GSC 101 Final Term Past Paper

GSC 101

Total question: 52
Subjective: 12
Objective: 40 MCQs

One from each lecture mostly came from final term lectures.

1. **What is brine?** (2)

Answer. In this method aqueous solution of sodium chloride (common salt) is electrolyzed. The aqueous solution of NaCl is called brine.

2. **Difference between prokaryotic and Eukaryotic cell?**(3)

Answer. Prokaryotic Cell Vs Eukaryotic Cell

Prokaryotic Cells	Eukaryotic Cells
• No defined nucleus but a nucleoid region	• Defined nucleus with nuclear membrane
• No membrane bound organelles	• Membrane bound organelles are
• Small in size (e.g. 1-2 microns in bacteria)	• Larger than prokaryotic cells on average (20 microns of animal cells)
• Cell wall consist of peptidoglycan (a polymer of amino acids and sugars)	• Cell wall consist of cellulose (plants) and chitin (fungi)

3. **Difference between cellular respiration and organismic respiration?**(3)

Answer. Difference between cellular and organismic respiration

- Cellular respiration is a series of events of metabolic reactions for production of energy.
- Organismic respiration is the process of coordinated movements of body that results in inhalation and exhalation of air. We also call it breathing or ventilation.

4. **Define ecology? And flow of energy in ecosystem?**(5)

Answer.

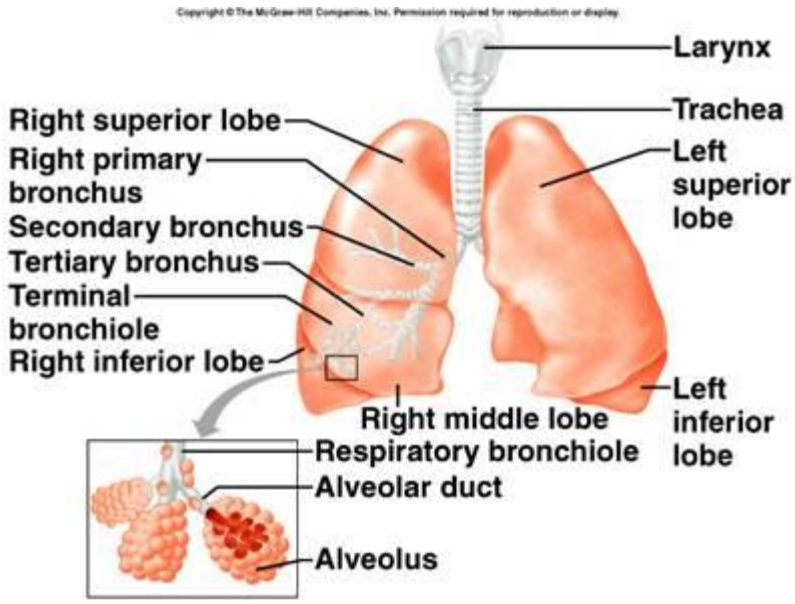
Ecology is the study of interactions among organisms and their environment.

- The study of interactions between organisms with each other and their environment.
- Biosphere and environment.
- Surface of Earth's crust
- Water bodies on Earth's surface
- Atmosphere that surrounds Earth

Energy Flow in Ecology

Main source of energy in an ecosystem is "Sunlight". Autotrophs (producers) are the organisms which utilize the energy stored in inorganic compounds and use sunlight to make their food. These organisms carry out "photosynthesis" and use this energy to convert "carbon dioxide and water into oxygen and glucose". The other type of autotrophs makes carbohydrates using chemical energy e.g., many bacteria. These are called chemoautotroph. Heterotrophs (consumers) are the organisms that cannot make their own food and depends upon organic source.

5. **Label the diagram of lungs?** (3)



Answer.

6. **Define food web? and explain the food web in grassland ecosystem through flow chart?(**5)

Answer.

· A network of eating and being eaten.
· Feeding relationships between organisms are not as simple as food chains.
· There is a diversity of organisms and one organism may be eaten by more than one other organisms.
· Example is grass is eaten by cows, buffaloes

Example of a food web from land (grassland) ecosystem
· Grassland ecosystem has small plants, reptiles, amphibians and mammals.
· Grass is eaten by most of the herbivores.
· Herbivores are eaten by more than one carnivore.

7. **Chemical properties of HCL?** (3)

Answer. Chemical reactions of HCl:
_ Reaction with a base, NaOH or KOH
HCl + NaOH _NaCl + H2O
HCl + KOH _KCl + H2O

8. **What are the conjugate bases and acids? Explain with suitable example?** (5)

Answer. Conjugate acids and bases.
Example:
When HCl is dissolved in water the following reaction occurs.
HCl + H2O H3O+ + Cl-
Hydronium (H3O+) ion is a **conjugate** acid whereasCl- ion is conjugate base.
Reaction of acids with metals:
Al + HCl AlCl3 + H2
Mg + H2SO4 MgSO4 + H2s
Fe + H2SO4 FeSO4 + H2
Acid-base reactions:
NaOH + HNO3 NaNO3 + H2O
KOH + CH3COOH CH3COOK + H2O
Reactions of acids with metal oxides:
Al2O3 + 6HCl 2AlCl3 + 3H2O
3K2O + 2H3PO4 2K3PO4 + 3H2O

9. **Give the simple of food chain of Lake Ecosystem?** (2)

Answer. Phytoplankton -> Crustaceans -> Fishes -> Fishes

10. **Explain the respiratory system in humans? Describe the function of nose, pharynx, trachea, and larynx?**(5)

Answer. Respiration in human beings occurs by lungs and associated air passageways. Human respiratory system consists of:
Air passageways in humans

- Nostril and nasal cavity
- Pharynx
- Larynx
- Trachea

Nose and nasal cavity
Nose is the part for inhalation. Nose and nasal cavity is lined with ciliated epithelium and its surface is covered with mucus. The ciliated and moist surface traps dirt and other particles. The air, which enters inside is filtered, moist and warm.
Pharynx
It is a small muscular passage, which is lined with mucous membrane. Air moves down to larynx through pharynx.
Larynx: the voice box
Larynx is a complex cartilaginous structure, through which air moves down to trachea. Its opening is ciliated and covered with mucous. Mucus membrane is stretched across into thin edged fibrous bands called *vocal cords*. Vocal cords help in voice production.
Trachea (windpipe)
Trachea is a long tube stretched from larynx to lungs. It has a tubular structures and it lies ventral to the esphagous. It has C-shaped cartilaginous rings which are supporting structure and prevent tracheal collapse. Trachea extends through the chest cavity or thorax. In thorax, it divides into 2 tubes called *bronchi* one entering each lung.

11. **Give the name and formula of copper ores?** (2)

Answer.

Names:

- Malachite

- Chalcopyrite
- Copper Glance

Formula:

- $CuCO_3 \cdot Cu(OH)_2$
- $CuFeS_2$
- Cu_2S

Final Term Paper

My Today's Own Paper

Total Questions 52 **Total MCQS=40** **Subjective =12**

MCQs Mostly from mid-term lessons and few from last Lessons

Questions:

41: Define Functional Group?

Answer: An atom or group of atoms which imparts some specific properties to a compound is called a functional group. For example, -OH is functional group. It is known as hydroxyl group. The compounds which have this functional group show specific properties. They are phenols and alcohols.

42: Name the factors which causes increase the rate of corrosion?

Answer: There are two major factors which increase the rate of corrosion rapidly. They are;

Temperature

Moisture

43: what is respiration and name the types?

Answer: Respiration consists of processes involves exchange of gases in living organisms or metabolic reaction to produce energy. Respiration is one of the most important metabolic activities. It is of two types:

- Organismic respiration
- Cellular respiration

44: Define ecology and categories the biotic and abiotic factors?
Answer: The study of interactions between organisms with each other and their environment.

- Biotic factors
  Animals, plants, fungi, algae, bacteria
- Abiotic factors
  Air, water, soil

45: Used of Nitrogen Gas?
Answer: 1. Nitrogen is used to prepare ammonia which is then used to prepare nitric acid and fertilizer.
2. It is used as an inert gaseous blanket to exclude O2 to a processing and packaging of foods.
3. Liquid nitrogen is used as a coolant to freeze foods rapidly.

46: Classifies the organics compound?
Answer: There are millions of organic compounds and this makes it physically impossible to study each individual compound. To facilitate their study, organic compounds are classified into various groups and sub-groups.
They may be broadly classified into the following classes:
□□Open chain or acyclic compounds
□□Closed chain or cyclic compounds

47: what is aromatic compound?
Answer: Aromatic compounds are benzene and those which resemble benzene. They burn with black soot. They possess aromaticity and are comparatively more stable than expected. They are unsaturated compounds but are resistant to addition reactions. Their characteristic reactions are electrophilic substitution reactions

48: Name the accessary glands in the digestive system and also describe Esophagus?
Answer: Esophagus is a long tube starts from pharynx and enters stomach. From pharynx, food enters esophagus. In esophagus, food moves down to stomach by a series of muscular contractions called “peristalsis”. Bolus moves down by alternate contraction and relaxation of muscles of esophagus. Sometimes an antiperistalsis occur, i.e., movement from stomach to mouth that result in vomiting.

49: Describe Composition of Blood?

Answer: Human blood consists of plasma (fluid) and cellular content (cells). Plasma is the fluid with dissolved and un-dissolved materials. It consists mainly of water, which have many inorganic and organic materials dissolved in it. Cellular content consist of Red Blood
Cells (RBCs), White Blood Cells (WBCs) and Platelets. Red blood cells are also called erythrocytes and white blood cells are also called leukocytes. Plasma consists of 55% of the blood. Cells constitute 45% of the blood Average human body has about 5liters of blood. Blood contents could be separated based upon their densities and weights by various methods including centrifugation and sedimentation.

50: Describe Cardiac Cycle and Discuss?
Answer: Cardiac cycle is the time period from when the blood enters the heart to the time when blood is pushed by the heart. We can also say that it is the time period from atrial and ventricular diastole to ventricular systole.
Cardiac cycle consists of following steps:
1. Both atria and ventricles are relaxed. This is the time when both atria are filled with blood from body and lungs. All heart muscles are relaxed, which means that these are at diastole.
2. Then both atria contract and blood is pushed into ventricles. This is called atrial systole. At this time, both AV valves are open and both semilunar valves are closed.
3. Then the ventricles contract and push blood into aorta and pulmonary artery. This is called ventricular systole. With this, a **cardiac cycle** is complete.
4. Then again, both atria and ventricles are relaxed, i.e., come back to the initial state.

51: Describe the importance of invertebrate's organisms?
Answer: Importance of Invertebrates

- Invertebrates are very important part of lot of food chains hence important for stability of ecosystems
  For human use:
- Sponges are used widely in sound proofing, washing
- Worms are important parasites of domestic animals and human beings
- Insects are pests of many crops, many useful insects like honey bee, lac insect
- Lobsters makes pearls, cultured for pearls

52: Describe the Flow of energy in ecology?

Answer: Energy Flow in Ecology

Main source of energy in an ecosystem is “Sunlight”. Autotrophs (producers) are the organisms which utilize the energy stored in inorganic compounds and use sunlight to make their food. These organisms carry out “photosynthesis” and use this energy to convert “carbon dioxide and water into oxygen and glucose”. The other type of autotrophs makes carbohydrates using chemical energy e.g., many bacteria. These are called chemoautotroph. Heterotrophs (consumers) are the organisms that cannot make their own food and depends upon organic source.

- Herbivores (the organisms that eat plants, i.e., producers; also called primary consumers)
- Carnivores (the organisms that eat herbivores or other carnivore animals)
- Omnivores (the organisms that eat upon plants and animals both)