1. Living World and Classification of Microbes

Practice Questions

Q 1) Answer the following in brief-

1.Write the characteristics of Prokaryotic and Eukaryotic cells and write there examples.

Ans. a) Prokaryotic Cell –

The cells which do not have a true nucleus and cell organelles are called as Prokaryotic cells.

Characteristics of Prokaryotic Cells:-

1) Prokaryotic cells are very small in size. They are of size 1-10µm. These cells are made up of plasma membrane, cytoplasm and nucleoplasm components.

2) The nucleus in this cell does not have nuclear membrane means cytoplasm and nucleoplasm are together.

3) These cells have a single circular chromosome pair. DNA molecule is in a central area of the nucleus. This central area is called as nucleoid. For e.g. Bacteria, Archaea, Mycoplasma, Cyanobacteria, etc.

b) Eukaryotic Cell –

The cells which has true nucleus and cell organelles are called as Eukaryotic Cells.

Characteristics of Eukaryotic Cells:

1) Eukaryotic cells are large in size (5-100µm).

2) In these cells there are true nucleus and nuclei and nucleoplasm in that.

3) In this there are several pairs of chromosomes and chains of DNA and RNA. These cells are very developed and are found in plants and animals. E.g. algae, euglena, amoeba, spirogyra, fungus, plant and animal, etc.

2.Write the importance of bacteria.

Ans: Some bacteria are useful.

1) Bacteria is used in fermentation process in industries. Many antibiotics are prepared with the help of micro-organisms. e.g. a) Streptomycin – Streptomyces griseus.

b) Penicillin – Penicillium chrysogenum.

2) Bacteria are used in the preparation of various organic acids by the fermentation process. For e.g. acetic acid (vinegar) – Acetobacteraceti.

3) Lactobacilli bacteria is used to make curd, buttermilk, ghee, cheese, shrikhandas well as idli, dhokla, jalebi and naan. 4) If there is problem in work of digestive system, then treatment is done by giving lactobacilli and other micro-organisms together to the patient.

5) Penicillin antibiotic is used for the treatment of staphylococci, clostridium bacterial infections. 6) Various micro-organisms are included in the production of biogas.

7) Taste is created in the leaves of tea, tobacco because of bacteria.E.g. bacillus magaterium. 8) Bacteria is used for earning skin. 9) Pseudomonas bacteria degrades/decompose oil leakage or petroleum substances.

3. Write the commercial importance of the fungus.

Ans: 1) Yeast is used to make bread and alcohol or saccharomyces cerevisia is used to make bakery products light and porous.

2) Large amount of vitamin B is found in yeast so it is used to make medicines.

3) Large number of antibiotics are produced from fungi for e.g. Penicillin is produced from PenicilliumNotatum.

4) Mycorrhiza fungi is used for natural stabilization.

5) Ganoderma fungi is widely used in the production of medicines. Some fungi is used to clean the contaminated ecosystem in biological resurgence.

6) Some mushrooms are used as a food. For e.g. White button mushroom, Paddy straw mushroom, Oyster mushroom.The fungus like Candida and Saccharomyces cerevisiae are used to obtain proteins.

4. Explain the importance of Algae.

Ans: 1) Brown algae are usually found in sea water. There is potassium chloride in this algae. The brown algae like Fucus and Ecklonia prepare iodine.Some of these algae are used as food. E.g. Sargassum, Fucus, Laminaria, Porphyra, Ulva, Nostoc, etc. 2)Nitella and Chara algae are used to eradicate malaria. 3) Chlorella algae is used by astronauts as the source of oxygen and food products in spacecraft.4) Carrageenan red algae is used in jelly, chocolate, ice-cream, etc. 5) Litmus paper is made from a lichen named Rosella tinctoria.

5. State the symptoms of monera kingdom and write its examples.

Ans: 1) Monera kingdom has prokaryotic cells and they do not have true nucleus or cell organelles. 2)They are very delicate and minute. Nucleus does not have nucleus membrane, nucleus, nucleoplasm, histone proteins or actual or true chromosomes but it has circular DNA only. 3) Some bacteria have cilia or flagellum for movement while some are immovable. 4) The cell walls are strong and are made from peptidoglycan. They are called as the most ancient group of organisms on earth. 5) All organisms are unicellular and are autotrophic or heterotrophic. There are no chloroplast and clondriocent in cells. 6) Reproduction is done by sexual or asexual method. E.g. bacteria, virus.

6. Explain the symptoms of kingdom Protista and write its classification in short.

Ans: 1) The organisms in this kingdom are unicellular and some are autotrophic while some are heterotrophic. Some are parasite while

some are saprotrophic. Most of the time they are found in water or some are on land. 2) They have pseudopodia or cilia or flagella for locomotion. Clondriocent, Chloroplast, endoplasmic reticulum, Golgi complex are present in their cells. 3) There are chromosome formed from nucleoplasm, nuclei spiral DNA, histone proteins in the nucleus. 4) The food is stored in the form of glycogen and serum.

Classification of Protista is done in four group:

a) Plant like Protista – These organisms are autotrophic. Its cell wall is made from cellulose and they store food in the form of starch. The liquid from cells of diatom is used in the chromatography, filtration and polishing process. E.g. diatom, desmid.

b) Animal like Protista – These organisms are heterotrophic with no walls and stores the food in the form of glycogen. E.g. amoeba, paramecium.

c) Fungus like Protista – These organisms are saprotrophic and have no wall. E.g. Fungi (slime mould)

d) Euglenoids – they are photosynthetic aquatic organism and live as saprotrophic in the absence of light energy.

Autotrophic – Euglena, Volvox.

Saprotrophic- Amoeba, Plasmodium.

7. Write in brief about harmful micro-organism.

Ans: 1) Minute sized fungal spores are present in atmosphere. Many species of fungi grow in the food products such as pickles, murabba, jams and these fungi absorb nutrients from this food products and feed themselves. But in this process, toxic chemical called mycotoxin is formed and food becomes poisonous. 2) Clostridium bacteria causes food poisoning, meat get wasted due to anaerobic bacteria called clostridium botulinum. 3) Fish becomes poisonous

due to infection caused by the salmonella bacteria. 4) Bacteria causes the diseases such as tobacco wilt, black dots on cotton leaf, rotting of potato and vegetables, citrus canker on lemon. Cabbage gets rotten by turning blackish. 5) Bacteria causes following diseases to humans. a) Salmonellatyphi bacteria causes typhoid fever and vibrio cholera bacteria causes cholera disease. b) Bacillus bacteria causes dysentery/diarrhoea and mycobacterium tuberculi bacteria causes tuberculosis.

8.State the symptoms of fungus and write their uses.

Ans: Symptoms – 1) Fungi is unicellular or multicellular. They are saprotrophic and have nuclei cells. 2) Fungi reproduce sexually, asexually or classically. 3) The cell wall is made up of chitin. It does not contain chloroplast. 4) Fungi store the food in the form of glycogen and oil.

Uses of fungi – 1) Fungi is used to clean the contaminated ecosystem in biological resurgence. The fungus called ganoderma is widely used in the production of drug/ medicine. 2) Fungi is also used in the production of antibiotics like penicillin.

Q 2) Write short notes on:

1) Yeast –

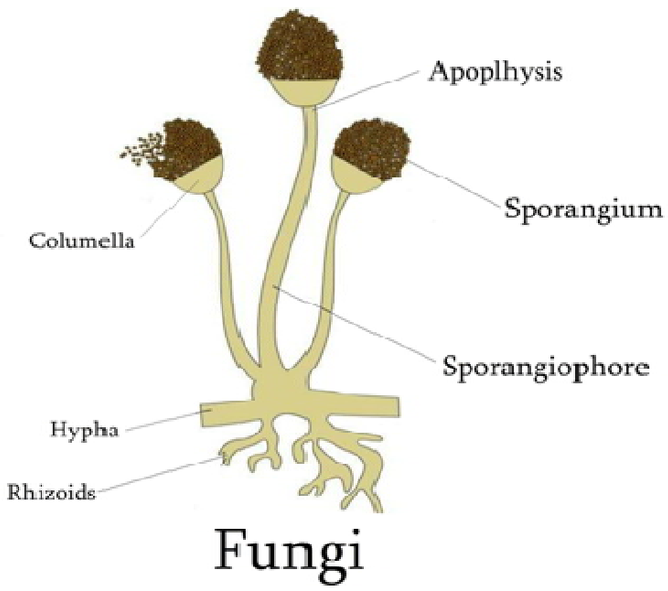
Ans: 1) The scientific name of yeast is saccharomyces cerevisiae and yeast is used in the process of fermentation.2) It is used in the production of bakery products and alcohol. 3) Yeast is unicellular microscopic fungus plant. Their growth is great on sugary fruits. 4) The cell wall is made of chitin.5) The reproduction cycle in yeast is called as 'budding'.6) Yeast is used to make alcohol from sugarcane molasses and vitamin 'B' is produced from yeast cells.

2. Write the symptoms of Virus.

Ans: 1) Virus are considered as organisms at the edge of living and non-living. Usually they are of minute size i.e. 10nm to 100nm and they can be seen only with electron microscope. 2) The virus does not grow so they cannot eat food or can't respire. 3) Virus look alive because of their reproduction capacity. 4) The virus in animals is circular and in plants they are usually cylindrical. 5) DNA or RNA, any one of the both is nucleic acid. Virus are non-living and their reproduction occurs only in living cells. 6) Virus cannot survive independently outside the living cells. Virus uses ribosomes and present in it for protein synthesis during reproduction. 7) Most of the viruses are resistant to germs and adverse physical conditions.

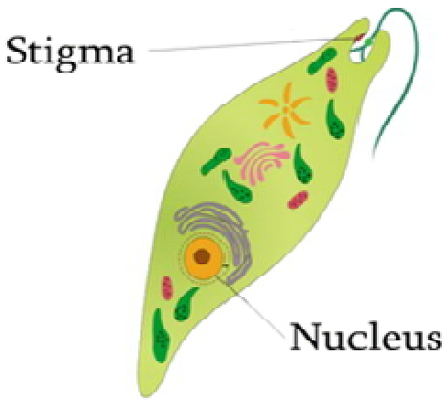
Q 3) Draw the correct figures and name them.

1.Fungi



Fungi

2. Euglena



Euglena

Q 4) Answer the following in one sentence.

1.Which virus attacks on bacteria?

Ans: The virus called Bacteriophages attacks on bacteria.

2. Why Algae are called as Autotrophic?

Ans: Algae prepare its own food by own so they are called as Autotrophic.

3.What are the types of bacteria according to shape?

Ans: The types are such as, round shaped bacteria is Coccus, rod-shaped bacteria is Bacillus, comma-shaped bacteria is Vibrio and spiral shaped bacteria is Spirilla.

4. What is the wall of Eubacteria made of?

Ans: The wall of Eubacteria is made of Peptidoglycan.

5. How does algae store its food?

Ans: Algae store its food in form of algae starch (starch), laminarin starch and mannitol or floridean starch.

6. Which bacteria cause food poisoning?

Ans: Clostridium bacteria cause food poisoning.

Q 5) Who am I?

1. I am small stick like micro-organism.

Ans: Lactobacilli bacteria.

2. I am irregular shaped micro-organism who keep moving.

Ans: Amoeba.

Q 6) Give reasons:

1. Euglena is autotrophic.

Ans: Euglena contain chloroplasts and can make their own food like green plants so Euglena is autotrophic.

2. Fungus is called as saprotrophic?

Ans: Fungus decays organic matter and lives on it so it is called as saprotrophic.

Q 7) State True or False:

1. The Euglena cell contains chlorophyll.

Ans: True.

2. The reproduction of amoeba is done by binary fission method.

Ans: True.

3. Algae is heterotrophic organism.

Ans: False (Algae is an autotrophic organism)

Q 8) Match the pairs:

Antibiotics	Name of micro-organism
1)Penicillin	a) Streptomyces venezuelae
2)Streptomycin	b) Streptomyces erythreus

3)Chloromycetin	c) Streptomyces griseus
4)Erythromycin	d) Penicillium chrysogenums

Ans:

Antibiotics	Name of micro-organism
1)Penicillin	a)Penicillium chrysogenums
2)Streptomycin	b) Streptomyces griseus
3)Chloromycetin	c) Streptomyces venezuelae
4)Erythromycin	d) Streptomyces erythreus

Q 9) Fill in the blanks with correct word:

1) Fungus _____ is made up of tough and complex sugar called Chitin.

2) The organisms in monera kingdom are _____.

3) Mucor is a _____ fungus.

4) According to 2011 census, around _____ species of living organisms are found on the earth including land and sea.

5) The process of dividing living organism into groups and subgroups is called _____.

6) The organism in Protista kingdom are single celled organisms with _____ nucleus.

Answers: 1) Cell wall 2) Unicellular 3) Saprotrophic 4) 87 million 5) Biological classification 6) well defined