Shiksha Classes, Bhandara Biology Biological Classification

(1.)	The absorptive type of heterotrophic nutr	ition is	exhibited by
(a.)	All fungi	(b.)	All bacteria
(c.)	All bryophytes	(d.)	All angiosperms
(2.)	Chrysophytes, euglenoids, dinoflagellates	s and sli	me moulds are included in the kingdom
(a.)	Protista	(b.)	Fungi
(c.)	Animalia	(d.)	Monera
(3.)	Which among the following is not a prok	aryote?	
(a.)	Nostoc	(b.)	Mycobacterium
(c.)	Saccharomyces	(d.)	Oscillatoria
(4.)	According to five kingdom classification and nitrogen fixing organisms?	, in wh	ich kingdom would you classify archaea
(a.)	Protista	(b.)	Monera
(c.)	Plantae	(d.)	Fungi
(5.)	How many kingdoms of the five kingdom	n classif	ication contains eukaryotes?
(a.)	Four kingdoms	(b.)	One kingdom
(c.)	Two kingdoms	(d.)	Three kingdoms
(6.)	Adhesive pad of fungi penetrates the host	t with th	ne help of
(a.)	Mechanical pressure and enzymes	(b.)	Hooks and suckers
(c.)	Softening by enzymes	(d.)	Only by mechanical pressures
(7.)	Select the incorrect statement.		
(a.)	The walls of diatoms are easily destructible.	(b.)	'Diatomaceous earth' is formed by the cell walls of diatoms.
(c.)	Diatoms are chief producers in the oceans.	(d.)	Diatoms are microscopic and float passively in water.
(8.)	Chromatophores take part in		
(a.)	photosynthesis	(b.)	growth
(c.)	movement	(d.)	respiration
(9.)	With respect to fungal sexual cycle, choo	se the c	orrect sequence of events

(a.) Karyogamy, Plasmogamy and Meiosis (b.) Meiosis, Plasmogamy and Karyogamy

(c.)	Plasmogamy, Karyogamy and Meiosis	(d.)	Meiosis, Karyogamy and Plasmogamy
(10.)	Pick up the wrong statement		
(a.)	Cell wall is absent in Animalia.	(b.)	Protista have photosynthetic and heterotrophic modes of nutrition.
(c.)	Some fungi are edible.	(d.)	Nuclear membrane is present in Monera.
(11.)	A plasmid		
(a.)	can replicate independently	(b.)	shows independent assortment
(c.)	lies together with chromosomes	(d.)	cannot replicate
(12.)	What is true about archaebacteria?		
(a.)	All are halophiles	(b.)	All photosynthetic
(c.)	All fossils	(d.)	Oldest living beings
(13.)	In which group of organisms the cell wa together?	lls for	m two thin overlapping shells which fit
(a.)	Chrysophytes	(b.)	Euglenoids
(c.)	Dinoflagellates	(d.)	Slime moulds
(14.)	Bacterial flagella do not show ATPase chemically formed of	e activi	ity and $9 + 2$ organisation. These are
(a.)	Tubulin	(b.)	Bacterin
(c.)	Pilin O	(d.)	Flagellin
(15.)	Identify the group of organisms in which	the max	ximum nutrition diversity is found?
(a.)	Monera	(b.)	Fungi
(c.)	Plantae	(d.)	Animalia
(16.)	Oxygen is not produced during photosynt	hesis	
(a.)	Chara	(b.)	Nostoc
(c.)	Green sulphur bacteria	(d.)	Cycas
(17.)	Naked cytoplasm, multinucleated and sap	rophyti	ic are the characteristics of
(a.)	Monera	(b.)	Protista
(c.)	Fungi	(d.)	Slime
(18.)	In the five kingdom system of classificat can include blue green algae, nitrogen fix	ion, wł ing bac	nich single kingdom out of the following teria and methanogenic archaebacteria?
(a.)	Monera	(b.)	Fungi
(c.)	Plantae	(d.)	Protista

- (a.) (b.) Archaebacteria Eubacteria
- (c.) (d.) Cyanobacteria Mycobacteria

(20.) The genome of protistan organisms is comprised of

- (a.) Nucleoprotein in direct contact with cell (b.) Gene containing nucleoproteins substance. condensed together in loose mass.
- Membrane bound nucleoproteins (C.) Aggregates of free nucleic acids. (d.) embedded in cytoplasm.
- (21.) Assertion: Linnaeus' system of classification of animals is artificial, yet it has been considered as natural system. Reason: Linnaeus' system of classification is based on generic relationship.
 - (a.) Both Assertion and Reason are true and Reason is correct explanation of Assertion.
- (b.) Both Assertion and Reason are true, but Reason is not the correct explanation of Assertion.
- (C.) Assertion is true, but Reason is false.
- (d.) Assertion is false, but Reason is true.

(e) Both Assertion and Reason are false statements.

Which among the following are the smallest living cells known without a definite cell (22.) wall, pathogenic to plants as well as animals and can survive without oxygen?

- (a.) **Bacillus** (b.) Pseudomonas Nostoc
- (d.) (C.) Mycoplasma
- Which of the following organism possess characteristics of both a plant and an animal? (23.)
 - (a.) (b.) Bacteria Mycoplasma
 - (c.) (d.) Euglena Paramecium

(24.) Assertion: The presence of chlorophyll in euglena shows its plant like structure. Reason: Euglena cannot be classified on the basis of two kingdom classification.

- (b.) Both Assertion and Reason are true and Both Assertion and Reason are true, but (a.) Reason is correct explanation of Reason is not the correct explanation of Assertion. Assertion.
- (C.) (d.) Assertion is true, but Reason is false. Assertion is false, but Reason is true.
- (25.) Assertion: Gram negative bacteria do not retain the stain when washed with alcohol. **Reason**: The outer face of the outer membrane of Gram negative bacteria contains lipopolysaccharides, a part of which is integrated into the membrane lipids.
 - Both Assertion and Reason are true and (b.) Both Assertion and Reason are true, but (a.) Reason is correct explanation of Reason is not the correct explanation of Assertion. Assertion.

(c.)	Assertion is true, but Reason is false.	(d.)	Assertion is false, but Reason is true.			
(26.)	The primitive prokaryotes responsible for ruminant animals, include the	or the	e production of biogas from the dung of			
(a.)	thermoacidophiles	(b.)	methanogens			
(c.)	eubacteria	(d.)	halophiles			
(27.)	Which one of the following is a character	istic fe	eature of chrysophytes?			
(a.)	They are parasitic forms which cause diseases in animals.	(b.)	They have a protein rich layer called pellicle.			
(C.)	They have in destructible wall layer deposited with silica.	(d.)	They are commonly dinoflagellates.			
(28.)	Assertion : The true nucleus is generally a Reason : An undifferentiated, unorgan membrane is observed in prokaryotic cell	absent nized s.	in E.coli and other prokaryotes. fibrillar nucleus without any limiting			
(a.)	Both Assertion and Reason are true and Reason is correct explanation of Assertion.	(b.)	Both Assertion and Reason are true, but Reason is not the correct explanation of Assertion.			
(c.)	Assertion is true, but Reason is false.	(d.)	Assertion is false, but Reason is true.			
(29.)	Which of the following organisms are fungus like in one phase of their life cycle and amoeba like in another phase of their life cycle?					
(a.)	Diatoms	(b.)	Slime moulds			
(c.)	Dinoflagellates	(d.)	Water moulds			
(30.)	Methanogens belong to					
(a.)	eubacteria	(b.)	archaebacteria			
(c.)	dinoflagellates	(d.)	slime moulds			
(31.)	Assertion: Most of the red algae are mari Reason: Red algae contains the red pigme	ine. ent an	thocyanin.			
(a.)	Both Assertion and Reason are true and Reason is correct explanation of Assertion.	(b.)	Both Assertion and Reason are true, but Reason is not the correct explanation of Assertion.			
(c.)	Assertion is true, but Reason is false.	(d.)	Assertion is false, but Reason is true.			
(32.)	The structures that help some bacteria to	attach	to rocks and/or host tissues are			
(a.)	rhizoids	(b.)	fimbriae			
(c.)	mesosomes	(d.)	holdfast			
(33.)	Auxospores andhomocysts structures organisms?	are f	formed respectively in which pair of			

(a.)	Several diatoms and a few cyanobacteria.	(b.)	Several cyanobacteria and several diatoms.
(c.)	Some diatoms and several cyanobacteria.	(d.)	Some cyanobacteria and some diatoms.
(34.)	Assertion: Algal blooms deplete dissolved Reason : The bioproductivity in water bod	d oxyge ies incr	en levels in polluted water bodies. reases due to algal blooms.
(a.)	Both Assertion and Reason are true and Reason is correct explanation of Assertion.	(b.)	Both Assertion and Reason are true, but Reason is not the correct explanation of Assertion.
(c.)	Assertion is true, but Reason is false.	(d.)	Assertion is false, but Reason is true.
(35.)	Identify the common character found Giardia.	in Try	ypanosoma, Noctiluca,Monocystis and
(a.)	These are all parasites.	(b.)	These possess flagella.
(c.)	They produce spores.	(d.)	There are all unicellular Protists.
(26)	Archachactoria differ from subsctoria in		
(30.)	all membrane structure	(h)	mode of nutrition
(a.)		(\mathbf{D}_{i})	mode of reproduction
(0.)	cen snape	(u.)	mode of reproduction
(37.)	Which of the following is not a characteria	stic of C	fram positive bacteria?
(a.)	Murein content of cell wall is 70–80%.	(b.)	Basal body of flagellum contains two rings.
(c.)	Cell wall is smooth.	(d.)	None of these
(38.)	Read the following statements		
	 (I) Majority of the slime moulds are fresh (II) Dino flagellates are mostly fresh wate (III) Slime moulds form plasmodium. (IV) Protozoans may be autotrophs. (V) The spores of slime mould are disper statements are correct? 	water o r organ sed by	organisms. isms. water currents. How many of the above
(a.)	 (I) Majority of the slime moulds are fresh (II) Dino flagellates are mostly fresh wate (III) Slime moulds form plasmodium. (IV) Protozoans may be autotrophs. (V) The spores of slime mould are disper statements are correct? Three 	water organ sed by (b.)	organisms. isms. water currents. How many of the above Two
(a.) (c.)	 (I) Majority of the slime moulds are fresh (II) Dino flagellates are mostly fresh wate (III) Slime moulds form plasmodium. (IV) Protozoans may be autotrophs. (V) The spores of slime mould are disper statements are correct? Three Four 	water or r organ sed by (b.) (d.)	organisms. isms. water currents. How many of the above Two Five
(a.) (c.) (39.)	 (I) Majority of the slime moulds are fresh (II) Dino flagellates are mostly fresh wate (III) Slime moulds form plasmodium. (IV) Protozoans may be autotrophs. (V) The spores of slime mould are disper statements are correct? Three Four Assertion: Saprolegnia parasitica is parasis Reason: All species of Saprolegnia are parasitica is parasis 	water or r organ sed by (b.) (d.) itic on f rasitic o	organisms. isms. water currents. How many of the above Two Five Sish. on fish.
(a.) (c.) (39.) (a.)	 (I) Majority of the slime moulds are fresh (II) Dino flagellates are mostly fresh wate (III) Slime moulds form plasmodium. (IV) Protozoans may be autotrophs. (V) The spores of slime mould are disper statements are correct? Three Four Assertion: Saprolegnia parasitica is parasitica is parasitica are parasitica and the spores of Saprolegnia are parasitica is correct explanation of Assertion. 	water or r organ sed by (b.) (d.) itic on f rasitic o (b.)	organisms. isms. water currents. How many of the above Two Five fish. on fish. Both Assertion and Reason are true, but Reason is not the correct explanation of Assertion.

(40.)	Which of the following statement is incor-	rect wit	h respect to Dinoflagellates?
(a.)	They appear yellow, green, brown, blue or red depending on the main pigments present in their cells.	(b.)	The cell wall has stiff cellulose plates on the outer surface.
(c.)	Most of them have single flagellum.	(d.)	These also secrete a type of toxin.
(41.)	Assign the following substance to the ce correct sequence.	ll wall,	flagella, S-layer and pili of bacteria in
	(I) Glycoprotein (II) Fimbrillin		
	(III) Teichoic acid (IV) Flagellin		
	The correct sequence is		20
(a.)	III, IV, II, I	(b.)	II, IV, III, I
(c.)	III, IV, I, II	(d.)	III, I, IV, II
(42.)	Assertion : Rusts and smuts are club fungi Reason : Some smuts reside inside seeds a	i that at and are	tack cereal crops. visible near maturity.
(a.)	Both Assertion and Reason are true and Reason is correct explanation of Assertion.	(b.)	Both Assertion and Reason are true, but Reason is not the correct explanation of Assertion.
(c.)	Assertion is true, but Reason is false.	(d.)	Assertion is false, but Reason is true.
(43.)	Assertion: Exotoximare are released by animals Reason: Exotoxins are proteins to whose	y Gram	+ve bacteria which cause disease inse WBC of animals react
(a.)	Both Assertion and Reason are true and Reason is correct explanation of Assertion.	(b.)	Both Assertion and Reason are true, but Reason is not the correct explanation of Assertion.
(c.)	Assertion is true, but Reason is false.	(d.)	Assertion is false, but Reason is true.
(44.)	Study the following statements regarding the correct pair of events of this process. (I) No prophages are formed. (II) Bacterial cell undergoes many divisio (III) Bacterial cell undergoes immediate by (IV) Prophages are formed. The correct set	temper ns. ysis.	rate phases infecting a bacterium. Select
(a.)	I and II	(b.)	II and III
(c.)	III and IV	(d.)	II and IV
(01)		(01)	
(45.)	Euglena		
(a.)	is a protist with three flagella	(b.)	is an autotroph
(C.)	is a complete heterotroph	(d.)	All the statements are correct
(46.)	The example of symbiotic bacteria are/is		

(a.) Erwiniaamylovora

- (b.) Rhizobiumleguminosarum
- (C.) Xanthomonas campestris (d.) Agrobacterium tumefaciens

(47.)	Match the i	Column-I with those of Column-II:					
	Column –	L	Colu	11111 – 11			
	(a.) Euglen	a	(1) N	Iulti char	nbered calcareous shell		
	(b.) Diaton	1	(2)]	Theca			
	(c.) Dinofla	agellate	(3) F	Pellicle			
	(d.) Globig	erina	(4) I	Frustule			
	Select the c	orrect of	otion.		2.0		
	А	В	С	D			
(a.)	4	1	3	2			
(b.)	1	4	2	3			
(C.)	2	3	1	4			
(d.)	3	4	2	1			
(48.)	Assertion:	Fungi a	re wid	e spread	in distribution and they even live on or		

(48.) Assertion: Fungi are wide spread in distribution and they even live on or inside other plants and animals.

Reason: Fungi are able to grow anywhere on land, water or on other organisms because they have a variety of pigments including chlorophyll.

- (a.) Both Assertion and Reason are true and (b.) Reason is correct explanation of Assertion.
 Both Assertion and Reason are true, but Reason is not the correct explanation of Assertion.
- (C.) Assertion is true, but Reason is false. (d.) Assertion is false, but Reason is true.
- (49.) Some organisms grow in high temperature and highpH. These belong to groups of [Page: 19]
 - (a.) Cyanobacterium and diatoms (b.) Protists and mosses
 - (C.) Liverworts and yeasts (d.) Archaebacterium and eubacterium
- (50.) Assertion: The protistan cell body contains a well-defined nucleus and other membrane bound organelles.

Reason: Protistans have eukaryotic organisation.

- (a.) Both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.
 - (b.) Both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.
- (C.) Assertion is true but the Reason is false. (d.) Both
 - d.) Both Assertion and Reason are false statements.

ANSWER

(6.) a		a	(3.)	с	(4.)	b	(5.)	а
	(7.)	a	(8.)	a	(9.)	c	(10.)	d
(11.) a	(12.)	d	(13.)	a	(14.)	d	(15.)	a
(16.) c	(17.)	d	(18.)	a	(19.)	a	(20.)	d
(21.) c	(22.)	с	(23.)	с	(24.)	a	(25.)	с
(26.) b	(27.)	с	(28.)	a	(29.)	b	(30.)	b
(31.) c	(32.)	b	(33.)	a	(34.)	c	(35.)	d
(36.) a	(37.)	a	(38.)	c	(39.)	с	(40.)	с
(41.) b	(42.)	b	(43.)	a	(44.)	d	(45.)	b
(46.) b	(47.)	d	(48.)	c	(49.)	d	(50.)	a
	3		0.	505				

EXPLANATION

(1.) (a) All fungi are heterotrophic, i.e., these require an organic source of carbon, also require some source of nitrogen, inorganic ions (K^+ , Mg^+), trace elements and growth factors like vitamins. They may be saprobes and parasites. These show absorptive or holophytic type of nutrition.

(2.) (a) All single celled eukaryotic organisms like chrysophytes (diatoms and desmids), euglenoids (euglena), dinoflagellates and slime moulds are included in kingdom Protista.

(3.) (c) Saccharomycetes (yeast) is a unicellular eukaryotic fungal organism. They possess a well-defined nucleus and other cell organelles. Nostoc and Anabaena are cyanobacteria whereas mycobacterium is a true bacterium (eubacteria).

(4.) (b) N_2 fixing bacteria and archaea are prokaryotic organisms. Hence, they are classified amongst monera of the five kingdom classification concept proposed by Whittaker.

(5.) (a) Only kingdom Monera includes prokaryotic organisms, whereas rest four kingdoms of the five kingdom classification contain eukaryotic organisms.

(6.) (a) Cell wall degrading enzymes (cellulolytic, proteolytic) as well as mechanical pressure of adhesive pad (appressorium) help the fungus in penetrating the host.

(7.) (a) Diatoms are single celled plant like protists that produce intricately structured cell walls made of nano-silica (SiO₂). Thus, the walls are indestructible. Hence only option (a) is wrong and rest of the options are correct.

(8.) (a) Chromatophores are photosynthetic structures found in photoautotrophic bacterium; e.g. Rhodospirillum rubrum. In green sulphur bacteria, the photosynthetic apparatus is arranged in specialized antenna complexes called chlorosomes.

(9.) (c) Plasmogamy means fusion of protoplasm and karyogamy means fusion of nucleus. These two events lead to the formation of zygote (2n) which is diploid structure where meiosis takes place.

(10.) (d) In Protista kingdom members exhibit both autotrophic as well as heterotrophic nutrition. Animal cells lack cell wall and there are a few fungi that are edible. Monera is the kingdom that contains unicellular organisms with a prokaryotic cell organization i.e., which lacks a nuclear membrane and other membrane bound organelles.

(11.) (a) Plasmids are small extra chromosomal or extra nuclear, circular, double stranded DNA molecules that are separate from main bacterial chromosome and replicate independently.

(12.) (d) The archaebacteria are able to flourish in extreme conditions of environment that are believed to have existed on primitive Earth. It is believed that these represent the early forms of life. Hence archaebacteria are called the 'oldest living beings'.

(13.) (a) Chrysophytes are placed under the kingdom Protista. This group includes diatoms and golden algae (desmids). Most of them are photosynthetic. In diatoms, the cell walls form two thin overlapping cells, which fit together as in a soap box.

(14.) (d) The bacterial flagellum is a long, filamentous and a protoplasmic appendage. They arise in the cell envelope. In the bacterial flagella, instead of 9 + 2 arrangement of tubulin, there is simply a single filament of globular protein called flagellin.

(15.) (a) The maximum nutritional diversity is shown by the organisms included in the kingdom Monera. These could be chemo synthetic autotrophs and photosynthetic autotrophs, while the vast majority are heterotrophs (saprophytes or parasites). These play an important role in any kind of ecosystem as both producers and decomposers.

(16.) (c) Oxygen is not produced in the photosynthetic process carried out by green sulphur bacteria. It is anaerobic bacteria which does not evolve O_2 but produce sulphur as a byproduct. It is because of the fact that it uses H_2 S as a source of hydrogen instead of H_2 O. H_2 S \rightarrow 2H + S $6CO_2 + 12H_2 \rightarrow C_6H_{12}O_6 + 6H_2$ O. Example of sulphur bacterium is Chlorobium limicola. It possesses bacteriopheophytin as a photosynthetic pigment.

(17.) (d) Slime moulds are saprophytic protists, moving along the dead leaves and engulfing organic material. These are multi nucleated and do not possess cell wall and have naked cytoplasm. Whereas, monerans are prokaryotes, which include all bacteria. These do not contain naked cytoplasm. Protists are a group of eukaryotic organisms that has a well defined membrane around cytoplasm. They may be uni or multinucleated. Fungi lack naked cytoplasm. Their cell has a well developed cell wall made of chitin.

(18.) (a) The members of monera kingdom are the most primitive of the early evolved organisms during the course of division. These include blue green algae, nitrogen fixing bacteria and methanogenic archaebacteria.

(19.) (a) The first evolved living organism during the course of evolution is a group of bacterium placed in archaebacteria. They have the ability to live in diverse habitat, for e.g., extreme hot temperature, saline condition, variable pH, etc. The bacterium living in high salt medium are called Halophiles (e.g., Halobacterium, Halococcus). The ability of archaebacteria to survive in such conditions is due to the presence of branched lipid chain in their membrane, which reduces the fluidity of their membrane.

(20.) (d) Protistan genome is organized in the form of nucleus. It is differentiated into nuclear envelop, chromatin, one or more nucleoli and nucleoplasm. Nuclear DNA is linear associated with histone proteins.

(21.) (c) Linneaus divided the entire living world into two kingdoms, Plantae and Animalia. It is not based on genetic relationship, but is based on presence of cell wall, chlorophyll, mode of nutrition and locomotion. Members of Plantae group possess cellulosic cell wall and chlorophyll. They are autotrophic in nature and are stationary at one place. Members of Animalia do not have cell wall, chlorophyll, are heterotrophs and can move from one place to another.

(22.) (c) Mycoplasma are the smallest living cells which does not possess any cell wall. They are the anaerobic disease causing organisms which cause diseases in plants and animals.

(23.) (c) The organism euglena possess characteristic of both a plant and animal. It is a connecting link between animals and plant. It contains chlorophyll, yet it resembles animals because it feeds like animals in the absence of sunlight.

(24.) (a) Euglena has characteristics of both plants and animals. So, it cannot be classified under the two kingdom classification, i.e., plant kingdom and animal kingdom.

(25.) (c) Gram staining technique was developed by the Danish Bacteriologist Hans Christian Gram in 18

(26.) (b) The primitive prokaryotes responsible for the production of biogas from dung of ruminant animals include methanogen bacteria. There are obligate anaerobic, ancient and primitive bacteria.

(27.) (c) The chrysophytes have indestructible wall layer deposited with silica. The cell walls form two thin overlapping shells, which fit together as in soap case box. These walls are embedded with silica and thus are indestructible.

(28.) (a) E.coli is a well-studied prokaryotic cell. Prokaryotic cell lacks true nucleus and membrane bound organelles like mitochondria, chloroplast, ER, Golgi bodies, etc. There is an

undifferentiated, unorganized fibrillar nucleus without any nuclear membrane in prokaryotic cells. The genetic material of prokaryotic cell is disperse in cytoplasm and is known as nucleoid.

(29.) (b) Slime moulds are the protistan organism of myxomycota. These show evolutionary resemblances to amoeba because these have cellular amoeboid phage in their life cycle.

(30.) (b) Methanogens belong to group archaebacteria.

(31.) (c) Most of the red algae are marine and they contain a red pigment called phycoerythrin. For e.g., Gracilaria, Porphyra, Gelidium.

(32.) (b) Fimbriae are small bristle like fibers sprouting out of the cell. In some bacteria they are known to help in attachment to rocks in streams and also to the host tissue.

(33.) (a) Diatoms are microscopic, eukaryotic unicellular or colonial coccoid algae. These algae are sexually reproduced by the formation of auxospores in most cases. Homocysts are formed by few cyanobacteria.

(34.) (c) Assertion is correct, but the reason is incorrect because bio productivity in water bodies decreases due to algal blooms.

(35.) (d) Noctiluca, Trypanosoma, Monocystis and Giardia are unicellular protist organisms.

(36.) (a) The archaebacteria have cell membrane which is made up of glycerol ether lipids. The cell membrane of eubacteria is made up of glycerol ester lipids. Ether lipids are chemically more resistant to high temperature, acidic and alkaline medium.

(37.) (a) In 1884, a Danish Biologist, Christian Gram developed a stain, which revealed that bacteria can be divided into two natural groups, i.e., Gram positive and Gram negative due to differences in their cell wall structures. The outer membrane is present in Gram positive bacteria.

(38.) (c) Only statement (IV) is correct. Other statements are incorrect about protist organisms.

(39.) (c) Saprolegnia parasitica is a parasite on fish, but all the species of Saprolegnia are not parasite on fish. Some are saprophytes.

(40.) (c) The statement (c.) is incorrect about dinoflagellates. These organisms have more than two flagellum for motility.

(41.) (b) The correct sequence is Fimbrillin Pilli Flagellin Flagella Teichoic acid Cell wall Glycoprotein S layer

(42.) (b) Assertion is correct, but the reason is not the correct explanation of assertion. Rust and smut fungi belong to basidiomycetes and are called club fungi. Presence of smut fungi in plant is seen at the time of seed formation.

(43.) (a) Mostly pathogenic bacteria are Gram +ve. There release exotoxins outside the cell and kills the WBC and cause disease in animals.

(44.) (d) Temperate phages are the avirulent lysogenic phages whose nucleic acids gets incorporated in the bacterial DNA (Lysogenization). When these phages infect bacteria, the phage genome integrated to bacterial genome and bacterial cell undergoes many divisions.

(45.) (b) Euglena is a protist which is an autotroph. It is a connecting link between animals and plants.

(46.) (b) Rhizobium leguminosarum is a small flagellate gram negative, aerobic, rod shaped bacterium. It persists saprophytically in the soil. It can infect the damaged root epidermal cell of leguminous plant and establish symbiotic relationship and fix atmospheric nitrogen.

(47.) (d) A-3, B-4, C-2, D-1

Column – I	Column – II
(a.) Euglena	(3) Pellicle
(b.) Diatom	(4) Frustule
(c.) Dinoflagellate	(2) Theca
(d.) Globigerina	(1) Multi-chambered calcareous shell

(48.) (c) Assertion is correct, but reason is incorrect because fungi are cosmopolitan organisms with chlorophyll. These are heterotrophs.

(49.) (d) Some archaebacteria and eubacteria can live in extreme climatic conditions like high temperature and acidic pH(2). These are mostly found in deep sea thermal vents and form the basis of food web for sea animals.

(50.) (a) The Protista Kingdom includes unicellular eukaryotic organisms. They have remembrance bound, cell developed cell organelles.

