Temperature, sunlight, pH
  - Salinity, temperature, sunlight
  - Sunlight, dissolved oxygen, salinity
- 31** What is the name of the ecosystem that is formed where a river meets the sea?
- Lacustrine
  - Estuarine
  - Riparian
- 32** This is the correct sequence of a Freshwater food-chain?
- caddis – algae - heron - fish
  - algae – caddis – fish - heron
  - algae – heron – caddis – fish
- 33** The largest freshwater biome is
- The Florida Everglades
  - Begnas Taal of Nepal
  - The Niagara Falls
- 34** Freshwater biomes occupy 3% of the earth's surface, out of which \_\_\_\_\_ exists as glacial lakes or in underground aquifers.
- 79 %
  - 35%
  - 99%



## BIOMES

- 35** The name of the biggest lake in Switzerland is also the name of a lake in Wisconsin, USA. It is \_\_\_\_\_.
- Lake Geneva
  - Lake Saltlake
  - Lake Lucerne
- 36** Trees in this biome are adapted to be fire resistant.
- Chaparral biome
  - Rainforest biome
  - Desert biome
- 37** Marine biomes are one of the richest biomes on this planet. How much life does it host?
- 75% of the Earthlife
  - 90% of the Earthlife
  - 50% of the Earthlife
- 38** The Ocean biome has a separate biome in itself and it is \_\_\_\_\_.
- Estuary biome
  - Coral Reef biome
  - none of the above
- 39** \_\_\_\_\_ is the deepest point in the ocean at 36,000 feet deep.
- The Mariana Trench
  - Baikal
  - Red Sea



## BIOMES

- 40** Parts of ocean, deep underwater, is completely dark as it receives no sunlight. It is called \_\_\_\_\_.
- the Ocean Black Hole
  - the Blind Spot
  - the Midnight Zone
- 41** Coral reefs are mainly \_\_\_\_\_.
- rocks that provide food for variety of fishes
  - animals themselves that live in clusters and provide food for variety of fishes
  - plants that need light to survive so that they can provide food for variety of fishes
- 42** In Ocean biomes, a special kind of light display is produced through chemical reactions in the bodies of creatures found there and it is called \_\_\_\_\_.
- Bioluminescence
  - Aurora borealis
  - Fluorescence
- 43** Grassland Biomes have grasses with \_\_\_\_\_.
- complex "root system" to prevent erosion
  - complex "leaf system" so that animals don't eat them
  - no roots
- 44** Pyramid of numbers for the grassland ecosystem is \_\_\_\_\_.
- in decreasing order
  - inverted
  - upright

BIOMES

- 45 The largest animals on land are \_\_\_\_\_.
- a. reptiles of Temperate Rainforest biomes
  - b. grazing animals in grassland biomes
  - c. predator animals in Tropical Rainforest biomes

- 46 Think about a grassland food-chain, pick the numbers in the correct sequence from the figures given below.

\_\_\_\_\_

\_\_\_\_\_



## BIOMES

- 47** Nepal is a very diverse country in terms of geography, climatic conditions. Corresponding to such varied conditions, it has rich biodiversity. It has \_\_\_\_\_.
- 118 ecosystem and 6 biomes
  - 118 ecosystems and 8 biomes
  - not many studies have been done so don't know for sure.
- 48** The two approaches of classifying biomes are represented by the climate zone and the vegetation. Who exemplified them?
- Clements and Haeckel
  - Walter and Whittaker
  - Gleason and William
- 49** Which two countries have the highest number of biomes in the world?
- USA and China
  - Peru and Chile
  - China and Chile
- 50** Miami sunrises and sunsets in the US are very popular for their special redish color effect. The bright red sunrises and sunsets of Miami is because of \_\_\_\_\_.
- dust travelling across the Atlantic from the Sahara desert
  - dust travelling across from Nevada, US
  - dust from its own neighbourhood

BIOMES



## II

# SPECIES OF THE WORLD

Earth is home to a variety of living being—evolving from thousands of years. Plants, animals, bacteria, and fungi are among the different types of species found on the earth. It has been estimated that there are around 8.7 million species of plants and animals currently living in different biomes on earth. Out of all this, only 1.2 million species of plants and animals have been identified and studied by man, while millions of species are yet to be discovered. So many nooks and corners that are still left unexplored on earth.

Species exists in varied ecosystems such as forests, grasslands, deserts, mountains, lakes and oceans. In these ecosystems, different types of species are found to be coexisting with each other while maintaining a balance in the environment. But factors such as global warming, climate change, habitat loss and pollution have led to massive loss of biodiversity with extinction of many species of plants and animals over the years from the face of the earth.

According to IUCN Red List there are 35000+ species which are currently threatened with extinction. Around seventeen freshwater fish species in the Philippines and three frog species from Central America have been recently declared extinct from this planet. In plants, the popular Macadamia Nut species and Oak Tree species have also been declared as threatened to extinction in the recent past. Thus, it is imperative that we understand how biodiversity adds value to our lives on earth and come together to promote conservation all around the world.

The continent of America has some of the richest countries in biodiversity like Brazil, Colombia, Ecuador, Mexico, Peru, Venezuela and the United States of America. China, Indonesia, India, Philippines and Malaysia are the most biodiversity rich Asian countries. While in Africa, countries like Madagascar, Democratic Republic of Congo and South Africa are the richest. Likewise, Oceania has Australia and Papua New Guinea that have outstanding biodiversity richness. These countries, together are home to more than 70% of the planet's biodiversity.

Nepal however is unique, as it has rich biodiversity in a small area corresponding to the wide ranging geographic and climatic conditions from the hot climate in its southern plains to the tundra climate in the north, with altitudes that are highest in the world.



# Questions

1 Bees \_\_\_\_\_ to tell the location and distance of their food to other bees.

- a. produce buzzing sound
- b. dance
- c. produces a certain smell



2 Which is the loudest insect in the world?

- a. Cicada
- b. Cricket
- c. Bee

3 How many hearts do Earthworms have?

- a. Four
- b. Thirteen
- c. Five

4 Which animal has the best hearing?

- a. Human
- b. Bats
- c. Moth

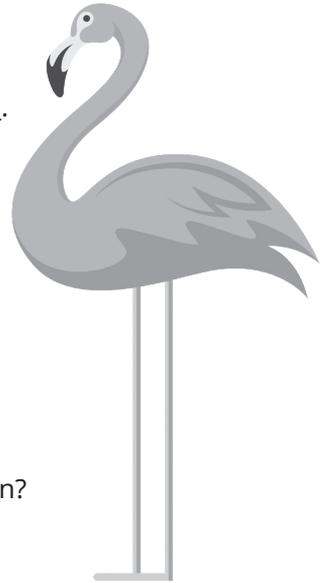
5 Which animal has more than 1 pair of eyes?

- a. Butterfly
- b. Spider
- c. Both

- 6 How many brains do a leech have?
- 13
  - 2
  - 32
- 7 A group of owls is called a (an) \_\_\_\_\_.
- Assembly
  - Flock
  - Parliament
- 8 All owls are nocturnal.
- Yes
  - No
- 9 \_\_\_\_\_ are the only birds that can fly backwards and upside down.
- Owls
  - Hummingbird
  - Sparrow
- 10 Which species of bird migrate to low land Indian subcontinent flying across the world's highest peak the Mt. Everest?
- Bar-headed Goose
  - Bean Goose
  - Greater white-fronted Goose



- 11** One of the world's fastest birds that is recorded diving (200 miles per hr.) from great heights in the sky to strike prey is \_\_\_\_\_ .
- a. Swift
  - b. Peregrine Falcon
  - c. Serpent Eagle
- 12** Flamingo are pink or red because of \_\_\_\_\_ .
- a. their food
  - b. their water
  - c. their feathers
- 13** African Penguins are only found in Africa.
- a. True
  - b. False
- 14** Which species has eyes bigger than their brain?
- a. Penguins
  - b. Tiger
  - c. Ostrich
- 15** \_\_\_\_\_ is already extinct from the world.
- a. Salamander
  - b. White Rhino
  - c. Dodo
- 16** Where does the Parakeet build their nest?
- a. Over branches like general birds do
  - b. In holes made in the tree
  - c. They don't make a nest

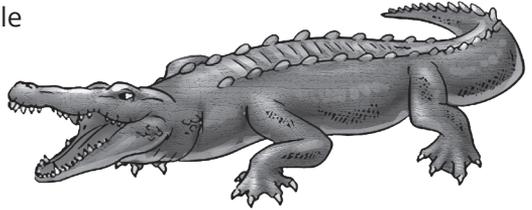




- 17** What color is octopus's blood?
- a. Red
  - b. Blue
  - c. Purple
- 18** Which aquatic animal has the largest eye?
- a. Octopus
  - b. Sea Horse
  - c. Squid
- 19** \_\_\_\_\_ can significantly reduce food and habitat for other native fish while tolerating a range of water conditions itself.
- a. Asian Carp
  - b. Eurasian Ruffe
  - c. Round Goby
- 20** \_\_\_\_\_ affect the gender of sea turtles.
- a. Warm temperature
  - b. Nests
  - c. Sand
- 21** What do lobsters and crabs have in their stomachs?
- a. Intestine
  - b. Teeth
  - c. Tongue
- 22** What animal is considered an immortal being?
- a. Immortal Bat
  - b. Immortal Jellyfish
  - c. Immortal Crab fish

- 23 Fishes can sense chemicals in their environment through \_\_\_\_\_.
- a. Breathing
  - b. Olfaction
  - c. Sight

- 24 How many species of crocodile are found in Nepal?
- a. 1
  - b. 2
  - c. 3



- 25 The land speed of alligators is less than in water.
- a. True
  - b. False

- 26 Cobras are venomous snakes. However some animals are immune to their venom, who are they?
- a. Rat
  - b. Human being
  - c. Mongoose

- 27 Which species of monitor lizard is protected by the Government of Nepal?
- a. Bengal Monitor Lizard
  - b. Golden Monitor Lizard
  - c. Oriental Garden Lizard

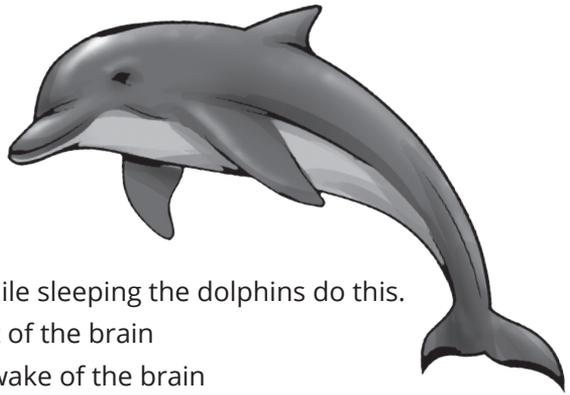
- 28 All the snakes are oviparous (i.e., they lay eggs).
- a. True
  - b. False

- 29** All horses have an organ on the bottom of the foot which is called a frog. What does a frog act as?
- Lungs
  - Ears
  - Heart
- 30** The world's largest frog is
- The Indian Bullfrog
  - The Goliath Frog of West Africa
  - The Panamanian Golden Frog
- 31** Giraffes being the tallest animal have \_\_\_\_\_ bones.
- 9 bones
  - 7 bones
  - 11 bones
- 32** Which animal has the longest pregnancy period?
- Giraffe
  - Elephant
  - Yak
- 33** Which is the smallest mammal by mass?
- Etruscan Shrew
  - Mouse
  - Bat
- 34** \_\_\_\_\_ was the last feline species to go extinct.
- Iberian Lynx
  - Florida Panther
  - Saber toothed Cat



- 35** Which species is believed to turn into gold once it dies?
- a. Panamanian Golden Frog
  - b. Pygmy three-toed Sloth
  - c. Golden lion Tamarin
- 36** \_\_\_\_\_ poses the greatest threat to polar bears.
- a. Bear hunting
  - b. Climate Change
  - c. Water pollution
- 37** How many species of bear exist in the world?
- a. Ten
  - b. Three
  - c. Eight
- 38** What special mechanism do sloth bears have that helps them to eat termites?
- a. A hollowed mouth, long tongue and snout
  - b. Large ears
  - c. Long tail
- 39** Which species produces red sweat?
- a. Sloth Bear
  - b. Crocodile
  - c. Hippopotamus





- 40** To prevent drowning while sleeping the dolphins do this.
- a. Shuts off 1/4th part of the brain
  - b. Keeps 2/4th part awake of the brain
  - c. Never sleeps
- 41** What weird physical trait does the Chinese water deer have?
- a. Translucent skin
  - b. Tusks
  - c. Scales
- 42** Which animal has the largest heart in the world?
- a. Turtle
  - b. Dog
  - c. Blue Whale
- 43** \_\_\_\_\_ has similar fingerprints like humans.
- a. Monkey
  - b. Koala
  - c. Chimpanzee

- 44** What appeared first on Earth?
- Algae
  - Moss
  - Fern
- 45** A “living fossil” is an organism that has not changed for hundreds of million of years. There is one such tree that sheds its yellow leaves in winter and is widely known for its high antioxidant, anti-inflammatory properties and also as a neurotransmitter. Which of the following is that tree?
- Wollemi Pine (*Wollemia nobilis*)
  - Ribbonwood tree (*Idiospermum australiense*)
  - Ginkgo Tree (*Ginkgo bibola*)
- 46** \_\_\_\_\_ are today one of the most cultivated groups of plants that comes from the same ancestor.
- Wheat, rice, corn and sorghum
  - Wheat, corn, beans
  - Soyabean, rice, melon
- 47** People grow hundreds of plants around the globe for food but the most widely grown plants for food in the world are \_\_\_\_\_.

- Rice and Soybean
- Maize and Wheat
- Potato and Rice



48 \_\_\_\_\_ produces the largest

flower on earth.

- a. *Rafflesia Arnoldii*
- b. *Rosa sp.*
- c. *Dahlia pinnata*

49 Which of the following conifers is a true pine?

- a. Huon Pine
- b. Radiata Pine
- c. Norfolk Pine

50 Which plant spreads quickly, with mature ones producing over 2.5 million seeds each year?

- a. *Eurasian Watermilfoil*
- b. *Purple Watermilfoil*
- c. *Purple Loosestrife*



### III

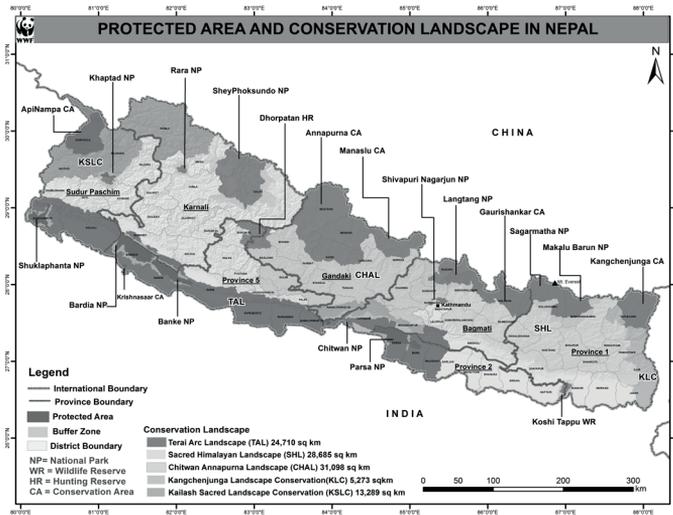
# LANDSCAPES OF NEPAL

Nepal is a small yet a very interesting country with an area of just 1,47,516 sq. km (56,956 sq. mi.) between two giants - India on its three sides and China on one side in the north. It hosts diverse landscapes from the largest mountain range (The Central Himalayas) with eight of the highest peaks in the world to the flat river plains of Terai. Due to this unique geographical variation, Nepal has rich and unique assemblance of biodiversity. However, today Nepal faces great environmental challenges with increasing population and haphazard urbanisation throughout the country. It requires urgent attention and engagement in conservation from all of its stakeholders so that sustainable development can be embraced in the true sense.

In an effort to implement effective conservation measures, Nepal introduced conservation at landscape level strategy in 2004 to protect and conserve the ecological and socio-cultural aspects in its diverse eco-regions, in addition to its Protected Area Management System after Species Conservation and Community-Based Conservation approaches.

The Government of Nepal has identified seven conservation landscapes in Nepal, of which five are the existing ones and two are under in-depth study and analysis at the moment. The Five Conservation landscapes are:

- i.** Terai Arc Landscape,
- ii.** Chitwan Annapurna Landscape,
- iii.** Sacred Himalayan Landscape,
- iv.** Kanchenjunga Landscape, and
- v.** Kailash Sacred landscape.



The Terai Arc landscape has been established to conserve the tigers at a landscape level, while the Chitwan Annapurna Landscape has been established to protect the river basin linking habitats at different areas. Similarly, the Sacred Himalayan Landscape was established to preserve cultural and ecological attributes of the area and Kailash Sacred Landscape for preserving the unique cultural attributes linked with conservation. Likewise, Kanchenjunga Landscape is established to protect the habitats at altitudes from the lowland Terai in Jhapa to the high mountains of Kanchenjunga.

The Karnali Conservation Landscape and Eastern - Chure - Terai Complex (ECTC) are two new conservation landscapes that have been proposed by the experts for implementation. The Karnali Conservation Landscape proposes to protect the globally important eco-regions along the Karnali basin which is also the largest complex for Snow Leopard conservation. Similarly, the Eastern - Chure - Terai Complex covering the entire Chure and Terai of Eastern Nepal from the Bagmati River eastwards to Koshi Tappu including the Koshi Tappu Wildlife Reserve, is proposed to conserve the most fragile degraded Chure forests and improve the water recharge capacity of Chure and Bhabar benefiting wide range of biodiversity and its local communities.

# Questions

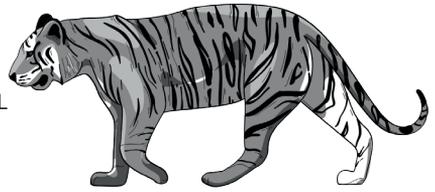
- 1** When did National Conservation Strategy develop in Nepal ?

  - a. 1980
  - b. 1988
  - c. 1972
  
- 2** It has been estimated that the forestry sector in Nepal contributes about \_\_\_\_\_ of national GDP, of which about \_\_\_\_\_ is contributed by NTFPs.

  - a. 5%, 15%
  - b. 25%, 10%
  - c. 40%, 20%
  
- 3** In which district does Lake Tilicho, possibly the lake at the highest altitude in the world with no record of fish, is situated?

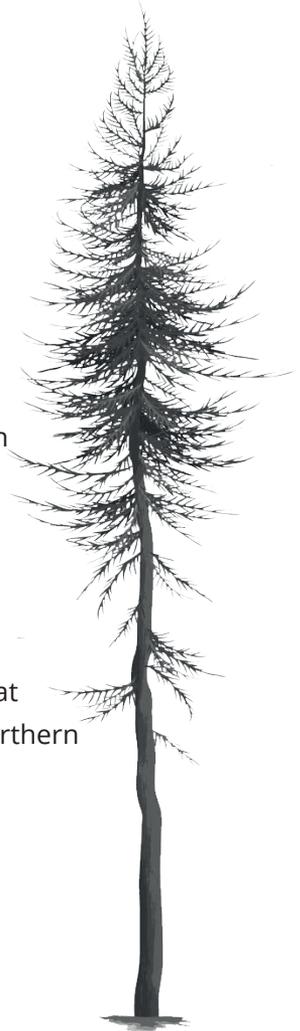
  - a. Mustang
  - b. Solukhumbu
  - c. Manang
  
- 4** Which wildlife reserve has been changed to a national park in 2017?

  - a. Koshi Tappu Wildlife Reserve
  - b. Shuklaphanta Wildlife Reserve
  - c. Parsa Wildlife Reserve



- 5 \_\_\_\_\_ is regarded as the Tiger Zone of Nepal.
- Bardia National Park
  - Shuklaphanta National Park to Parsa National Park
  - Chitwan National Park
- 6 Which of the following landscapes in Nepal rises from the Terai (60 m asl) to the high mountains (8,586 m asl) within a short aerial distance of 70 km?
- Chitwan Annapurna Landscape (CHAL)
  - Sacred Himalayan Landscape (SHL)
  - Kanchenjunga Landscape (KL)
- 7 Chitwan – Annapurna Landscape (CHAL) falls partly within the Sacred Himalayan Landscape (SHL) that stretches from \_\_\_\_\_.
- Chitwan in the east to Gandaki river basin in the west
  - Bhutan in the east to Nepal's Kali Gandaki river in the west
  - Brahmaputra River Basin in the south to Annapurna River Basin in the east
- 8 In CHAL, WWF Nepal's Hariyo ban program focuses on implementing an integrated river basin approach in the Seti, Marsyangdi and \_\_\_\_\_ river basins.
- Rapti
  - Daraundi
  - Budhi Gandaki

- 9 Which landscape program extends from the Bagmati river of Nepal in the east to the Yamuna river of India in the west covering 51,002 sq.km of the area?
- Terai Arc Landscape (TAL)
  - Chitwan Annapurna Landscape (CHAL)
  - Sacred Himalayan Landscape (SHL)
- 10 Terai Arc Landscape (TAL) covers partial or whole of \_\_\_\_\_ Districts in Nepal.
- 2
  - 10
  - 18
- 11 In Nepal, how many protected areas fall in TAL?
- 8
  - 4
  - 6
- 12 The threatened species in TAL that require attention for conservation are Sal (*Shorea robusta*), Khair (*Acacia catechu*), and Sissoo (*Dalbergia sissoo*).
- True
  - False
- 13 Hindu Kush is an \_\_\_\_\_ km long mountain range that stretches through Afghanistan from its centre to northern Pakistan and into Tajikistan and China.
- 800
  - 1100
  - 1300



- 14** Hindu Kush Himalayan Region (HKH) is the western most extension of the Pamir Mountains, the \_\_\_\_\_ and the Himalayas.
- Karakoram
  - Snow Capped peaks
  - Caucasus indicus
- 15** The main objective of Sacred Himalayan Landscape is to \_\_\_\_\_.
- conserve the biodiversity and the cultural diversity of western himalayas
  - conserve biodiversity, cultural diversity and sacred sites in eastern himalayas
  - conserve the hydrological flows in the western river basin
- 16** The proposed Eastern Chure Terai Complex (ECTC) is the area of the confluence of several important rivers of the Koshi basin and covers \_\_\_\_\_ watersheds.
- 5
  - 8
  - 10
- 17** How many species of mammals, birds, reptiles and amphibians does Terai Arc Landscape (TAL) support?
- 85, 565, 47 respectively
  - 77, 480, 39 respectively
  - 73, 455, 35 respectively

- 18** In the south, the CHAL overlaps with the TAL in \_\_\_\_ districts of Nepal.
- a. 1
  - b. 3
  - c. 4
- 19** The Kailash Sacred Landscape Conservation and Development Initiative (KSLCDI) that bring long-term conservation of ecosystems, habitats, and biodiversity in the region covers which countries?
- a. Nepal, China, Bhutan
  - b. China, India, Nepal
  - c. Pakistan, Nepal, China
- 20** Higher Himalaya extends from the \_\_\_\_\_ and runs throughout Nepal.
- a. Himalayan Frontal Front to Tibetan–Tethys zone
  - b. Main Central Thrust to Tibetan-Tethys Zone
  - c. Main Frontal Thrust to Tibetan-Tethys Zone
- 21** Through which 3 different geological processes mountain formation takes place?
- a. Shifting, Folding, Eruption
  - b. Folding, Faulting, Shifting
  - c. Faulting, Folding, Eruption



- 22** Which is not a type of mountain?
- Folded Mountains
  - Volcano Mountains
  - Compound Mountains
- 23** The Sub Himalayan zone (Chure) also called Siwalik is the youngest Himalaya of the Himalayan chain.
- True
  - False
- 24** Bhabhar Zone acts as a recharge zone for the groundwater of Terai.
- True
  - False
- 25** Due to the \_\_\_\_\_ the Bhabhar zone is particularly not productive for agriculture and therefore ideal for the development of forest resources.
- Nature of the sediments, high temperature and quick recharge of ground water
  - Low water table, soil alkalinity and quick recharge of ground water
  - Nature of the sediments, low water table and quick percolation of rainwater
- 26** Siwalik comprises mainly fluvial sediments, which were deposited as a result of \_\_\_\_\_ tectonics of the Himalaya.
- Paleogene
  - Neogene
  - none of the above

LANDSCAPES OF NEPAL

- 27** Major rivers in the SHL are the Bhotekoshi, Indrawati, Sunkoshi, Tamakoshi, Tamor, Arun, Dudhkoshi, and Melamchi rivers, which all join to form \_\_\_\_\_ .
- Saptakoshi
  - Gandaki
  - Karnali
- 28** The vast alluvial plains of the Indo-Gangetic Basin evolved as a \_\_\_\_\_ in the southern part of the rising Himalaya.
- Gangetic plain
  - Foreland basin
  - Sub Himalayan zone
- 29** \_\_\_\_\_ in the Himalayas has resulted in the formation of new glacial lakes and the enlargement of the existing ones
- Thickening of glacier
  - Heavy deposit of snow and ice
  - Glacier thinning and retreat
- 30** A mountain glacier is created from snow collected in a \_\_\_\_\_ .
- Concave
  - Quagmire
  - Cirque



## LANDSCAPES OF NEPAL



- 31** Glacial Lakes is a body of water with origins from \_\_\_\_\_.
- glacial activity
  - volcanic activity
  - atmospheric activity.
- 32** Which is Nepal's first hydropower from a glacial lake?
- Kapuche Glacial Lake
  - Lirung Glacial Lake
  - Cho La Glacial lake
- 33** The retreat of the glacier depends upon \_\_\_\_\_.
- elevations, temperature and size of glacier
  - topography slope aspect, size of glacier & precipitation
  - precipitation patterns, temperature and atmospheric pressure

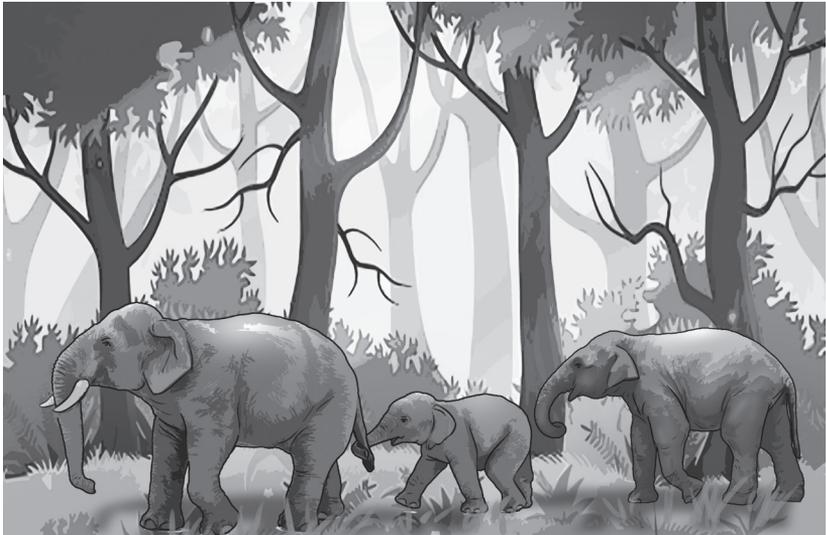
- 34** In the wide valleys where no glacial lake is formed, the melted water from the mountains deposits huge amounts of \_\_\_\_\_ around the valley floor.
- heavy boulders and coarse sediments of sand and gravels
  - melting ice sheets and fine sand
  - snow, ice and fine sediments
- 35** Based on the glacial lake inventory report launched in 2020, how many glacial lakes are at high risk for outbursts?
- 47
  - 100
  - 80
- 36** The water must reach a critical depth of approximately \_\_\_\_\_ of the thickness of the ice dam to trigger Glacier Lake Outburst Flood (GLOF).
- 75%
  - 87%
  - 90%
- 37** When did Nepal sign the Ramsar Convention?
- 1988
  - 1973
  - 1990
- 38** Which is the first Ramsar Site of Nepal?
- Bishhazari Lake
  - Koshi Tappu
  - Jagdishpur Reservoir



- 39** How many Ramsar Sites are there in Nepal?
- 8
  - 9
  - 10
- 40** Which is the recent Ramsar Site that is listed in Ramsar from Nepal?
- Ghodaghodi lake
  - Rara Lake
  - Lake cluster of Pokhara Valley
- 41** Among these Ramsar sites, which do not fall in the Himalayan zone.
- Phoksundo lake
  - Mai Pokhari
  - Rara Lake
- 42** Among these, which is not listed as a Ramsar Site?
- Gosaikunda and Associated Lakes
  - Panch Pokhari
  - Gokyo and Associated Lakes
- 43** Nepal's Chitwan National Park and Parsa National Park are connected with \_\_\_\_\_ of India.
- Valmiki Tiger Reserve
  - Dudhwa Tiger Reserve
  - Katarniaghat Wildlife Sanctuary

- 44** The protected areas in the proposed Karnali Conservation landscapes are Shey Phoksundo National Park, Rara National Park, Khaptad National Park and \_\_\_\_\_.
- Partly Bardia National Park
  - Dhorpatan Hunting Reserve
  - Shuklaphanta National Park
- 45** Shuklaphanta National Park of Far-west Nepal shares a border with \_\_\_\_\_ of Uttar Pradesh, India.
- Valmiki Tiger Reserve
  - Dudhwa Tiger Reserve
  - Sohelwa Wildlife Sanctuary
- 46** The Khata corridor links Bardia NP in Nepal and Sohelwa Wildlife Sanctuary in India.
- True
  - False
- 47** The Brahmadev corridor borders the eastern bank of the Mahakali River and connects \_\_\_\_\_ with Doon Forest in India.
- Parsa National Park
  - Bardia National Park
  - Shuklaphanta National Park
- 48** The Laljhadi-Mohana corridor connects the Churia forests and Shuklaphanta National Park of Nepal with \_\_\_\_\_ of India.
- Dudhwa National Park
  - Valmiki Tiger Reserve
  - Dudhwa Tiger Reserve

- 49** The Kamdi corridor connects Banke National Park and Chure forests in Nepal with \_\_\_\_\_ of India.
- Sohelwa Wildlife Sanctuary
  - Valmiki tiger reserve
  - Dudhwa Tiger Reserve
- 50** Barandabhar forest is a wildlife corridor connecting Mahabharat foothills in Nepal's Inner Tarai and \_\_\_\_\_ in the South.
- Chitwan National Park
  - Parsa National Park
  - Banke National Park



## IV

# SPECIES OF NEPAL

Although Nepal is a small country, it is well renowned for its diverse and unique flora and fauna matching its wide ranging physiographic zones with climatic and altitudinal variation (from 60 meters above sea level in south to the highest peaks in the world). Although Nepal occupies only 0.1 percent of the global area, it is a habitat for 4.0% of all mammal species, 8.9% of bird species, 1.0% of reptile species, 2.5% of amphibian species, 1.9% of fish species, 3.7% of butterfly species, 0.5% of moth species and 0.4% of spider species.

In its 35 forest-types and 118 ecosystems, Nepal harbors 2% of the flowering plant species, 3% of pteridophytes and 6% of bryophytes. Nepal's forest cover is 59,624 sq. km (23,021 sq mi), 40.36% of the country's total land area, with an additional 4.38% of scrubland. A total of 312 plants, 160 animal species (1 mammal and 1 bird), and 24 herpetofauna are endemic to Nepal.

Nepal contains 107 IUCN-designated threatened species, 88 of them are animal species, 18 are plant species and one is a "fungi" species. The National Parks and Wildlife Conservation Act, 2029 gives absolute protection to 27 mammals, 9 birds and 3 reptiles. These include the endangered Bengal Tiger, the Red Panda, the Asiatic Elephant, the Himalayan Musk Deer, the Wild Water Buffalo and the South Asian River Dolphin, as well as the critically endangered Gharial, the Bengal Florican, and the White-rumped Vulture. Similarly, 17 species of plants in Nepal are banned for collection, use, trade and export without the permission of Department of Forest. Species such as Tibetan Argali, Tibetan Antelope, Kashmir Musk Deer, Himalayan Wolf, Steppe pole

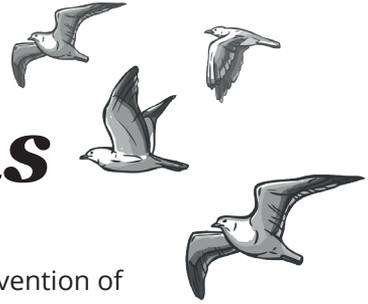


Cat, Pallas Cat, Tibetan Wild Ass, Rusty Spotted Cat, and Tibetan Sand Grouse are few of the new species that have recently been discovered in Nepal in the past few years.

Nepal is signatory to at least fifteen major international conventions, treaties and agreements to protect its biodiversity, natural resources and heritage. Among them are the Ramsar Convention, Convention of Biological Diversity, Convention for the Protection of the World's Cultural and Natural Heritage, Convention on the International Trade in Endangered Species of Wild Fauna and Flora (CITES), United Nation's Framework for Convention on Climate Change (UNFCCC) to name a few.

Nepal has twelve National Parks, one Wildlife Reserve, one Hunting Reserve, six Conservation Areas and thirteen Buffer Zones, covering 23.39% of its total land area which is equivalent to 34,419 sq. km. Ten wetlands of Nepal with high value biodiversity, are registered under the Ramsar Convention as Ramsar Sites.

# Questions



- 1** Nepal is one of the signatory countries of Convention of International Trade on Endangered Species (CITES). Wildlife featured in Appendix 1 of CITES are \_\_\_\_\_ .
  - a. completely banned for international trade
  - b. banned for internal trade
  - c. allowed for commercial trades with permits
  
- 2** Nepal became a signatory to the \_\_\_\_\_ in June 1992 (rectified in November 1993). This places obligations on signatory parties to put in place organisational structures and document their biological diversity and conservation plans.
  - a. United Nations Framework Convention on Climate Change (UNFCCC)
  - b. Convention on Biological Diversity (CBD)
  - c. Ramsar Convention
  
- 3** In order to conserve wildlife, how many species of birds has the National Parks and Wildlife Conservation Act (1973) listed?
  - a. 12 species
  - b. 6 species
  - c. 9 species
  
- 4** 4. In order to conserve the reptiles of the country, how many species of reptiles have been listed in the National Parks and Wildlife Conservation Act (1973)?
  - a. 3 species
  - b. 6 species
  - c. 9 species

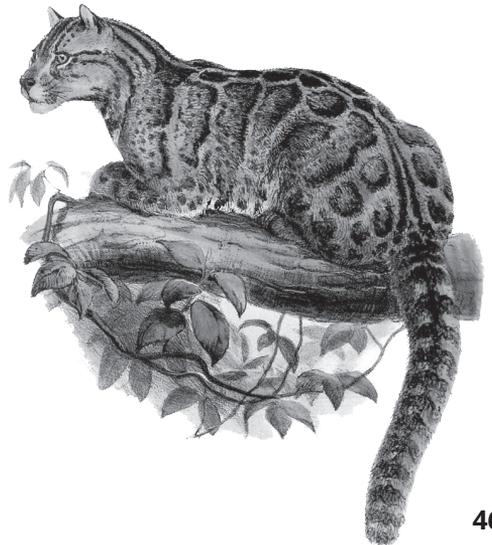
- 5 The National Parks and Wildlife Conservation Act (1973) of Nepal offers protection to how many mammals?
- 27 species
  - 6 species
  - 10 species
- 6 One hive of the Himalayan Giant Honey Bee contains what amount of honey?
- 45 kg
  - 60 kg
  - 75 kg
- 7 Which protected area of Nepal is known as the “paradise of birds”?
- Suklaphanta National Park
  - Koshi Tappu Wildlife Reserve
  - Bardia National park
- 8 \_\_\_\_\_ is the endemic bird of Nepal.
- Himalayan Monal
  - Cheer Pheasant
  - Spiny Babbler
- 9 Mature Himalayan Monal can attend the length up to?
- 50 cm
  - 63 cm
  - 70 cm



- 10** How many feathers are found in a Cheer Pheasant's tail?
- 11
  - 18
  - 27
- 11** What do Sarus Cranes feed on?
- Chelicerates
  - Tunicates
  - Crustaceans
- 12** Bengal Florican can migrate up to \_\_\_\_\_ km annually to escape flood water in the non-breeding season.
- 100
  - 350
  - 400
- 13** \_\_\_\_\_ are the species that feed on carcasses.
- Tigers
  - Vultures
  - Eagles
- 14** Which species of birds are winter migrants and can be easily seen in the winter season of Nepal?
- Ruddy Shelduck
  - Eurasian Pigeon
  - Both of them
- 15** Asian Rock Pythons can lay up to \_\_\_\_ eggs.



- 16 Gharials are the \_\_\_\_\_ that need both land and water to survive.
- Amphibians
  - Reptiles
  - Fishes
- 17 The eyes of gharials have a reflective layer called \_\_\_\_\_ which assists in night vision.
- Tapetum lucidum
  - Bowman's layer
  - Descemet's membrane
- 18 What is the scientific name of Gangetic Dolphins?
- Delphinus delphis*
  - Platanista gangetica*
  - Delphinus gangetalis*
- 19 What helps to distinguish male sand loaches from female sand loaches?
- Peduncle
  - Operculum
  - Suborbital flap
- 20 What is the scientific name of Clouded Leopard?
- Neofelis nebulosa*
  - Panthera pardus*
  - Panthera uncia*



SPECIES OF NEPAL

- 21** What are the different types of leopard found in Nepal?
- a. Javan, Clouded, Amur
  - b. Common, Clouded, Snow
  - c. Amur, Clouded, Snow

- 22** Snow Leopards can't roar
- a. True
  - b. False

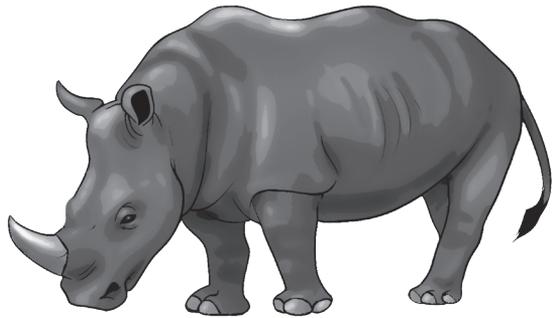


- 23** Marbled Cat home range covers territorial size of \_\_\_\_ sq. miles.
- a. a. 0.8
  - b. b. 1.7
  - c. c. 2.2

- 24** The \_\_\_\_\_ is the newly discovered cat species recorded at the highest altitude of Nepal, 5050 m.
- a. Rusty-spotted Cat
  - b. Steppe Polecat
  - c. Pallas Cat

- 25** Which of the following cats is also named as "Tashi Biralo" in honor of Tashi Rapte Ghale?
- a. Rusty-spotted Cat
  - b. Steppe Pole Cat
  - c. Pallas Cat

- 26** What kind of hunting technique does Eurasian Lynx use?
- Chasing
  - Ambush
  - Feed on dead animals
- 27** Rhino horns stop growing after they are 12 months old.
- True
  - False
- 28** Rhinos are known for their speed despite their heavy weight so one has to be careful when one encounters a Rhino because they might just charge. At what speed can One horned Rhinoceros charge?
- 8 miles per hour
  - 15 miles per hour
  - 30 miles per hour
- 29** What is a group of Rhinoceros called?
- Crash
  - Mash
  - Litter
- 30** For the protection of which species, Koshi Tappu Wildlife Reserve was found?
- One-horned Rhinoceros
  - Wild Water Buffalo
  - Bengal Tiger



31 \_\_\_\_\_ is the endemic mouse of Nepal.

- a. Himalayan Field Mouse
- b. Royle's Pika
- c. House Rat

32 Why are Wild Yaks almost extinct from Nepal?

- a. Overhunting and Habitat destruction
- b. Slow breeding process
- c. Small life span

33 \_\_\_\_\_ mammal species are found in Nepal.

- a. 185
- b. 208
- c. 197

34 The scientific name of Red Panda is

- a. *Ursus maritimus*
- b. *Ailuropoda melanoleuca*
- c. *Ailurus fulgens*



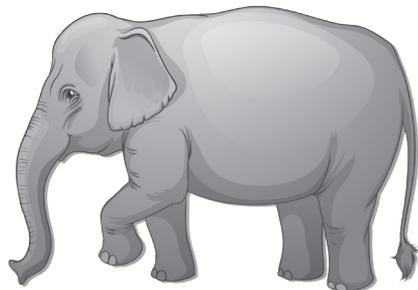
35 Hispid hare takes shelter in?

- a. Surface vegetation or Burrows of other species
- b. Surface vegetation or Self constructed burrow
- c. Trees or Burrows of other species

36 What is the common vocalization of Bengal Foxes?

- a. Scream
- b. Chattering Cry
- c. Howl

- 37 Monkeys are the \_\_\_\_\_ animals.
- Aquatic
  - Aerial
  - Arboreal
- 38 Foxes are fast animals but there is one fox which is considered a slow runner and the reason why it is often hunted down. Which fox is it?
- Corsac Fox
  - Bengal Fox
  - Tibetan Fox
- 39 \_\_\_\_\_ is the endemic bat of Nepal.
- Dawn Bat
  - Painted Woolly Bat
  - Csorba's Mouse-eared Bat
- 40 Bats play a role in \_\_\_\_\_ .
- hibernation
  - pollination
  - reproduction of other mammals
- 41 The trunk of an Asian elephant contains as many as \_\_\_\_\_ muscles.
- 10,000
  - 35,000
  - 60,000



- 42 What is the scientific name of Yarsagumba?
- a. *Oryza sativa*
  - b. *Ophiocordyceps sinensis*
  - c. *Ocimum tenuiflorum*

- 43 Which district is known for Nepal's coffee production?
- a. Sunsari
  - b. Gulmi
  - c. Pyuthan



- 44 Which is the famous district for ginger farming?
- a. Jajarkot
  - b. Salyan
  - c. Surkhet

- 45 Which cash crop is known as "Black Gold"?
- a. Coffee
  - b. Cardamom
  - c. Cotton

- 46 Grown commercially in Nepal, which plant species is also called "White Gold"?
- a. Rice
  - b. Cotton
  - c. Dragon fruit

- 47 What is the maximum length of Nepalese Minnow?
- 15cm
  - 21cm
  - 27cm
- 48 What does Dhatura and poppy seeds serve as?
- Bacteria eliminators
  - Antipyretic substances
  - Pain killers
- 49 Which plant species got its name because of palm-like root?
- Sarpagandha
  - Jatamansi
  - Panchaule
- 50 Jatamansi is a very important medicinal plant.  
And it is also called \_\_\_\_\_ .
- Sughandhawal
  - Lauth Salla
  - Panch aule



# Answers

**1 b. The kind of grasses**

Abiotic factors are non-living factors whereas biotic factors are living organisms. Both factors play a significant role in maintaining the balance of the ecosystem. Soil is composed of both biotic factors like plants, microorganisms and insects (living or dead) and abiotic factors such as minerals, water and air.

**2 a. Chaparral**

A biogeographical realm is a large spatial region with ecosystems in the earth which share similar biota. There are eight realms: Australasian, Afrotropical, Nearctic, Oceanic, Antarctic, Indo-Malayan, Neotropical, and Palearctic.

**3 a. Yes.**

Biomes change and move throughout the year as per the climatic conditions.

**4 b. Taiga**

The Taiga or Boreal Forest is the largest biome in the world. This biome is found in North America covering most of the inland of Canada, Alaska and parts of northern United States. It is also distributed in Sweden, Finland, most of the parts in Russia and Siberia, Norway and Estonia, highlands of Scotland and lowlands and coastal areas of Iceland and areas of northern Kazakhstan, northern Mongolia and northern Japan.

**5 c. Temperate deciduous forest**

Located in Eastern United States, Canada, Europe, China, and Japan, temperate deciduous forest have four seasons: Winter, Spring, Summer, and Fall.

**6 b. The biosphere**

The biosphere is where life exists. The biosphere extends from the deepest root systems of trees, to the dark environments of ocean trenches, to lush rainforests, high mountaintops, and transition zones like this one, where ocean and terrestrial ecosystems meet.

**7 a. Hadley**

It is a pattern of atmospheric circulation in which warm air rises near the equator and as it travels towards the poles at high altitude it cools, sinks and again warms as it travels towards the equator.

**8 b. Ramsar Convention**

The Ramsar Convention is an international treaty for the 'conservation and sustainable utilization of wetlands. It seeks to list and protect nationally and internationally important wetlands, especially those that are waterfowl habitat. At present there are around 168 members who have signed the treaty to maintain the ecological character of the important wetlands within their territories, and to plan for wise or sustainable use of these.

**9 a. Upside down triangle shaped growth**

**10 a. Temperate and Tropical****11 b. False**

Desert plants may have to go without fresh water for years at a time. Some plants have adapted to the arid climate by growing long roots that tap water from deep underground. Other plants, such as cacti, have special means of storing and conserving water. The vegetation and low animal diversity of this biome is closely related to low and unpredictable precipitation. Seed plants in the desert produce seeds that can be in dormancy for extended periods between rains. Adaptations in desert animals include nocturnal behavior and burrowing. To reduce water loss, many desert plants have tiny leaves or no leaves at all.

**12 c. Semi arid deserts****13 a. Subtropical high****14 a. Fat**

The camels use their hump to store fats and not water. When food and water is scarce, camels gain nourishment through the fats stored in their hump.

**15 a. Savanna**

The savanna is a grassland with widely spaced trees. They are frequently a transitional zone between deserts and forests. Savannas have a dry climate and receive less than 30 inches of rain per year.

**16 b. Buttress roots**

Buttress roots are large, wide roots on all sides of a shallowly rooted tree. Typically, they are found in nutrient-poor tropical forest soils that may not be very deep.

**17 a. soils are nutrient poor**

The soil of the rainforest biomes is acidic and are nutrient deficient.

**18 c. Tall and narrow**

Tall and narrow is NOT an adaptation feature for a temperate deciduous forest plant. The temperate deciduous forest has four distinct seasons: spring, summer, autumn, and winter. This forest comprises layers of plants. Many trees are deciduous which shed their trees in the autumn and grow new ones in spring. Trees have broad leaves that can capture a lot of sunlight for photosynthesis during warm weather and when the weather is cool the broad leaves cause too much water loss and can be weighed down by snow making it shed leaves. In autumn leaves are colorful. Many trees have thick barks to protect the trees against winter.

**19 a. Taxol**

Taxol is a substance that provides protection to the Pacific yew trees. Pacific yew trees are found scattered in the underbrush of ancient forests in the Pacific Northwest. It is also a habitat for the spotted owl. Taxol has been discovered as a new cancer drug that melts away tumors. It is said that it takes six 100 -year -old Pacific yew trees to treat one patient and it requires a complete harvest. For this reason trees are found to yield cancer treatment but ecologically it can be a huge cost.

**20 a. Lay eggs before they die which survives harsh winters**

Many species of insects are found in temperate deciduous forests as it has all four distinct seasons. They have rich fertile soils and this biome has some of the largest populations of flora and fauna in it. But the winters in temperate deciduous forests are cold and the ground is frozen. The leaves drop to protect the plant from freezing temperatures and the deciduous trees and plants go into dormancy (a period of inactivity). Animals either migrate or hibernate in winter. As for some of the insects, they lay eggs before they die in the winter.

**21 b. About 20% of the Earth**

The Tundra biome covers about 20% of the Earth. It is cold and frozen and has a short growing season followed by harsh conditions. The plants and animals have special adaptation features to survive. Two types of Tundra are known - Arctic and Alpine. Arctic tundra are found on high altitude land masses above the Arctic Circle in Alaska, Canada, Russia, Greenland, Iceland and Scandinavia whereas Alpine Tundra are located at very high elevations atop mountains, where overnight temperatures fall below freezing.

**22 b. Flowering and other plants**

Tundra are largely treeless with vegetation consisting of small shrubs, grasses, mosses, sedge, and lichens. In the arctic and subarctic region alone there are about 1700 kinds of plants which consists of 400 varieties of flowers and crustose and foliose lichens.

**23 b. Absorb**

Plants in the Tundra region have adapted to the lengthy winters and short, strong arctic summers as well. Many Arctic species can grow beneath a cover of snow, and nearly all polar plants can photosynthesize in subzero temperatures. Plants utilise the lengthy hours of sunlight during the short arctic summer to quickly develop and produce flowers and seeds. Some plant flowers are cup-shaped, directing the sun's rays toward the center of the flower. Plants with dark colors absorb more of the sun's energy.

**24 b. Needle-like**

The taiga's evergreen trees have thin, wax-covered needles. Needles are the same as leaves. With the exception of the tamarack and a few other species, most taiga conifers retain their leaves in the winter. The leaves of most conifers can be kept for 2 to 3 years.

**25 a. True**

Arctic Tundra is located in the northern hemisphere, encircling the north pole and extending south to the coniferous forests of taiga. It is known for its cold, desert-like conditions. The formation of soil is very slow. A layer of permanently frozen sub-soil called permafrost exists, consisting mostly of gravel and finer material. There is no deep root system in the vegetation of the arctic tundra but a wide variety of plants are found here around 1700 kinds of plants which are able to resist the cold climate. Plants such as low shrubs, mosses, liverworts, grasses, flowers and lichens are found here.

**26 a. True**

Taigas are dense forested areas. Coniferous trees, such as spruce, pine, and fir, are widespread. While temperate forest deciduous trees lose their leaves in the winter, conifers never lose their needles. As a result, conifers are often known as “evergreens.” The taiga’s trees are chopped down for timber, as well as paper, card- board, and other commodities. For example, the export of wood and paper goods is one of Canada’s most important economic sectors.

**27 b. Carbon trapped under the soil**

The soil in the Tundra is mostly permafrost, or frozen earth that remains frozen all year, leaving only a thin surface layer of thawed soil for plant roots to grow through during the summer. Many of the nutrients that plants require to flourish are likewise sparse in tundra soil.

**28 c. Tropics**

The tropics are the area that surrounds the equator of the Earth. The tropical zone and the torrid zone are the other terms for the tropics. Climate-wise, the tropics receive more direct exposure of sunlight compared to other climatic zones and are usually hotter and wetter. “Tropical” is frequently used in a broader sense for a tropical environment which means warm to hot and moist all year, with rich and dense vegetation.

**29 b. The branches droop downwards**

All conifers are woody plants, the majority of which are trees with monopodial growth forms (a single, straight trunk with side branches) and strong apical dominance. Coniferous trees develop features that allow them to survive harsh, snowy winters. Their cone shapes prevent a lot of snow and ice from sticking to their branches. Many coniferous trees have thick bark that protects them from the elements during the winter. Snow would weigh down the branches, causing them to snap off the trees.

**30 30. c. Sunlight, dissolved oxygen, salinity**

**31 b. Estuarine**

Estuaries are areas where river meets the sea. Due to its high nutrient content estuaries are among the most productive natural habitats in the world.

**32 b. algae – caddis – fish – heron**

**33 a. The Florida Everglades**

The Everglades is a subtropical wetland ecosystem spanning two million acres across central and south Florida.

**34 c. 99%**

**35 a. Lake Geneva**

Lake Geneva is a deep lake on the north side of the Alps shared between Switzerland and France.

**36 a. Chaparral biome**

Chaparral also known as Mediterranean forests and shrub is a temperate biome with hot-dry summers and mild and rainy winters. They are very similar to the desert scrub biome but it mostly occurs in coastal regions and has much more varied vegetation from shrubland to scrubland to forests and grasslands.

**37 b. 90% of the Earth life**

Over 90% of the life on Earth lives in the ocean. The average depth of the ocean is 12,400 feet. Around 90% of all volcanic activity takes place in the world's oceans as well.

**38 b. Coral Reef biome**

Coral reef biome is a biome inside the ocean biome. It is located in a shallow part of the ocean in mostly tropical areas.

**39 a. The Mariana Trench**

The Mariana Trench is the deepest point in the ocean at 36,000 feet deep. The Mariana Trench is located in the western Pacific Ocean which is crescent shaped and measures about 2550 km in length and 69 km in width. The maximum known depth is 10984 meters.

**40 c. The Midnight Zone**

The ocean's midnight zone is a region between one and four kilometres deep, where no sunlight can penetrate. With no light, there is no growth of plants or phytoplankton - all animals are predators or scavengers.

**41 b. animals themselves that live in clusters and provide food for a variety of fishes.**

**42 a. Bioluminescence**

Bioluminescence is the production and emission of light by a living organism. It is a form of chemiluminescence. Bioluminescence occurs widely in marine vertebrates and invertebrates, as well as in some fungi, microorganisms including some bioluminescent bacteria, and terrestrial arthropods such as fireflies.

**43 a. Complex Root system to prevent erosion**

**44 c. Upright**

The pyramid of number for a grassland ecosystem is upright as the number of organisms decreases as it moves to a higher trophic level.

**45 b. Grazing animals in grassland biomes.**

The grassland biomes have high densities of grazing animals. With large open areas of grasses, grassland biomes are home to various animals from largest animals on land, African elephants to various species of prairie dogs.

**46 Grass – Grasshopper – Snake – Eagle**

**47 a. It has 118 ecosystem and 6 Biomes**

On the basis of altitudinal and climatic variations and vegetation types there are six biomes in Nepal which includes 35 forest types and 118 ecosystems. Nepal's physiography is divided into forest area, shrubland, grassland, farmland, and water bodies.

**48 b. Walter and Whittaker**

Walter classified biomes into nine types based on the types of vegetation in terms of temperature and precipitation which are as follows: i. Tropical rainforest, ii. Savanna, iii. Subtropical Desert, iv. Shrubland/ woodland, v. temperate rainforest, vi. Temperate seasonal forest, vii, Temperate Grassland/Desert, viii. Boreal forest, and ix. Tundra Biomes.

Whittaker classified biomes using two abiotic factors – precipitation and temperature.

According to Whittaker there are 26 types of biomes which are as follows

- i.** Tropical rainforest,
- ii.** Temperate seasonal rainforest,
- iii.** Temperate giant rainforest,
- iv.** Montane rainforest,
- v.** Temperate deciduous forest,
- vi.** Temperate evergreen forest,
- vii.** Subarctic -subalpine needle leaved forest,
- viii.** Elfin woodland,
- ix.** Thorn forest and woodlands,
- x.** Thorn scrub,
- xi.** Temperate woodland,
- xii.** Temperate shrublands,
- xiii.** Savanna,
- xiv.** Temperate grassland,
- xv.** Alpine grasslands,
- xvi.** Tundra,
- xvii.** Tropical desert,

## BIOMES

- xviii.** Warm temperate desert,
- xix.** Cool temperate desert scrub,
- xx.** Arctic -alpine desert,
- xxi.** Bog,
- xxii.** Tropical freshwater swamp forest,
- xxiii.** Temperate freshwater swamp forest,
- xxiv.** Mangrove swamp,
- xxv.** Salt marsh, and
- xxvi.** Wetland.

### **49 a. USA and China**

Different kind of biomes are found in USA and varies from one region to another i.e., from temperate rainforests in Olympic Peninsula to tropical rainforests in Hawaii and Florida. Similarly, from arctic Tundra in Northern Alaska to eastern deciduous forests which stretches from Minnesota to Maine and to deserts in Utah. So, all major five kinds of biomes are known to be found in the USA.

China has a diverse topography and has five climatic zones from cold temperate to tropical and has 18 biomes from Arctic Tundra to deserts and tropical rainforest supporting rich biodiversity.

### **50 a. Dust travelling across the Atlantic from the Sahara desert.**

The long waves of red and orange light from the sun tend to penetrate into the dust traveling across the Atlantic from the Sahara Desert which makes the sunrises and sunsets beautiful. The dusty haze also reflects some sunshine back to space creating a cooling effect in the surface where the plume is thickest.

# Answers

**1 b. Dance**

When a worker discovers a good source of nectar or pollen it will return to the hive to perform a waggle dance to let its fellow bees know where it lies. A bee performs the waggle dance when it wants to inform other bees of a nectar source she has found.

**2 a. Cicada**

Both sexes of Cicada have membranous structures called tympana (singular - tympanum) by which they detect sounds, only males produce the cicadas' distinctive sounds. To prevent damage to their hearing, males disable their own tympana while calling. Cicadas can produce sounds up to 120 dB that is the loudest of all insect-produced sounds. At close range, the song produced by Cicada is loud enough to cause permanent hearing loss in humans.

**3 c. Five**

Earthworms have five hearts, although they're very primitive organs.

**4 c. Moth**

The greater wax moth has hearing capable of sensing high-frequency sound up to 300 kHz. This exceeds even bats (who can hear up to 250 kHz) and dolphins (who can hear up to around 160 kHz), and leaves humans far behind (with a typical limit of 20 kHz).

**5 c. Both**

There are many organisms that have just more than 2 eyes. For instance, a spider has 8 eyes, a butterfly has more than 100.

**6 c. 32**

Leech has 32 brains. A leech's internal structure is segregated into 32 separate segments, and each of these segments has its own brain.

**7 c. Parliament**

A group of owls is called a parliament. The reason could be because owls are considered to be quite intelligent and wise.

**8 b. No**

Not all owls are nocturnal. Some are either diurnal or crepuscular (meaning active during the dawn and dusk). This is because different owl species prefer different prey species for their food and being active at different times help them reduce the competition between different owl species. Only two owl species are truly diurnal: the northern hawk owl and the northern pygmy owl. And the great horned owl is crepuscular.

**9 b. Hummingbird**

Hummingbirds are the only birds that can fly up and down, and forward and backwards because they have a rotator cuff (a supporting and strengthening structure of the joint) which allows them to rotate its wings 180 degrees in all directions.

**10 a. Bar Headed Goose**

Large flocks of Bar-headed Geese migrate to low land Indian subcontinent flying across the world highest peak , on their way to their nesting grounds in Tibet, in every spring. They have the ability to fly through the passes of the highest mountains at heights of 3658 to 4267 m (12,000 to 14,000 ft) where winds blow at speeds of more than 322 kph (200 mph) and temperature that is low enough to freeze exposed flesh immediately.

**11 b. Peregrine Falcon**

The peregrine falcon has a very large keel that allows more muscle to be attached to it and which in turn generates more flapping power. The peregrine falcon's pointed wings also help the bird reach its amazing speeds. The curved wings create an airfoil effect in multiple dimensions, maximizing maneuverability, lift, and speed.

**12 a. Their food**

The bright pink color of flamingos comes from beta carotene, a red-orange pigment that's found in high numbers within the algae, larvae, and brine shrimp that flamingos eat in their wet-land environment. Because of this, flamingo colors differ on the basis of their location and the food available.

**13 a. True**

The African penguin (*Spheniscus demersus*), also known as the Cape penguin or South African penguin is a species found in the South African waters only, in the south western coast of Africa. They live in colonies in 24 islands in Namibia, Algoa Bay, near Port Elizabeth and South Africa.

**14 c. Ostrich**

Ostrich is the largest bird in the world, which has the largest eyes in the whole animal kingdom that are bigger than its brain. An ostrich's eyes are about 2 inches (5 centimeters) in diameter, i.e. almost equal to the size of a billiard ball.

**15 c. Dodo**

Dodo, (*Raphus cucullatus*), was a flightless bird found in an island of Indian Ocean, Mauritius. The other two species, solitaires (*Raphus solitarius* of Reunion and *Pezophaps solitaria* of Rodrigues), were also found on the islands of the Indian Ocean. The birds were first seen by Portuguese sailors about 1507 and were pushed to extinction due to increasing encroachment and hunting by humans. All the three species became extinct between 1681 - 1790 AD.

**16 b. Make a hole in the tree**

Not many parakeets make their own nests. They are opportunistic birds who make use of a wide range of habitats for nesting like in old tree cavities and abandoned woodpecker holes.

**17 b. Blue**

Octopuses have blue blood, three hearts and a doughnut-shaped brain.

**18 c. Squid**

The squids have the largest animal eyes ever studied. Scientists believe they have the largest eyes in the entire animal kingdom. In a living colossal squid they measure about 27 cm across about the size of a soccer ball.

**19 b. Eurasian Ruffe**

The Eurasian ruffe (*Gymnocephalus cernua*), also known as ruffe or pope, is a freshwater fish found in temperate regions of Europe and northern Asia. It has been introduced into the Great Lakes of North America, reportedly with unfortunate results, as it is invasive and is reproducing faster than other species. One of the reasons they are so invasive is because the ruffe has the capacity to reproduce at an extremely high rate. A ruffe usually matures in two to three years, but a ruffe that lives in warmer waters has the ability to reproduce in the first year of life.

**20 a. Warm Temperatures**

Warm temperatures can affect the gender of hatchlings as their gender is determined by the temperatures during fertilization. Warming temperatures which have resulted due to climate change may skew the balance of sea turtle offspring and its future populations.

**21 b. Teeth**

These are used to crush its food, and in some crabs it is used to make noise to ward off predators.

**22 b. Immortal Jellyfish**

*Turritopsis dohrnii*, also known as the immortal jellyfish, is a species of small, biologically immortal jellyfish found worldwide in temperate to tropical waters. These small, transparent animals hang out in oceans around the world and can turn back time by reverting to an earlier stage of their life cycle. They can however be eaten or killed by accidents.

**23 b. Olfaction**

Olfaction, or the sense of smell, is a sensory system, which enables an organism to detect chemicals in the external environment. Olfaction plays a significant and sometimes critical role in fish behavior such as acquisition of food, recognition of sex, differentiating between individuals of the same or different species, defense against predators, parental care and orientation and migration.

**24 b. 2**

There are two species of Crocodylidae family in the land of Nepal. The species include the marsh mugger and gharial. The scientific name of mugger is *Crocodylus palustris*; and Gharial falls under the subfamily of Gavialinae hence the scientific name *Gavialis gangeticus*. Both are in a vulnerable state.

**25 b. False**

Alligators can reach speeds of up to 35 mph on land and can reach a top speed of 20 mph in the water.

**26 c. Mongoose**

Cobras are one of the most venomous snakes on the planet. Their venom is not the most potent among venomous snakes, but the amount of neurotoxin they can deliver in a single bite up to two-tenths of a fluid ounce is enough to kill 20 people, or even an elephant. However the mongoose is known for its ability to fight and kill venomous snakes, especially cobras. Their specialised acetylcholine receptors render them immune to venom, while their thick coats and quick speed also come in handy during conflicts.

**27 b. Golden Monitor Lizard**

**28 b. False**

Snakes are known for laying eggs but not all of them do so. Some snakes produce young by eggs that are hatched internally (or inside) the body of the parent instead of laying eggs. Such animals are known as ovoviviparous. Rattlesnakes are an example of an ovoviviparous snake as the females carry eggs for three months before hatching inside the body and giving birth to live young.

**29 b. The Goliath Frog of West Africa**

The Goliath Frog of West Africa is also known as goliath bull- frog or giant slippery frog (*Conraua goliath*). It is the largest living frog. The goliath frog of West Africa can grow up to 32 centimetres (13 in) in length from snout to vent, and weigh up to 3.25 kilograms (7.2 lb).

**30 c. Heart**

The frog acts as a blood reservoir or a heart. Each time the foot is placed on the ground, the blood in the frog is pumped out of the frog and into the horses' arteries.

**31 b. 7 bones**

All mammals have 7 bones in thier neck

**32 b. Elephant**

Female elephants carry their young ones for 18 to 12 months before giving birth.

**33 a. Etruscan Shrew**

The Etruscan shrew (*Suncus etruscus*), also known as the Etruscan pygmy shrew or the white-toothed pygmy shrew, is the smallest known extant mammal by mass, weighing only about 1.8 g (0.063 oz) on average. (The bumblebee bat is regarded as the smallest mammal by skull size and body length).

**34 c. Saber toothed Cat**

Saber-toothed cats became extinct some 11000 years ago after which no feline species have gone extinct, however the iberian lynx number is decreasing with only 225 of them in the wild.

**35 b. Pygmy three-toed Sloth**

The sloth is the world's slowest mammal, so sedentary that algae grows on its furry coat. The plant gives it a greenish tint that is useful camouflage in the trees of its Central and South American rainforest home. It is an endangered species and many people in rural parts believe that pygmy three-toed sloths turn into gold when they die.

**36 b. Climate Change**

Polar bears live in the Arctic Circle, including the North Pole and northern parts of Europe, Asia, and North America. Climate Change and Global Warming are the main reasons for the warming of the ice clad habitat of the polar bear which is threatening the entire existence of the Polar Bear

**37 c. Eight**

The eight species of bear are:

1. Asiatic Black Bear.
2. Black Bear.
3. Brown Bear.
4. Panda Bear.
5. Polar Bear.
6. Sloth Bear.
7. Spectacled Bear.
8. Sun Bear

**38 a. A hollowed mouth, long tongue and snout**

The sloth bear claws into the hard termite mound with its sharp, long claws. It then sticks its snout into the hole, closes its nostrils and 'vacuums' the termites into its mouth. Its long tongue scoops up the termites that get away. It has been recorded that their sucking and slurping can be heard from over 90 meters (around 300 ft) away.

**39 c. Hippopotamus**

Hippopotamus secrete a thick, red substance from their pores known as "blood sweat," as it looks like the animal is sweating blood. The blood sweat creates a layer of mucous that protects hippo skin from sunburn and keeps it moist.

**40 b. Keeps 2/4th part awake**

**41 b. Tusks**

Chinese water deer do not have antlers but males (bucks) do have prominent 'tusks' and females have shorter, less visible ones. The males, or bucks, use their tusks to fight off other bucks for potential mates and to protect themselves against predators. The tusks of a Chinese water deer suggests that they are a very primitive species of deer that developed these peculiar fangs before they evolved to have antlers.

**42 c. Blue whale**

The largest animal heart is the blue whale, which has been weighed at about 400 pounds (and it is not the size of a small car, contrary to popular belief). But the animal with the largest heart-to-body-mass ratio.

**43 b. Koala**

Koalas have fingerprints which are almost identical to those of humans. They are so similar, that even scientists find it hard to tell them apart because of the pattern, shape and size of ridges. Under the microscope, the ridges look exactly the same.

**44 a. Algae**

It is widely believed that land plants evolved from a group of charophytes, most likely simple single-celled terrestrial algae similar to extant Klebsormidiophyceae. Chloroplasts in plants evolved from an endosymbiotic relationship between a cyanobacterium, a photosynthesising prokaryote and a non-photosynthetic eukaryotic organism. These earliest photosynthesizing single-celled autotrophs evolved into multicellular organisms such as the Charophyta, a group of freshwater green algae

**45 Ginkgo Tree** (*Ginkgo biloba*)

Ginkgo tree is one of the oldest living plant species. Ginkgo trees can be up to 100 feet tall, 50 feet in circumference, and can live for as long as 1000 years.

**46 a. Wheat, rice, corn and sorghum**

Scientists have found genetic evidence that the world's four major grains wheat, rice, corn and sorghum all evolved from a common ancestor weed that grew 65 million years ago.

**47 b. Maize and Wheat**

Wheat is eaten by 2.5 billion people in 89 countries. About 1 billion of them live on less than \$1.90 a day and depend on wheat as their main food. Maize is the preferred staple food for 900 million poor consumers and the most important food crop in Sub-Saharan Africa.

**48 a. Rafflesia arnoldii**

*Rafflesia arnoldii* is a species of flowering plant in the parasitic genus *Rafflesia*. It is noted for producing the largest individual flower on Earth. It has a strong and unpleasant odor of decaying flesh. It is native to the rainforests of Sumatra and Borneo.

**49 b. Radiata Pine**

Radiata Pine (*Pinus radiata*) is a species of pine native to the Central Coast of California and Mexico (Guadalupe Island and Cedros island). It is an evergreen conifer in the family Pinaceae. It is a versatile, fast growing, medium-density softwood that is suitable for a wide range of uses.

**50 c. Purple Loosestrife**

Purple loosestrife, *Lythrum salicaria*, is native to Europe. The highly invasive nature of purple loosestrife allows it to form dense, homogeneous stands that restrict native wetland plant species, including some federally endangered orchids, and reduce habitat for waterfowl.

# Answers

- 1 b. 1988**  
National Conservation Strategy (NCS) was first prepared in 1988 as an overall frame-work for nature conservation in Nepal. At the time when NCS was prepared, there were no such documents that would serve as an umbrella strategy to guide all the sectors for the conservation of resources in a coordinated manner. NCS was prepared by the National Planning Commission with the technical input provided by the IUCN.
- 2 b. 25%, 10%**
- 3 c. Manang**  
Tilicho Lake is located in the Manang district of Nepal. Lake Tilicho of Nepal is situated at an altitude of 4,949m from sea level. According to studies no aquatic organism has been recorded in the lake.
- 4 b. Shuklaphanta Wildlife Reserve**  
Gazetted first in 1973, as Royal Wildlife Reserve and then to Shuklaphanta Wildlife Reserve, this protected area was upgraded to the status of a National Park in 2017.

**5 b. Shuklaphanta National Park to Parsa National Park**

In Nepal, tigers roam in the Terai Arc Landscape that extends from Bagmati River in the east to the Yamuna River of India to the west. Five protected areas, namely, Parsa National Park, Chitwan National Park, Banke National Park, Bardia National Park and Suklaphanta National Park harbor tiger populations. Besides these protected areas, various national and community forests serve as tiger habitats that enable habitat interconnectivity and allow their dispersal.

**6 c. Kanchenjunga Landscape (KL)**

This important transboundary landscape provides valuable ecosystem services that support the wellbeing and livelihoods of people living in the landscape, as well as millions living downstream. The landscape ranges from Jhapa district upto Bhabar and then to Chure and Mahabharat rising up to mountains in the Kangchenjunga.

**7 b. Bhutan in the East to Nepal's Kali Gandaki river in the west**

**8 b. Daraundi**

**9 a. Terai Arc Landscape (TAL)**

The TAL was the first conservation landscape in Nepal formed to protect the conservation of large species. The stated goal of the TAL is to conserve the biodiversity, forests, soil, and watersheds of the Terai and Churia hills, in order to ensure the ecological, economic, and socio-cultural integrity of the region.

**10 c. 18**

TAL covers partially or wholly 18 districts in this landscape structure and they are Argha khanchi, Banke, Bara, Bardiya, Chitwan, Dadeldhura, Dang, Kailali, Kanchanpur, Kapilvastu, Makwanpur, Nawalparasi, Palpa, Parsa, Rautahat, Rupandehi, Salyan and Surkhet.

**11 c. 6**

Six protected areas fall in TAL, namely Banke NP Bardiya NP Chitwan NP Parsa NP Shukla Phanta NP and Krishnasar CA.

**12 a. True**

The threatened species in TAL that require attention for conservation are Sal (*Shorea robusta*), Khair (*Acacia catechu*), and Sissoo (*Dalbergia sissoo*). TAL has rare species like Satisal (*Dalbergia latifolia*) and Bijayasal (*Pterocarpus marsupium*). It also has dozens of nontimber forest products (NTFPs) and medicinal and aromatic plants (MAPs), such as Harro, Barro, Amala, Kurilo/ Shatavari, Pashanbhed, Sikakai, Sarpagandha, Pipla, Tetepati, Asuro, Bhyakur, Banmara, Gurjo, Bel, Raj Briksha, Jiwanti, Dhaturu, Ghodtapre, Kan- takari, Neem, Bet, Chhatiwan, Palans etc. (WTLCP 2012).

**13 a. 800**

**14 a. Karakoram**

The Hindu Kush is an 800 kilometre long (500mi) mountain range that stretches through Afghanistan from its centre to Northern Pakistan and into Tajikistan. The range forms the western section of the Hindu Kush Himalayan Region (HKH) and is the western-most extension of the Pamir Mountains, the Karakoram and the Himalayas.

**15 b. to conserve biodiversity, cultural diversity and sacred sites in eastern Himalayas**

The Sacred Himalayan Landscape is a trans boundary landscape to conserve biodiversity, cultural diversity and sacred sites in eastern Himalayas.

**16 a. 5**

The Eastern Chure Terai Complex is the area of the confluence of several important rivers of the Koshi basin. The ECTC would be an eastern annex to the TAL. The ECTC covers five watersheds: Balan, Kamala, Marin, Ratu, and Triyuga.

**17 a. 85,565,47 respectively**

Covering an area of 24,710.13 sq. km in 18 districts distributed from the Bagmati river in the east to the Mahakali River along the western border with India TAL is home to 85 species of mammals, 565 species of birds and 47 species of reptiles and amphibians. TAL harbors globally important mammals such as tiger, greater one horned rhinoceros, swamp deer, and asian elephant.

**18 c. 4**

The Chitwan Annapurna Landscape (CHAL) was introduced as a conservation landscape in 1999 in order to maintain ecological connectivity between Chitwan National Park in the south, and Annapurna Conservation Area, Manaslu Conservation Area, and Langtang National Park in the north. The 32,090 sq. km area of the landscape covers 19 districts and in the south overlaps with TAL in four districts which are Palpa, Nawalparasi, Chitwan and Makwanpur.

**19 b. China, India, Nepal**

The Kailash Sacred Landscape (KSL) is introduced to achieve the long-term ecosystem, biodiversity and habitat conservation through sustainable development while enhancing community resilience and safeguarding cultural linkages of local populations. The KSL covers the remote southwestern part of Tibet Autonomous region of China, areas in the far western Nepal and the northeastern area of Uttarakhand State in the Northern India.

**20 b. Main Central Thrust to Tibetan Tethys zone**

The Himalayas extend in an east-west direction between the wide plains of the Indus and Brahmaputra in the south and the vast expanse of the high Tibetan Plateau in the north. About one third of the 2400 km long Himalayan range lies within Nepal. The Higher Himalayan Zone is separated from the Lesser Himalayan Zone by the Main Central Thrust.

**21 c. Faulting, Folding, Eruption**

Faulting, Folding, Eruption are three different geological processes through which mountains are formed. These geological processes are the result of plate tectonics where compressional forces, isolation uplifts and intrusion of the igneous matter forces surface rock upward creating a higher landform, mountains.

**22 c. Compound Mountains**

Based on the physical characteristics and formation there are five types of mountains : Folded, Volcanic, Plateau, Fault - block and Dome. So compound mountains do not exist.

**23 a. True**

Siwalik is a highland region between the Mahabharata and Chure mountain ranges in Nepal which is 10-25 km wide. Siwalik in Nepal is classified into lower, middle and upper and consists of fluvial mudstones, siltstones, sandstone, and conglomerate.

**24 a. True**

Bhabar zone acts as a recharge zone for the groundwater in Terai. Terai in Nepal is divided into three regions - the Bhabar zone, the middle Terai, and the southern Terai. The Bhabar zone is made up of alluvial fan deposits of boulders and pebbles and in the southern part of the Bhabar zone is the spring line that generates streams. The water table in this lies at a greater depth and thus exposed stream valleys are dry except in the monsoon season.

**25** c. Nature of the sediments, low water table and quick percolation of rainwater

**26** b. **Neogene**

The Siwalik zone consists of fluvial deposits of the Neogene age which are between 23 million years to 1.6 million years old.

**27** a. **Saptakoshi**

**28** b. **Foreland basin**

The vast alluvial plains of the Indo-Gangetic basin evolved as a foreland basin in the southern part of the rising Himalaya. The foreland basin receives sediments which is eroded off the adjacent mountain belt, filling with thick sedimentary successions that thin away from the mountain belt. It comprises several sub-basins and all of them are quite shallow towards the south, but rather deep in the northern sections.

The Indo-Gangetic Plain extends from the Indian Shield in the South to the Sub-Himalayan (Siwalik) Zone to the North. In Nepal the Gangetic Plain is also called Terai Zone. The alluvial sediments contain mainly boulder, gravel, silt and clay. The width of Terai Zone varies from 10 to 50 km and forms a nearly continuous belt from east to west. Exceptionally at two places, Chitwan and Rapti valleys, the Terai Zone is interrupted by Siwalik for 70 km and 80 km respectively. Terai Zone is a foreland basin and has sediment originating from peaks of the Northern part. To the north, this zone is separated by an active thrust system called the Main Frontal Thrust (MFT) with Siwalik.

**29 c. Glacier thinning and retreat**

Near the end of the last glacial period, roughly 10,000 years ago, glaciers began to retreat. A retreating glacier often left behind large deposits of ice in hollows between drumlins or hills. As the ice age ended, these melted to create lakes. Since the glaciation of the Little Ice Age, Earth has lost more than 50% of its glaciers. This along with the current increase in retreating glaciers caused by climate change has created a shift from frozen to liquid water, increasing the extent and volume of glacial lakes around the world. Most glacial lakes present today can be found in Asia, Europe, and North America. The area which will see the greatest increase in lake formation is the Southern Tibetan Plateau region from debris-covered glaciers.

**30 c. Cirque****31 a. glacial activity**

A glacial lake is a body of water with origins from glacier activity. They are formed when a glacier erodes the land, and then melts, filling the depression created by the glacier. This also results in the enlargement of existing glaciers. Glacial lakes if managed can be an important natural resource. The total number of Glacial lakes has decreased from 2323 in 2001 to 1466 in 2011 in Nepal.

**32 b. Lirung Glacial Lake**

The Lirung Glacial Lake is situated at 4100 m in the Langtang region and is the first hydropower from glacial lake where

the Langtang Microhydro Electricity Project was built in after the 2015 earthquake avalanche destroyed the valley. A 100 kW of electricity is generated which provides electricity to 120 households and tourist lodges in Kyanjin and Langtang.

**33 b. Topography slope aspect, size of glacier and precipitation patterns**

**34 a. heavy boulders and coarse sediments of sand and gravels**

**35 a. 47**

In a recent Glacial Lake inventory done in 2020, 47 Glacial lakes on the watersheds of Nepal were reported at high risk of bursting and causing catastrophic floods downstream. Out of the 47 lakes, 42 are on the Kosi River basin, three are on Gandaki and two in Karnali river basin.

**36 c. 90%**

A glacial lake outburst flood (GLOF) is an outburst flood triggered by the failure of a dam that contains a glacier lake. The capacity of a glacial lake varies, but it can hold millions to hundreds of millions of cubic metres of water.

**37 a. 1988**

The Ramsar convention took effect in Nepal on April 17, 1988. Nepal now contains ten Ramsar Sites (Wetlands of International Importance) with a total surface area of 60,561 hectares.

**38 b. Koshi Tappu**

On December 17, 1987, the Koshi Tappu wetland became the first wetland site to be added to the Ramsar List.

**39 c. 10**

Nepal Currently has 10 sites designated as Wetlands of International Importance (Ramsar Sites) with a surface area of 60,561 ha.

**40 c. Lake cluster of Pokhara Valley**

Lake Cluster is the combined name for nine lakes in western Nepal's Pokhara valley. Phewa, Begnas, Rupa, Khaste, Dipang, Maldi, Gunde, Neurani, Kamalpokhari, and Pokhara Seti Catchment are the nine lakes that make up the lake cluster. On February 2, 2016, it was designated as a Ramsar site, with a total area of 261.1 sq. km (100.8 sq mi) including the catchment area.

**41 b. Mai Pokhari**

On October 28, 2008, Mai Pokhari, a wetland in Nepal's Ilam District, was named a Ramsar site. The lake within the marsh, which reflects emerald waters, has a perimeter of roughly one kilometer (0.62 mi) and is accessible by boat. Ilam lies approximately 15 kilometers (9.3 miles) to the north.

**42 b. Panch Pokhari**

Panch Pokhari is a collection of five Hindu holy lakes in Nepal's Sindhupalchowk District. It is the world's ninth highest altitude wetland. Panch Pokhari is located at an elevation of approximately 4100 meters above sea level. Panch Pokhari is one of the prominent attractions of Langtang National Park, which is located in the central Himalayan districts of Nuwakot, Rasuwa, and Sindhupalchok.

**43 c. Katarniaghat Wildlife Sanctuary**

**44 b. Dhorpatan Hunting Reserve**

Dhorpatan Hunting Reserve is Nepal's only hunting reserve. It was founded in 1987 and encompasses an area of 1,325 sq. km (512 sq. mi.) in the Rukum, Myagdi, and Baglung Districts in western Nepal's Dhaulagiri Himal. Its elevation ranges from 2,850 to 5,500 meters (9,350 to 18,040 ft). Forests, marshland (known as hor), and flat meadows dominate the area.

**45 c. Sohelwa Wildlife Sanctuary**

Shuklaphanta National Park is a protected area in Nepal's Terai region that covers 305 sq. km (118 sq. mi.) of open grassland, woodlands, riverbeds, and tropical wetlands at elevations ranging from 174 to 1,386 m. (571 to 4,547 ft). The protected area is part of the Terai-Duar savanna and grasslands ecoregion and is one of the outstanding examples of floodplain grassland in the world. It is part of the Terai Arc Landscape.

**46 b. False**

To support metapopulation of megafauna, ecological linking corridors have been established, such as Khata corridor (connecting Bardia National Park, Nepal to Katarniaghat Wildlife Sanctuary, India), Kamdi corridor (connecting Banke National Park to Sohelwa Wildlife Sanctuary, India), and Laljhadi-Mohana corridor (connecting Shuklaphanta National Park, Nepal to Dudhwa National Park, India) (MOFE Nepal, 2015).

**47 c. Shuklaphanta National Park**

There are various wetlands and streams along the Brahmadev corridor. This corridor has been home to tigers and elephants, as well as common leopards, ghorals, and blue bulls. In Bhimdatta and Daijee, the corridor is congested. Some of the greatest concerns in this corridor include land use change, encroachment, and forest fires; illicit logging occurs in the southern parts.

**48 a. Dudhwa National Park**

There have been reports of tiger signs and elephants using Laljhadi-Mohana corridor frequently, and it contains valuable vegetation such as bijaysal and satsal. This corridor is threatened by encroachment, overgrazing, and over-exploitation of forest resources. Due to forest removal for agricultural growth, connectivity with Dudhwa NP is hampered in the Doke bazaar area.

**49 a. Sohelwa Wildlife Sanctuary**

Kamdi corridor has been home to tigers and common leopards, as well as their prey species such as wild pig, spotted deer, and four-horned antelope, as well as sarus cranes, vultures, gigantic hornbills, and lesser floricans. The main dangers to this corridor are encroachment and overgrazing.

**50 a. Chitwan National Park**

Bishazari Lake, a Ramsar site, and numerous additional wetlands are included in the Barandabhar corridor. Forest restoration and community stewardship in this corridor have resulted in the presence of rhinoceros and tigers, as well as 31 other mammals and over 270 bird species.

# Answers

**1 a. completely banned for international trade**

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is an international agreement between governments that aims to ensure that international trade in specimens of wild animals and plants does not endanger the species' survival. The Convention's Appendices I, II, and III contain lists of species that have different levels or types of protection from over-exploitation. Appendix I contains a list of the most endangered CITES-listed animals and plants. They are on the verge of extinction, and the Convention on International Trade in Endangered Species (CITES) prohibits international trade in specimens of these species.

**2 b. Convention on Biological Diversity (CBD)**

The Convention on Biological Diversity, collectively known as the Biodiversity Convention, is an international treaty. The convention's three main goals are the conservation of biological diversity, the sustainable use of its components, and the fair and equitable distribution of benefits derived from genetic resources. Nepal became a signatory to the Convention on Biological Diversity in June 1992 (ratified November 1993).

**3 c. 9 species**

**4 a. 3 species**

The three species of reptiles protected by Nepal's law are:

- a. Asiatic Rock Python
- b. Golden Monitor Lizard
- c. Gharial Crocodile

**5 a. 27 species**

The National Parks and Wildlife Conservation Act of 1973 establishes the legislative framework for protected area management. Nine national parks, three wildlife reserves, one hunting reserve, three conservation areas, and six buffer zones are among the protected areas. Under the National Park and Wildlife Conservation Act 1973, the Government of Nepal has legally protected 27 mammal species, 9 bird species, and 3 reptile species.

**6 b. 60 kg**

The Himalayan Giant Honeybee (*Apis laboriosa*), is the world's largest honeybee, with single adults reaching 3.0 cm (1.2 in) in length. It primarily nests at altitudes ranging from 2,500 to 3,000 m (8,200 to 9,800 ft), constructing very large nests beneath overhangs on the southwestern faces of vertical cliffs. One nest can hold up to 60 kg (130 lb) of honey. The Himalayan giant honeybee is also known as the Himalayan cliff honey bee due to its unusual nesting behavior.

**7 b. Koshi Tappu Wildlife Reserve**

Refuge for the last remaining population of wild buffalos (below 150 in number), Koshitappu Wildlife Reserve is rich in waterfowl and other birds and features the Koshi River and is the first Ramsar site of Nepal. The numbers of faunal species found in the Reserve include 23 mammals, 485 birds, 17 herpeto and 105 fish species. Some 158 vascular plants are recorded in the area.

**8 c. Spiny Babbler**

The spiny babbler (*Turdoides nipalensis*) is a bird species in the Leiothrichidae family. It is only found in Nepal's Middle Hills, and can be seen in the Kathmandu valley, specifically in the Godavari and Phulchoki areas close to the city of Lalitpur. It is locally known as the Kande Bhyakur, which translates as "thorny bird." It is mainly a shy bird, but it can be seen during the early breeding season when the males sing out loud. It is under threat from the clearing of scrub for agriculture and the expansion of urban areas.

**9 c. 70 cm**

The Himalayan Monal (*Lophophorus impejanus*), also known as the Impeyan monal and Impeyan pheasant, is a pheasant native to Himalayan forests and shrublands at elevations of 2,100–4,500 m (6,900–14,800 ft). It is the national bird of Nepal, where it is known as the danphe or danfe and state bird of Uttarakhand, India, where it is known as the monal. It is a relatively large-sized pheasant. The bird is about 70 cm (28 in) long. The male weighs up to 2,380 g and the female 2,150 g.

**10 b. 18**

The cheer pheasant (*Catreus wallichii*), is a vulnerable species of the pheasant family, Phasianidae. With buffy gray plumage and lengthy, gray crests, these birds lack the color and brightness compared to most pheasants. It has 18 feathers on its long tail, with the middle tail feathers being significantly longer and the color predominantly gray and brown. The female is somewhat smaller in size overall.

**11 c. Crustaceans**

The Sarus Crane (*Antigone antigone*) is a huge non-migratory crane found in areas of the Indian subcontinent, Southeast Asia, and Australia. It is the tallest of the flying birds, ranging up to a height of 1.8 meters (5 ft 11 in). The sarus crane can be differentiated from other cranes in the area by its overall grey color and striking red head and upper neck.

**12 a. 100 km**

The Bengal Florican (*Houbaropsis bengalensis*), sometimes known as the Bengal bustard, is a bustard species. The IUCN Red List classifies it as Critically Endangered because less than 1,000 individuals were anticipated to be alive in 2017.

**13 b. Vultures**

Vultures are scavengers which feed on dead animals. They rarely attack animals but may kill the wounded ones. In South Asia, especially in Nepal and India, the Vulture population has declined as they fed on animal carcasses which contained residues of the veterinary drug, Diclofenac.

**14 c. Both of them**

Ruddy shelduck and Eurasian pigeon are among some of the species of birds that migrate and can be easily seen in the winter season of Nepal to avoid the freezing cold in the northern hemisphere. These birds can be easily seen around the wetland areas such as the Chovar and Taudaha of Kathmandu valley and in the southern plains of Nepal. Around 150 species of the winter migratory birds from China, Mongolia, Korea, Siberian region of Russia and Central Asia can be found in the southern plains with the beginning of winter.

**15 a. 100**

Asian Rock Python (*Python molurus*) is native to Nepal, India, Bangladesh, Bhutan, Pakistan, Sri Lanka, Malaysia, Myanmar, Thailand, Africa and Australia. It is found near wetlands of southern plains of Nepal. It is oviparous and can lay up to 100 eggs which she protects and incubates. The size of the egg is 3.5 × 2.5 cm and the hatching period is 8 to 10 weeks. It is listed as a vulnerable species in the IUCN Red List category and Appendix I of CITES. The legal status of this species in Nepal is Protected (Appendix I) under the National Parks and Wildlife Conservation Act 1973.

**16 b. Reptiles**

The gharial (*Gavialis gangeticus*), commonly known as the gavial or fish eating crocodile, is a crocodilian in the Gavialidae family and one of the longest living crocodilians. Since 2007, it has been categorized as critically endangered on the IUCN Red List.

**17 a. Tapetum Lucidum**

In many nocturnal vertebrates, the tapetum lucidum, a reflective layer beneath the retina, enhances the quantity of light available for night vision. It reflects light outward, giving visual pigments a second chance to absorb low intensity light.

**18 b. Platanista gangetica**

The scientific name of Gangetic Dolphins is *Platanista gangetica*. It is known as Shons or Su-su in Nepali. It is native to Bangladesh, India and Nepal. In Nepal, this species is found in the Karnali, Geruwa, Mohana, Bhada, Koshi and Narayani river systems. The global estimated population of this species is less than 2000. It is listed as an endangered species in IUCN red list category, however, the national red list of mammals categorizes it as a critically endangered species. The legal status of this species in Nepal is Protected (Appendix I) under the National Parks and Wildlife Conservation Act 1973 and Appendix I in CITES law.

**19 c. Suborbital flap**

Loaches are small elongated freshwater fishes of the family Cobitidae. More than two hundred species are known which are mostly native to central and southern Asia but are also found in Europe and northern Africa. A typical loach has very small scales and three to six pairs of whiskerlike barbels around its mouth. Male sand loaches can be distinguished from female sand loaches by a suborbital flap.

**20 a. *Neofelis nebulosa***

The clouded leopard (*Neofelis nebulosa*) is a wild cat that lives in deep woods from the Himalayan foothills to mainland Southeast Asia and southern China. It contains big dusky-grey blotches as well as irregular patches and stripes that form a clouded pattern. It has a head-and-body length of 68.6 to 108 cm and a tail length of 61 to 91 cm. When going through trees, it balances on its tail and may climb down steep tree trunks head first. It shelters in trees during the day and hunts on the forest floor at night.

**21 b. Common, Clouded, Snow****22 a. True**

Unlike other big cats, snow leopards can't roar. Snow leopards make sounds similar to those made by other large cats, including a purr, mew, hiss, growl, moan, and yowl. However, snow leopards cannot roar due to the physiology of their throat, and instead make a non-aggressive puffing sound called a 'chuff'. Snow Leopards are also not aggressive towards humans.

**23 c. 2.2**

The Marbled Cat (*Pardofelis marmorata*) is a small wild cat native to the eastern Himalayas and Southeast Asia, where it lives in forests at elevations of up to 2,500 m (8,200 ft). Because of its wide distribution, it has been categorized as Near Threatened on the IUCN Red List since 2015. It is active largely at night and during crepuscular hours.

**24 c. Pallas Cat**

The Pallas Cat (*Otocolobus manul*) is in the International Union for Conservation of Nature (IUCN) endangered list, and it is an indication of just how elusive the animal is that every camera sighting is greeted with great excitement in the conservation community. Until recently there had been only two sightings of the Pallas Cats in Central Asia. The furry animal was thought to be extinct in the Himalaya until it was caught on camera in Pakistan and Bhutan in 2012. The sighting in Nepal is significant also because it is the highest-ever of the animal.

**25 c. Pallas Cat**

Because it did not have a Nepali name, researchers called Pallas Cat 'Tashi Biralo' in honor of Tashi Ghale. Since 'Tashi' means 'good luck' in Tibetan, Pallas Cat is now also known as the 'Good Luck Cat'.

**26 b. Ambush****27 b. False**

Rhino horns grow continuously throughout their lifetime. The Indian rhinoceros (*Rhinoceros unicornis*) is a rhinoceros species native to the Indian subcontinent. It is also known as the Indian rhino or Greater One horned Rhinoceros. The one horn of the Indian rhino is present in both males and females, but absent in newborn calves. The horn is made of pure keratin, similar to human fingernails, and appears after around six years. The horn of most adults is about 25 cm (9.8 in) long and 3.051 kg (6.73 lb) in weight, though it has been measured up to 36 cm (14 in) long and 3.051 kg (6.73 lb) in weight. The IUCN Red List classifies it as Vulnerable as they are hunted for their horn.

**28 c. 30 miles per hour**

Rhinos have excellent senses of hearing and smell, but relatively poor eyesight. And they can run at speeds of up to 34 mph for short periods. They are excellent swimmers.

**29 a. Crash**

Rhinos are heavy built and aggressive by nature and when they charge, their horn pointing the way, rhinos run forward full steam ahead without apprehension, which leads us to their group name- crash as they could just bump or crash on one another- even while they are just hanging out together.

**30 b. Wild Water Buffalo**

The wild water buffalo (*Bubalus arnee*), also known as Asian buffalo, Asiatic buffalo, and wild Asian buffalo, is a big buffalo native to India and Southeast Asia. Since 1986, it has been categorized as Endangered on the IUCN Red List. *Bubalus arnee* is listed on CITES Appendix III and is protected by law in Bhutan, India, Nepal, and Thailand. In 2017, 15 wild water buffaloes were reintroduced into Nepal's Chitwan National Park to form a second viable subpopulation.

**31 a. Himalayan Field Mouse**

The Himalayan field mouse is listed as Least Concern (LR/lc), lowest risk in the IUCN Red list, as they are widespread and abundant. A young / baby of a Himalayan field mouse is called a 'pinkie, kitten or pup'. The females are called 'doe' and males 'buck'. A Himalayan field mouse group is called a 'nest, colony, harvest, horde or mischief'.

**32 a. Overhunting and habitat destruction**

The wild yak (*Bos mutus*) is huge wild cattle native to the Himalayas. The IUCN presently classifies the wild yak as Vulnerable. It was originally designated as Endangered, but because of the predicted pace of population reduction and current population levels, it was downlisted in 1996. The most recent estimate, from 2008, estimated a total population of no more than 10,000 mature persons.

**33 b. 208**

Mammals are among the world's most adaptive animals. They can be found on every continent and in every ocean, and their sizes range from small bumblebee bats to massive blue whales. 208 mammal species are found in Nepal and among them, one is classified Regionally Extinct, eight are Critically Endangered, twenty-six are Endangered, fourteen are Vulnerable, and seven are Near Threatened.

**34 c. *Ailurus fulgens***

The Red Panda (*Ailurus fulgens*) is a carnivorous species found in the eastern Himalayas and southwestern China. The IUCN Red List classifies it as Endangered because the natural population is believed to number fewer than 10,000 mature individuals and is declining due to habitat loss and fragmentation, poaching, and inbreeding depression.

**35 a. Surface vegetation or burrows of other species**

Hispid hares (*Caprolagus hispidus*) are typically found in locations with tall-grass savannah. Their behavior is less known. According to locals, these animals move slowly. Hispid hares are mostly solitary, though they have been seen in pairs. Hispid hares have not been found to burrow or establish nests.

**36 b. Chattering Cry**

Bengal foxes use a variety of vocalizations. A “chattering cry” is a common vocalization that appears to play an important function in establishing territoriality and can also be employed as a warning call.

**37 c. Arboreal**

Monkeys are found all throughout the world and come in a variety of shapes, sizes, and colors. There are over 260 different kinds of monkeys. The majority of monkeys live in trees, while some reside on savannas or mountains. Monkeys are highly social animals. Monkey groups are referred to as missions, tribes, troops, or cartloads.

**38 a. Corsac Fox**

Corsac fox are excellent climber but are not very good at running. They can be easily caught by a dog.

**39 c. Csorba’s Mouse-eared Bat**

The Csorba’s mouse-eared bat (*Myotis csorbai*) is a vesper bat species. It can only be found in Nepal.

**40 b. Pollination****41 c. 60000**

The Asian elephant (*Elephas maximus*) is the largest living land animal in Asia. On the IUCN Red List, the Asian elephant has been categorized as Endangered since 1986. The trunk is a combination of the nose and upper lip; the nostrils are at its tip, which has one finger-like process. The trunk comprises up to 60,000 muscles, which are divided into longitudinal and radiating sets. Depending on the species and age, the length of its trunk can range from 1.5 to 2 m (59 to 79 in) or greater.

**42 b. Ophiocordyceps sinensis**

*Ophiocordyceps sinensis* is popularly known as yarsagumba and in English commonly as caterpillar fungus. It is generally found between elevations of 3000 m and 5000 m. The fungus germinates in the living larva, kills and mummifies it, and then a few centimeters long dark brown stalk-like fruiting body emerges from the corpse and stands upright. It is considered as a medicine of a very high value.

**43 b. Gulmi****44 b. Salyan**

**45 b. Cardamom**

Nepali large cardamom– also known as ‘black gold’ or ‘black cardamom’ and locally called alainchi is one of the most expensive spices in the world. It is an evergreen, perennial and herbaceous plant grown on north-facing hill slopes. It is said that since 1830 large cardamom was being cultivated by farmers in four districts: Ilam, Taplejung, Panchthar and Bhojpur, introduced by the seasonal workers who brought it from Sikkim. However, Nepal has been commercially grown since 1853, when the Rana government took production and marketing initiatives.

Nepal is one of the largest producers of large cardamom. It is very profitable. Around 70,000 farmers of eastern Nepal are involved in its production. Nepal grows about five species of large cardomom.

**46 b. Cotton**

Cotton is the world’s most popular natural fiber. The fruit of the plant, better known as the cotton boll, provides the fiber which the ancients called “white gold” because it was so valuable.

**47 a. 15 cm**

**48 c. Painkillers**

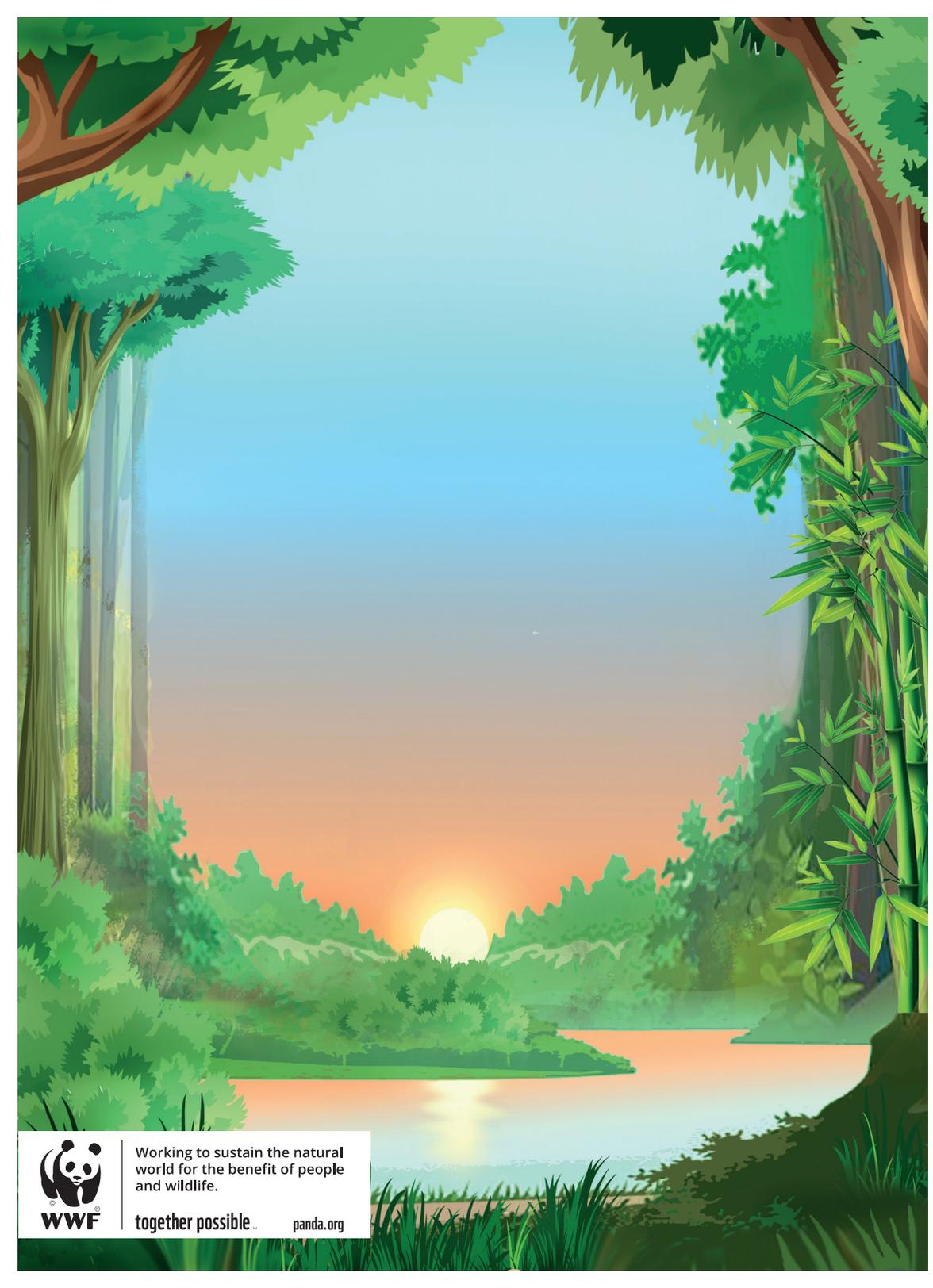
Datura and poppy seeds are analgesic, anthelmintic, and anti-inflammatory, and are used as sedatives to relieve the pain.

**49 c Panchaule**

Panchaule (*Dactylorhiza hatagirea*) is a species of orchid that grows at elevations ranging from 2,800–4,000 meters (9,200–13,100 feet). The juice obtained from the tuber is used as a tonic and to cure pyorrhea (inflammation of the gum and teeth). Root paste is used as a poultice on cuts and wounds, and extract is used to treat digestive ailments. It is also used for treating bone fractures. Panchule is endemic to Hindu Kush Himalaya. It is also listed in CITES appendix II for control trading.

**50 a. Sughandhawal**

*Nardostachys jatamansi* is a valerian blooming plant native to the Himalayas. It is a source of spikenard, a strongly scented amber colored essential oil. Since ancient times, the oil has been utilized as a perfume, a traditional medicinal, and in religious ceremonies. It is listed as endangered due to overharvesting for folk medicine, overgrazing, habitat destruction and forest degradation.



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