
	INDIAN SCHOOL AL WADI AL KABIR		
Class: XI	Department: SCIENCE 2023 – 24 SUBJECT: BIOLOGY	Date of submission: 21.09.2023	
Worksheet No: 1 WITH ANSWERS	Chapter: BIOLOGICAL CLASSIFICATION		Note: A4 FILE FORMAT
NAME OF THE STUDENT		CLASS & SEC:	ROLL NO.

Multiple Choice Questions:

Q1. Fungi usually store the reserved food in the form of:

- a) Starch
- b) Glycogen and Oil
- c) Lipid
- d) Protein

Q2. In prokaryotes, the genetic material is:

- a) Circular DNA without histones
- b) Linear DNA without histones
- c) Circular DNA with histones
- d) Linear DNA with histones

Q3. The term 'superparasite' means:

- a) Mycoplasma
- b) Animal Parasites
- c) viruses
- d) A parasite living on another planet

Q4. Which one of the following is true for fungi?

- (a) They are phagotrophic
- (b) They lack a rigid cell wall
- (c) They are heterotrophs
- (d) They lack a nuclear membrane

Q5. Five kingdom system of classification suggested by R.H. Whittaker is NOT based on:

- (a) Presence or absence of a well-defined nucleus
- (b) Mode of reproduction
- (c) Mode of nutrition
- (d) Complexity of body organization

Q6. Archaeobacteria differ from eubacteria in:

- (a) Cell membrane
- (b) Mode of nutrition
- (c) Cell shape
- (d) Mode of reproduction

Q7. Viruses have:

- (a) DNA enclosed in a protein coat
- (b) Prokaryotic nucleus
- (c) Single chromosome
- (d) Both DNA and RNA

CASE STUDY 1:

Reproduction in fungi can take place by vegetative means – fragmentation, fission and budding. Asexual reproduction is by spores called conidia or sporangiospores or zoospores, and sexual reproduction is by oospores, ascospores and basidiospores. The various spores are produced in distinct structures called fruiting bodies. The sexual cycle involves the following three steps:

Fusion of protoplasts between two motile or non-motile gametes called plasmogamy. Fusion of two nuclei called karyogamy.

Meiosis in zygote resulting in haploid spores.

When a fungus reproduces sexually, two haploid hyphae of compatible mating types come together and fuse. In some fungi the fusion of two haploid cells immediately results in diploid cells (2n). However, in other fungi (ascomycetes and basidiomycetes), an intervening dikaryotic stage (n + n, i.e., two nuclei per cell) occurs; such a condition is called a dikaryon and the phase is called dikaryophase of fungus. Later, the parental nuclei fuse and the cells become diploid. The fungi form fruiting bodies in which reduction division occurs, leading to formation of haploid spores.

(1) _____ Hyphae are without septa and filled with multinucleated cytoplasm.

(a) Septate

(b) Nucleated

(c) Coenocytic

(d) Both a and c

(2) _____ is the only single-celled fungi organism.

(a) Penicillium

(b) Yeast

(c) Mycorrhiza

(d) Both a and b

(3) What is saprophytic fungi?

(4) Give reason – why fungi are referred as cosmopolitan organism?

(5) Name the fungi which is responsible for rusting disease in wheat plant.

CASE STUDY 2:

Phycomycetes – Members of phycomycetes are found in aquatic habitats and on decaying wood in moist and damp places or as obligate parasites on plants. The mycelium is aseptate and coenocytic. Asexual reproduction takes place by zoospores (motile) or by aplanospores (non-motile). These spores are endogenously produced in sporangium. A zygospore is formed by fusion of two gametes. These gametes are similar in morphology (isogamous) or dissimilar (anisogamous or oogamous). Some common examples are Mucor, Rhizopus (the bread mould) and Albugo (the parasitic fungi on mustard).

Ascomycetes – Commonly known as sac-fungi, the ascomycetes are mostly multicellular, e.g., Penicillium, or rarely unicellular, e.g., yeast (Saccharomyces). They are saprophytic, decomposers, parasitic or coprophilous (growing on dung). Mycelium is branched and septate. The asexual spores are conidia produced exogenously on the special mycelium called conidiophores. Conidia on germination produce mycelium. Sexual spores are called ascospores which are produced endogenously in sac like asci (singular ascus). These asci are arranged in different types of fruiting bodies called ascocarps. Some examples are Aspergillus, Claviceps and Neurospora. Neurospora is used extensively in biochemical and genetic work. Many members like morels and truffles are edible and are considered delicacies.

Basidiomycetes – Commonly known forms of basidiomycetes are mushrooms, bracket fungi or puffballs. They grow in soil, on logs and tree stumps and in living plant bodies as parasites, e.g., rusts and smuts. The mycelium is branched and septate. The asexual spores are generally not found, but vegetative reproduction by fragmentation is common. The sex organs are absent, but plasmogamy is brought about by fusion of two vegetative or somatic cells of different strains or genotypes. The resultant structure is dikaryotic which ultimately gives rise to basidium. Karyogamy and meiosis

take place in the basidium producing four basidiospores. The basidiospores are exogenously produced on the basidium (pl.: basidia). The basidia are arranged in fruiting bodies called basidiocarps. Some common members are Agaricus (mushroom), Ustilago (smut) and Puccinia (rust fungus).

(1) The bread mould fungi belongs to _____

(a) Basidiomycetes

(b) Phycomycetes

(c) Ascomycetes

(d) Deuteromycetes

(2) Ascomycetes fungi are characterised by presence of _____.

(a) Presence of asci

(b) Presence of Basidium

(c) Mycelium without septa

(d) Both a and c

(3) What is mean by anisogamousgametes?

(4) Name the fungi which is commonly known as smut fungi?

(5) Give reason – why ascomycetes are termed as sac fungi?

Short Answer Type Questions:

Q10. What organisms are known as 'Jokers of Plant Kingdom'?

Q11. What are distributed organisms which are not included in any kingdom?

Q12. Name the fungus that causes 'rust of wheat'.

Q13. Why are red tides caused and why are they harmful?

Q14. Give one example of a fungus as a source of antibiotics?

Long Answer Type Questions:

Q15. Discuss the salient features of viruses with the help of a diagram?

Q.16. What are the characteristic features of euglenoids?

Q17. Some symbiotic organisms are very good pollution indicators and are composed of a chlorophyllous and non-chlorophyllous member. Describe them.

ANSWERS

A1. b) Glycogen and Oil

A2.a) Circular DNA without histones

A3. d) A parasite living on another planet

A4. (c) They are heterotrophs

Fungi lack chlorophyll; hence, they do not prepare their food by photosynthesis. They can grow where organic material is available. So, they are heterotrophs that acquire their nutrient by absorption and store in the form of glycogen.

A5. (a) Presence or absence of a well-defined nucleus

A6. (c) Cell shape

A7. (a) DNA enclosed in a protein coat

CASE STUDY #1

Answer key

(1) c

(2) b

(3) Saprophytic is the mode of obtaining food by absorption of dissolved organic material which is produced by decaying of organic matters. Those fungi obtain their food by this mode are termed as saprophytic fungi.

(4) Fungi shows a great diversity in morphology and habitat. Fungi are widespread. They can be found in air, water, soil, on the body of other living animal, inside the body. They can be found almost every, because of this fungi are referred as cosmopolitan organism.

(5) Puccinia is the fungi, which cause rusting disease in wheat plant.

CASE STUDY #2

Answer key

(1) b

(2) a

(3) Gametes, which exhibits same morphological feature are termed as anisogamous gametes.

(4) Ustilago is commonly known as smut fungi.

(5) Fungi belongs to phylum ascomycetes, produces sac like structure called asci, which are involved in production of ascospores. This the reason Ascomycetes are commonly called as sac-fungi.

A10. Mycoplasma

A11. Viruses and Viroid

A12. *Puccinia graminis tritici*

A13. Dinoflagellates causes the red tides (such as *Gonyaulax*) which have a rapid multiplication rate. They are dangerous because they emit chemicals that destroy aquatic animals.

A14. *Penicillium* is the genus from which the antibiotic penicillin is derived. Green and blue molds are examples of *Penicillium*. The bacteria *Penicillium chrysogenum* is used to make the antibiotic penicillin.

A15.

- They are a fraction of the size of a bacterium.
- They can be filtered.
- They can reproduce in host cells by utilizing the host cell's enzyme and metabolic machinery.
- Their genetic material is DNA/RNA.
- These organisms are obligate parasites, self-replicating and non-cellular.
- They produce plant diseases such as mosaic, leaf curling, leaf roll, vein cleaning and so on.

A.16. The characteristic features of euglenoids are:

- They are unicellular protists, commonly found in freshwater.
- The cell membrane is rich in proteins and is known as a pellicle.
- Two flagella are present on the anterior end of the body.
- They possess a small light-sensitive eyespot.
- They are autotrophic because of the presence of photosynthetic pigment chlorophyll. However, in the absence of light, they behave as heterotrophs.
- They are known as the connecting link between plants and animals because they possess features common to both plants and animals.

A17. Lichen is a symbiotic connection between algae and fungi that results in the formation of lichen. Algae Chlorophyceae and fungi Ascomycetes are the most common. Because they only grow in clean places, they operate as pollution indicators because they do not grow in polluted areas. For instance, consider the case of industrial melanism.

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