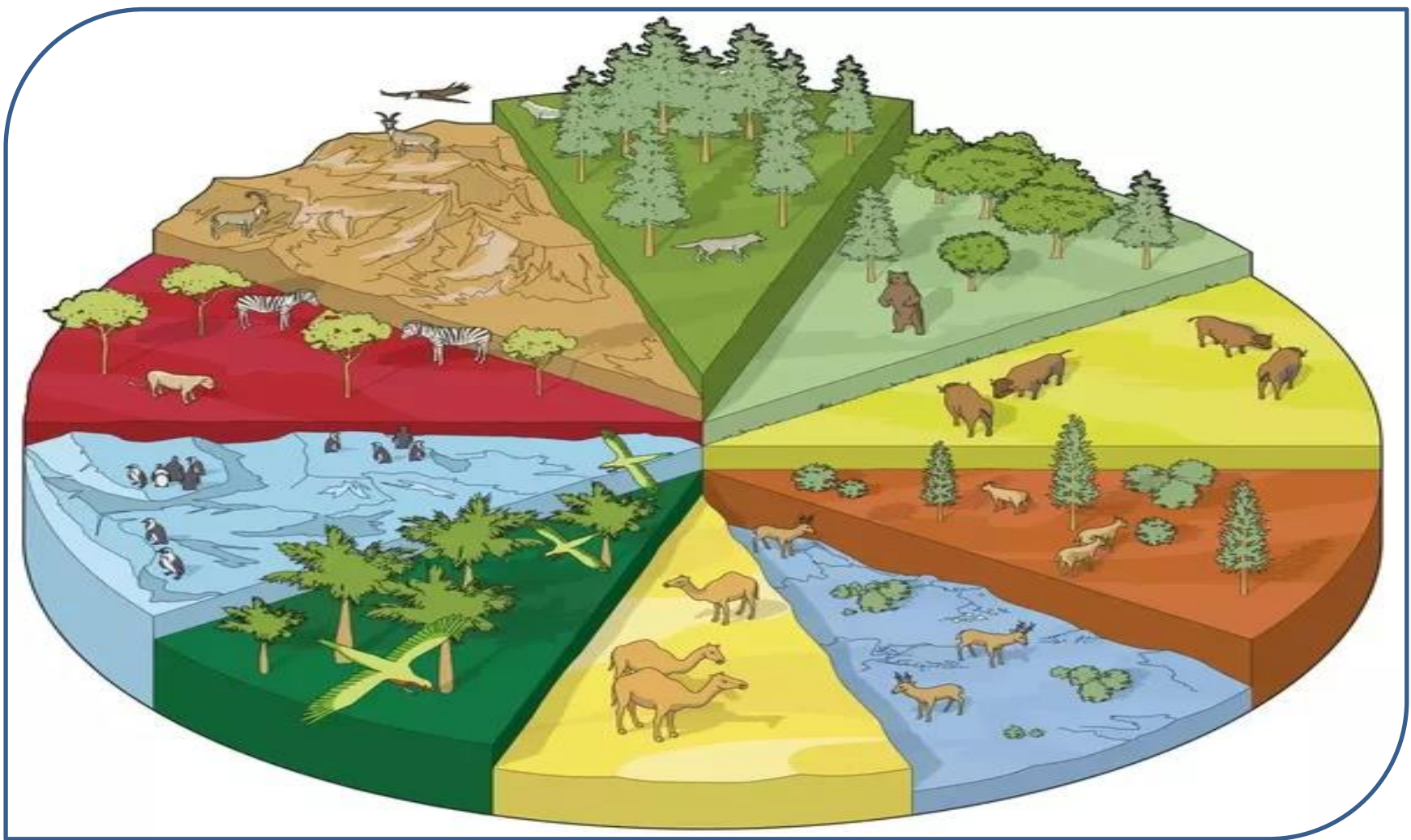




CHAPTER 26

Some Major Ecosystem



- Exercise short answers
- Important Short Answers
- Exercise MCQ's
- Important additional MCQ's
- Past MDCAT MCQ's

Exercise short answers

Q:1 Define productivity of an ecosystem?

Ans: Productivity of an ecosystem:

It can be defined as the rate of production of new biomass during a specific period.

OR

The productivity represents consumption of CO₂ and evolution of O₂ in photosynthesis.

- It is determined by the light and nutrient. It varies with the depth of water. It also varies from zone to zone.
- Productivity is generally expressed in terms of grams or kilocalories per square meter.
- Example: the productivity of temperate grass land is 700-1500 g/m²/year.

Q:2 List adaptations in plants and animals for terrestrial ecosystem.

Ans: The land organisms (plants and animals) have evolved various adaptations for the land habitat which are given below.

	Adaptations in plants	Adaptations in animals
Supporting structure	• Plants have vascular bundles (xylem phloem) for support.	• Animals have skeleton for support.
Conservation of water	• They have bark for water conservation.	• They have skin to conserve water and protection from dehydration.
Temperature regulation (thermoregulation)	• They regulate their internal body temperature with the help of thick corky bark.	• They regulate their internal body temperature by skin.

Q:3 Name three zones in lake ecosystem.

Ans: Three zones in lake ecosystem are as under:

- Littoral zone: Shallow water area.
- Limnetic zone: Open water area with light penetration.
- Profundal zone: Deep, dark water area without light penetration.

Q4: How many biomes are present in the world, name only five of them.

Ans: 10 biomes are present in the world e.g., Tropical rain forest, Tropical deciduous forest, Tropical scrub forest, Savanna, Temperate grassland, Temperate deciduous forest, Desert, Taiga, Tundra and Chaparral.

Q5: Give the names of some major ecosystem on land in Pakistan.

Ans: Major ecosystems in Pakistan:

Name of ecosystem	Location in Pakistan
1. Temperate Deciduous forest	• Examples: Shogran, Neelum Valley
2. Grass land Ecosystem	• Examples: Kaghan, Dir, Malam Jabba Chilas
3. Tundra Ecosystem	• Examples: Gilgit, Kashmir, Lower Chitral, North kallat
4. Coniferous Alpine and Boreal Forests	• Examples: Mianwali, Bakhar, Khan pur, Rahim Yar khan, Sindh
5. Desert Ecosystem	• Examples: Kara-koram, Hindu kush.

Important short answers

Q:1 Differentiate between Climate and Weather:

Climate	Weather
Climate refers to overall patterns of weather that prevail from year to year even country to country in a particular region.	Weather refers to short-term fluctuations in temperature, humidity, cloud cover, wind and precipitation over periods of hours or days.
Climate is the weather of a locality averaged over some period (usually 30 years)	Weather varies on short term basis.
The factors affecting the climate are mountain ranges attitude large water bodies.	Weather is a combination of wind, temperature, cloudiness, precipitation and visibility.
Climate is what you expect according to averages of the atmospheric conditions collected over several years at a place.	Weather is what you get on a particular day.
Climate is not changeable & is recorded over a period	Weather changes & is the current condition.
Humid is a type of climate.	Rain is a type of weather.

Q:2 Differentiate between Ecology and Ecosystem.

Ecology	Ecosystem
- Ecology is the study of relationships between different organisms and their environment. OR - The study of the interaction between living organism themselves and with their non-living environment is called ecology.	- An ecosystem is a natural unit comprising all living and non-living things in the area and how biotic and abiotic components function together influencing each other. OR - A living community along with its non-living environment work as a unit in a specified area.
Ecosystem is thus subset of ecology which is a vast subject area.	Ecology is thus a subset of ecology which is a vast.

Q:3 Differentiate between Hydrospheric or Aquatic ecosystem and Lithospheric ecosystem.

Hydrospheric or aquatic ecosystem	Lithospheric ecosystem
- It is a system in water where living and non-living components exchange materials and transfer of energy also takes place within water. - Its features are plenty of water and uniform temperature. - Major factors which influence life in water are light and nutrients. - Salt water ecosystem (oceans and seas). - Fresh water ecosystem (pond and river).	- It is the system present on land or soil is called terrestrial or lithospheric ecosystem. - Its features are plenty of water and nutrients. - Water is limited and un-evenly distributed. - Major factor which influence life on land are temperature and water.

Q:4 What are planktons? Differentiate between Phytoplankton and Zooplankton.

Ans: Planktons:

(Gr. Drifting organisms) The microscopic drifting organisms in water are called planktons.

Phytoplankton (Greek: phyto: plants, plankton: drifting)	Zooplankton (Greek: zoo: animal, plankton: drifting)
The plant or plant like plankton are called phytoplankton.	The animal or animal like plankton are called zooplankton.
Phytoplankton cannot swim actively.	Zooplankton can move either actively or passively.
Example: photosynthetic protists, bacteria algae and cyanobacteria etc.	Example: protozoa and tiny crustaceans etc.

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Q:5 Differentiate between Littoral and Limnetic zone.

	Littoral zone	Limnetic zone.
Definition	- The shallow water area of the lake near the shore line is called littoral zone. OR - It is the area of shallow water near the edge of the lake.	The open water area of lake away from the shore line is called limnetic zone.
Light penetration	- It is well illuminated by sunlight. - Aquatic life is mostly found in this zone.	In this area effective penetration of light occurs for photosynthesis.
Producers	- Phytoplankton: including photosynthetic Protista bacteria and algae. Plants: water lilies totally submerged vascular plants and the algae.	Phytoplankton: It is occupied by the main producers as the cyanobacteria.
Primary consumer	Zooplankton: Protozoa and tiny crustaceans. Invertebrates: the invertebrates here are small crustaceans, insect, larvae, snails, flatworms, hydra and clams etc.	Zooplankton: The zooplankton here is comprised of primary consumers protozoans and small crustaceans.
Secondary consumer	Vertebrates: the vertebrates include frogs, salamanders, aquatic snakes, turtles and tortoises etc.	Secondary consumers like fishes.

Q:6 Differentiate between Alpine and Boreal forests.

Alpine forests	Boreal forests
- Coniferous forests located at high altitudes are called alpine e.g. in Kaghan, Dir, Chilas in Pakistan. - Northern coniferous forests are called Taiga.	Coniferous forests located at high latitude are called Boreal. E.g. Gilgit Waziristan etc. in Pakistan.

Q:7 Differentiate between Alpine tundra and Arctic tundra.

Alpine tundra	Arctic tundra
Tundra at high altitude is called alpine.	Tundra at high latitude is called arctic.
Present across mountain above timberline. Such as Karakoram, Koh-Hindukush.	Last biome before polar ice caps. It broadens Arctic Ocean. Present between taiga and polar icecaps.

Q:8 Differentiate between Prairies and Savanna.

Prairies	Savanna
Grassland present in temperate climate and do not have woody plants are called prairies.	Grassland in tropical climates has woody tress and are called savanna.
Examples prairies of North America, Pampas of Argentina.	Examples: Gilgit Waziristan etc in Pakistan.

Q:9 Differentiate between Nocturnal and Diurnal.

Nocturnal	Diurnal
Nocturnal is when an organism is active in the night.	Diurnal is when an organism is active in the day.
Nocturnal species are less in number than diurnal species.	There are much more diurnal organisms than the number of nocturnal species.
Nocturnal species mainly depend on audible and olfactory parameters.	Diurnal species advertise through most of the senses (colors and other visible parameters).
Examples: bats, owls etc.	Examples man, crew etc.

Q:10 What is meant by layering in a grass –land ecosystem?

Ans: Layering: It is the characteristic of grass-land ecosystem and composed of following three layers:

- First layer comprises tall grasses e.g. Panicum, andropogan.
- Second layer comprises mid-high grasses e.g. stipe, sporobolus.

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- Third layer is formed by short grasses, forbs, warfare species (Poa, Bromus) mosses and lichen.

Q:11 Can you differentiate between Latitude and Altitude?

Latitude	Altitude
• The angular distance on a meridian (circle passing through poles) north or south of the equator, expressed in degrees and minutes is called latitude.	• . While height in relation to equator is called altitude.

Q12: Name the sub-divisions of forest ecosystem.

Ans: Forest ecosystem is further sub-divided into:

- Tropical Rain Forests
- Temperate Deciduous Forest
- Coniferous Alpine and Boreal Forest.

Q13: What types of animals are present in temperate deciduous forest?

Ans: Some very common animals are Macaca mulatta (Rhesus Monkey), Solenorotos tibitanus (black bear), Felis bengalensis (leopard cat), deer, and wolves with various types of micro-organisms to convert the litter into organic matter such as bacteria, fungi and earthworm.

Q14: Describes the characteristics of temperate deciduous forests.

Ans: Temperate deciduous forests:

The forest in which the dominant tress are deciduous (which shed their leaves in autumn).

- Such forests in Pakistan are found in Shogran and Neelam valley.
- The average rainfall is 750-1500 mm per year and temperature ranges is 4°C- 30°C.
- These forests are slightly farther away from the equator.
- Rainfall is not constant.
- These factors have clear wet and dry seasons that mean they have distinct summer and winter seasons.
- During dry seasons tress shed their leaves to protect water.

Q15: Write about rain fall soil conditions and animal life of Grassland ecosystem.

Ans: Rain fall:

- 250 to 750 mm/annum midway between deserts and forests. In tropical and subtropical grassland rainfall reaches about 1500 mm (60 inches)

Soil condition:

- The soil moisture is limited on account of lo precipitation and high evaporation.
- Upper soil layer in which grasses are rooted in normally moist but deeper layers are constantly dry.
- The soil of grassland is basically impermeable with excessive salinity.

Animal life:

- Insects, amphibians, toads, reptiles like lizard, zebra, horses, Bison foxes, Wolves etc.

Q16: Define desertification. Give two reasons of famine in Sahel.

Ans: Desertification: Spreading of desert to green area by human activities is called desertification.

OR

Over grazing cause a reduction in herbage cover and result in soil erosion. Many lands are converted into deserts due to over grazing. This phenomenon is called as desertification.

- It is also caused by clearing the forest.

Q17: What is the location of deserts in Pakistan?

Ans: In Pakistan the desert ecosystems are found in western Punjab where it is known as Thal. In southern Punjab, areas like Fort Abbas. Bahawal Nagar, Yazman Bahawal Pur, Khan pur and Rahim yar khan also have deserts. In Sindh this desert ecosystem is called Thar.

Q:18 Define thal, thar, cholistan and taiga.

Ans: Thal:

The desert of western pnjab is called Thal.

- It is located in Mianwali and Bakhar.

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Thar:

The desert of Sindh is called Thar.

- It is located in Tharparkar district.

Cholistan:

Northern coniferous forests are also called Taiga.

- Conditions in taiga are harsher than temperate deciduous forest. Here winters are long and cold with short growing season.
- Ever green coniferous with needle like waxy leaves populate here.
- These may be alpine or boreal forests.

Q19: What is human impact on desert ecosystem?

Ans: Human impact on desert ecosystem:

- The spreading of desert from green areas is called desertification.
- The human activities are reducing many biomes but they are causing the spread of deserts.
- For example, desertification accruing in Sahel. Due to human impact on desert ecosystem massive loss of the productivity occurred. This loss of productivity is nearly irreversible. Therefore famines occurred in these areas.
- Desert ecosystems are found on every continent often around 20 to 30 north and south latitude and also in the rain shadows of major mountain ranges.

Exercise MCQ's

❖ Encircle the correct answer from the multiple choices.

- 1) The soil or terrestrial ecosystem have some adaptations for animals and plants:
 - a) Supporting tissues
 - b) Retention of food
 - c) Temperature
 - d) Nutrients
- 2) Most plants fit only into a few ecosystems which type of plants seem to fit into ecosystem of grass land:
 - a) Trees
 - b) Shrubs
 - c) Perennial herbs
 - d) Annual weeds
- 3) In which type of the ecosystem is the smallest fraction of nutrients are present in soil:
 - a) Savanna
 - b) Tundra
 - c) Grassland
 - d) Desert
- 4) Which biome has richest soil with nutrients and can never be converted into agriculture:
 - a) Deciduous forest
 - b) Tropical rain forest
 - c) Grassland
 - d) Coniferous forest
- 5) Which of the biomes has been increased in area by human activities?
 - a) Savanna
 - b) Grassland
 - c) Desert
 - d) Coniferous

Answer key:

1	a	2	c	3	d	4	a	5	C
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Most important MCQ's

❖ Encircle the correct answer from the multiple choices.

Weather and Lake/Aquatic Ecosystem

- 1) **Weather refers to**
 - a) Short-term fluctuations in temperature, cloud cover, wind and precipitation
 - b) It prevails over periods of hrs. or days
 - c) Overall patterns of weather that prevail from year to year
 - d) Both a and b
- 2) **Only 30% of earth is:**
 - a) Land
 - b) Freshwater
 - c) Marine water
 - d) Mountain
- 3) **Which statement about hydrospheric ecosystem is incorrect?**
 - a) Salt water ocean and sea are the largest ecosystems on earth
 - b) Salt water ecosystem covers about 75% earth surface
 - c) Fresh water ecosystem covers less than 1% of earth surface
 - d) It temperature is more moderate to support life
- 4) **Freshwater ecosystem covers less than:**
 - a) 7%
 - b) 5%
 - c) 3%
 - d) 1%
- 5) **A little light is left to power photosynthesis at the depth of:**
 - a) 500 feet
 - b) 600 feet
 - c) 1000 feet
 - d) 1200 feet
- 6) **The producers of the pond ecosystem are:**
 - a) Bacteria
 - b) Fungi
 - c) Algae
 - d) Phytoplankton
- 7) **Primary consumer of a pond ecosystem:**
 - a) Zooplankton
 - b) Diving beetles
 - c) Turtle
 - d) Phytoplankton
- 8) **Secondary consumer of a pond ecosystem:**
 - a) Diving beetles
 - b) Phytoplankton
 - c) Turtle
 - d) Molluscs
- 9) **Tertiary consumer of a pond ecosystem:**
 - a) Diving beetles
 - b) Phytoplankton
 - c) Turtle
 - d) Molluscs
- 10) **Nutrients tend to be concentrated near the bottom sediment:**
 - a) Desert
 - b) Coniferous forests
 - c) Aquatic ecosystem
 - d) Tundra
- 11) **The aquatic ecosystem, near shore zone is called:**
 - a) Littoral zone
 - b) Limnetic zone
 - c) Profundal zone
 - d) Benthic zone
- 12) **In which zone plant community is most diverse**
 - a) Limnetic zone
 - b) Littoral zone
 - c) Profundal zone
 - d) All of these
- 13) **The zone, rich in life in a freshwater lake is called:**
 - a) Littoral zone
 - b) Limnetic zone
 - c) Profundal zone
 - d) Desert
- 14) **Limnetic phytoplanktons include the:**
 - a) Cyanobacteria
 - b) Algae
 - c) Mosses
 - d) Bacteria
- 15) **The light in this zone is insufficient to support photosynthesis:**
 - a) Limnetic
 - b) Profundal
 - c) Littoral
 - d) All of these
- 16) **Phytoplanktons are:**
 - a) Drifting plants
 - b) Rooted plants
 - c) Submerged plants
 - d) Fixed plants
- 17) **Drifting or floating microscopic animals and plants are called:**
 - a) Plankton
 - b) Cyanobacteria
 - c) Fungi
 - d) Mammals
- 18) **Phytoplanktons are drifting:**
 - a) Plants
 - b) Animals
 - c) Protozoans
 - d) Crustaceous
- 19) **Which of the following is drifting animal?**
 - a) Insect larva
 - b) Protozoa
 - c) Turtle
 - d) Snake
- 20) **In polluted lake which organisms dominate the community**
 - a) Fish
 - b) Crustaceans
 - c) Phytoplanktons
 - d) Blue green algae
- 21) **Evolution of vascular bundles in plants and skeleton in animals is an adaptation for**
 - a) Hdrospheric ecosystem
 - b) Aquatic ecosystem
 - c) Terrestrial ecosystem
 - d) All of these
- 22) **Development of bark in plants and skin in animals is a method for**
 - a) Providing support
 - b) Protection from enemies
 - c) Reducing water loss
 - d) Helping in food production

23) Productivity of an ecosystem is indicated by

- a) Number of plants in that ecosystem
- b) The density of that ecosystem
- c) Consumption of carbon dioxide and evolve of oxygen
- d) Both a and b

24) The productivity can be indicated by:

- a) Consumption of CO₂
- b) Evolution of CO₂
- c) Consumption of O₂
- d) Evolution of N₂

25) The productivity of an aquatic ecosystem is determined by light and.....:

- a) CO₂
- b) Temperature
- c) Nutrients
- d) Water

26) Ecosystem present on land or soil is called:

- a) Terrestrial
- b) Ecosystem
- c) Lithosphere
- d) Both a & b

Land Ecosystem

27) Temperate deciduous forests are located in Paakistan at.....

- a) Shogran
- b) Chilas
- c) Mianwali
- d) Sindh

28) Average rain fall in temperate deciduous forest is between:

- a) 600-1500 mm
- b) 650-1500 mm
- c) 700-750 mm
- d) 750-1500 mm

29) Which biome has the richest soil with nutrients and can be converted into agriculture:

- a) Temperate deciduous forest
- b) Tropical rain forest
- c) Desert
- d) Coniferous forest

30) Which statement is incorrect?

- a) Average rainfall in temperate deciduous forests is 750-1500mm
- b) Temperature of coniferous alpine and boreal forests is upto 10 degrees
- c) Northern coniferous forests are called Taiga
- d) Coniferous forests located at high latitude are alpine

31) The biome which has very fertile soil, rich in organic matter with maximum water holding capacity is:

- a) Alpine forest
- b) Temperate deciduous forest
- c) Grassland
- d) Desert

32) Macaca mulatta is biological name of:

- a) Black bear
- b) Rhesus monkey
- c) Cat
- d) Dog

33) Coniferous forests of high altitude are called:

- a) Alpine
- b) Arctic
- c) Boreal
- d) Tundra

34) Coniferous forests located at high latitude are called

- a) Alpine
- b) Boreal
- c) Tundra
- d) Deciduous

35) Northern coniferous forests are also called:

- a) Savanna
- b) Prairies
- c) Taiga
- d) Tundra

36) Chilas has..... major terrestrial ecosystem:

- a) Deciduous forest
- b) Alpine forest
- c) Tundra
- d) Grassland

37) Savanna are the grasslands in:

- a) Temperate climate
- b) Tropical climate
- c) Arctic tundra
- d) Alpine tundra

38) Grasslands have no woody plants are known as:

- a) Prairies
- b) Aavanna
- c) Alpine
- d) Boreal

39) Pampus are found in:

- a) Australia
- b) Argentine
- c) America
- d) Europe

40) Which one of the following is tall grass:

- a) Stipe
- b) Andropogon
- c) Poa
- d) Oryzopsis

41) In temperate grassland the rate of primary production s:

- a) 700-1500 g/m²
- b) 4000 g/m²
- c) 1500-3000 g/m²
- d) 6000 g/m²

42) Layering is the characteristic feature of which ecosystem:

- a) Grassland
- b) Boreal & alpine forest
- c) Desert
- d) Forest

43) In Pakistan, the desert ecosystem of Western Punjab is:

- a) Cholistan
- b) Rajasthan
- c) Thar
- d) Thal

44) One of the most important cause of desertification is

- a) Floods
- b) Wind blowing
- c) Raining
- d) Deforestation

45) Annual rainfall in deserts is less than

- a) 150-200 mm
- b) 500-700 mm
- c) 250-500 mm
- d) 700-800mm

46) Desret ecosystem of Bhakhar and Mianwali is called:

- a) Thar
- b) Thal
- c) Cholistan
- d) Gobi

47) Which one is not desert?

- a) Thal
- b) Thar
- c) Sahara
- d) Taiga

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48) Which biome has been increased in area by human activities?

- a) Grassland b) Savanna c) Coniferous d) Desert

49) The Sahara desert is found in.....:

- a) Asia b) America c) Africa d) Europe

50) Which one is a plant of desert (A succulent plant has water stored in tissues):

- a) Pinus b) Dwarf willow c) Rose d) Cactus

51) In Sindh, the desert ecosystem is called:

- a) Thal b) Sahara c) Thar d) Cholistan

52) In which type of ecosystem is the smallest fraction of nutrients present in soil?

- a) Grassland b) Savanna c) Coniferous d) Desert

53) Tundra is..... area:

- a) Forestless b) Grassland c) Leaf fall d) Deserty

54) Mountains of kara-koram and hindukush are the regions, also called as:

- a) Deserts b) Grassland c) Tundra d) Taiga

55) Tundra ecosystem is located on mountains of and regions, also called:

- a) Kara-koram b) Hindukushs c) Suleman d) Both a & b

56) End of earth' is related to

- a) Tropical rain forest
b) Temperate deciduous forest
c) Savanna
d) Tundra

57) Treeless tundra of high latitude between taiga and polar ice caps is called

- a) Northern tundra b) Antarctic tundra c) Arctic tundra d) Polar tundra

58) What will be the age of willow tree of 10 cm long and 7 cm in diameter?

- a) 40 years b) 50 years c) 60 years d) 70 years

59) Perhaps the most fragile of all the biomes, because of its short growing season is:

- a) Temperate deciduous forests
b) Desert
c) Grassland
d) Tundra

60) Arctic foxes are present in:

- a) Deserts b) Tundra c) Savanna d) None

Answer key:

1	d	2	a	3	b	4	d	5	b	6	d	7	a	8	a	9	c	10	c
11	a	12	b	13	a	14	a	15	b	16	a	17	a	18	a	19	b	20	d
21	c	22	c	23	d	24	a	25	a	26	d	27	a	28	d	29	a	30	d
31	b	32	b	33	a	34	b	35	c	36	b	37	b	38	a	39	b	40	b
41	a	42	a	43	d	44	d	45	c	46	b	47	d	48	d	49	c	50	d
51	c	52	d	53	a	54	c	55	d	56	d	57	c	58	b	59	d	60	b

Past MDCAT MCQ's

2008

1. In zone the light is insufficient to support photosynthesis.

- a) Desert b) Littoral. c) Profundal d) All of these

Answer key:

1	c
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