4

Chapter 4

Biological Classification

Solutions

SECTION - A

Objective Type Questions

(Kingdom Systems of Classification)

- 1. Which kingdom was introduced in four kingdom classification and who proposed it ?
 - (1) Protista and Copeland (2) Plantae and Linnaeus
 - (3) Monera and Whittaker (4) Monera and Copeland
- Sol. Answer (4)

In four Kingdom Classification Kingdom Monera was introduced by Copeland.

- 2. Select correct match w.r.t. Whittaker's system of classification
 - (1) Monera : Unicellular, osmotrophs, producers and decomposers, true cellulosic cell wall
 - (2) Protista : Unicellular, eukaryotic, photoauto-trophs and chemoautotrophs
 - (3) Fungi : Multicellular/loose tissue, eukaryotic, osmotrophs, chitinous wall
 - (4) Animalia : Multicellular, eukaryotic, organ or organ system, holozoic, no saprobic
- Sol. Answer (3)

Whittaker's system of classification

Fungi – Multicellular / loose tissue

Eukaryotic

 $\mathsf{Osmotrophs} \to \mathsf{Saprotrophs}$

Chitinous cell wall

3. Domain Eukarya includes how many kingdoms (w.r.t. six kingdom system)?

Domain Eukarya – Plantae 4 Kingdoms

(Kingdom : Monera)

4.	Bacteria a	are considered	primitive	organisms	because t	hev
						··

- (1) Possess incipient nucleus
- (2) Are small, microscopic plants, which are not seen by the naked eyes
- (3) Cause serious diseases to human being, domesticated animals and crop plants
- (4) Produce endospores which are very resistant to adverse conditions

Sol. Answer (1)

Bacteria

- Primitive organisms
- Posses incipient nucleus
- 5. 70S ribosomes, chromatophores and circular DNA, are found in
 - (1) All eukaryotes (2) All prokaryotes
 - (3) Some prokaryotes (4) Some eukaryotes and some prokaryotes
- Sol. Answer (3)

70 S ribosomes, chromatophores and circular DNA are found in some prokaryotes.

- 6. There is no alternation of generation in *Escherichia coli* because of the absence of
 - (1) Syngamy (2) Reduction division (3) Conjugation (4) Both (1) & (2)

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Sol. Answer (4)
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In *E.coli*, there is no alternation of generation due to absence of syngamy and reduction division.

- 7. Branched chain lipids occur in the cell membranes of
 - (1) Methanobacterium (2) Mycoplasma (3) Actinomycetes (4) Streptomyces
- Sol. Answer (1)

Branched chain lipids occur in the cell membrane of Archeaebacteria.

- 8. Cyanobacteria do not possess
 - (1) Gene recombinations (2) Flagella (3) Plasmids (4) Pigments
- Sol. Answer (2)

In cynobacteria

- Flagella absent
- Gene recombinations]
- PlasmidsPigments
- Present
- 9. A bacterial cell divides every one minute. It takes 15 minutes a cup to be one-fourth full. How much time will it take to fill the cup?
 - (1) 30 minutes (2) 45 minutes (3) 60 minutes (4) 17 minutes

 $\frac{1}{4}$ of cup = 15 minutes $\frac{1}{2}$ of cup = 16 minutes

Full cup of bacteria = 17 minutes

10.	Highly resistance nature of endospore is due to the pre-	esen	ce of			
	(1) Dipicolinic acid and peptidoglycan in spore coat	(2)	Peptidoglycan in exosporium			
	(3) Dipicolinic acid and Ca in cortex	(4)	Dipicolinic acid and Ca in cell membrane			
Sol.	Answer (3)					
	Highly resistance nature of endosperm is due to - dipi	colin	ic acid and Ca in cortex.			
11.	Endospores formed by certain bacteria are actually the	mea	ans for			
	(1) Reproduction (2) Perennation	(3)	Bioluminescence (4) Red snow formation			
Sol.	Answer (2)					
	Endospores formed by certain bacteria are actually me	ans	of perennation			
12.	Select an incorrect statement for F ⁺ bacteria					
	(1) It has F plasmid	(2)	Only somatic pili are present			
	(3) It is considered as donor bacterium	(4)	It cannot conjugate with another F ⁺ form			
Sol.	Answer (2)					
	F ⁺ bacteria					
	Has F plasmid					
	It is a donor bacterium					
	 It cannot conjugate with another F⁺ form. 					
	• Both fertility factor and somatic pili are present.					
(Kin	gdom : Protista)					
13.	Sea water glows during night mainly due to occurrence	e of				
	(1) Gonyaulax (2) Noctiluca	(3)	Euglena (4) Cyclotella			
Sol.	Answer (2)					
	Sea water glows during night Noctiluca					
14.	Rejuvenescent spore of diatom is					
	(1) Haploid and exospore	(2)	Diploid and statospore			
	(3) Haploid and statospore	(4)	Diploid and auxospore			
Sol.	Answer (4)					
	Rejuvenescent spore of diatom – Diploid and Auxospor	e				
15.	Leucosin (Chrysolaminarin) is a carbohydrate which is	store	ed as reserve food in case of			
_	(1) Diatom (2) <i>Euglena</i>	(3)	Dinoflagellates (4) Paramoecium			
Sol.	Answer (1)					
	Organism Reserve food					
	Diatom – Leucosin (Chrysolaminarin)					
	Euglena – Paramylon					
	Dinoflagellates – Carbohydrate and oil					
40	Paramoecium – Glycogen granules					
16.	Flagellation in <i>Euglena</i> is		test set as des blatestertes s			
	(1) Unifiagellation and stichonematic	(2)	Isokont and whiplash type			
0-1	(3) Heterokont and whiplash type	(4)				
501.	Answer (4)					
	Flagella the but different size (Latersheet)					
	riagella two but different size (Heterokont)					
	 One side masugonemous (Suchonematic) 					

17.	Special type of red pigment pr	esent in the eye-	spot of Eugle	<i>na</i> and Crustacea is	call	ed
	(1) Phycoerythrin (2)	Astaxanthin	(3) (Carotene	(4)	Xanthophyll
Sol.	Answer (2)					
	Eye spot of Euglena and Crus	tacea				
	 Red pigment (Astaxanthin) 					
18.	Paraflagellar body of Euglena	helps in				
	(1) Locomotion (2)	Photoreception	(3) F	Reproduction	(4)	Osmoregulation
Sol.	Answer (2)					
	Paraflagellar body of Euglena					
	- Photosensitive (Photorecept	tion)				
19.	Difference between a red sea	and red tide is				
	(1) Red tide takes place in re	d sea				
	(2) Associated with a cyanoba	cteria and protist	respectively			
	(3) One is by virus and other b	y bacteria				
	(4) Associated with Rhodophy	ceae and diatoms	s respectively			
Sol.	Answer (2)					
	Red sea	Red tide				
	Cyanobacteria	Dinoflagellate	o			
	eg. Irichodesmium erythrum	eg. Gonyaulax,	Gymnodinium	1		
(Kin	gdom : Fungi, Kingdom Pla	ntae, Kingdom	Animalia)			
20.	Find the correct match					
	a. Gill lungi	(1)		ase		
	b. Cupliungi	(11)	Donioillin			
	d Blue / groop mould	(III) (iv)	Zvgophoro			
	u. Dide / green mould	(10)	Anothecium			
	(1) $a(ii) b(iii) c(i) d(y)$	(•)	(2)	a(ii) b(y) c(iy) d(i)		
	(3) $a(ii)$, $b(y)$, $c(iy)$, $d(iii)$		(4)	a(ii), b(iii), c(i), d(iv)		
Sol.	Answer (3)		()			
	Gill fungi – Tram	a (central part)				
	Cup fungi – Apot	hecium (<i>Peziza &</i>	& Ascobolus)			
	Black mould – Zygo	phore	,			
	Blue/Green mould - Peni	cillin				
21.	Select incorrectly matched pa	air				
	(1) Mucor mucedo -	Coprophilous				
	(2) Albugo candida -	Facultative para	isite			
	(3) Agaricus bisporus -	Edible basidioca	arp			
	(4) Puccinia graminis -	Black rust fungi				
Sol.	Answer (2)					

Albugo candida - Obligate parasite

22.	Fungi differs from bacteria in			
	(1) Mode of nutrition	(2)	Having NAG in cell	wall
	(3) Flagella structure	(4)	Reserve food mate	rial as glycogen
Sol.	Answer (3)			
	Fungi differs from bacteria in flagellar structure			
23.	Fruiting body in Aspergillus (or Penicillium) is know	n as		
	(1) Cleistothecium (2) Apothecium	(3)	Perithecium	(4) Ascus
Sol.	Answer (1)			
	Ascocarp in Aspergillus & Pencillium is cleistotheci	ium		
24.	The famous Irish famine is related to a disease of p	otato kr	iown as	
	(1) Late blight of potato (2) Early blight of potato	o (3)	Dry rot of potato	(4) Potato scab
Sol.	Answer (1)			
	Irish famine – Late blight of potato			
25.	A dolipore septum is a characteristic feature of			
	(1) Phycomycetes (2) Ascomycetes	(3)	Basidiomycetes	(4) Zygomycetes
Sol.	Answer (3)			
	Dolipore septum occurs in – Basidiomycetes			
26.	Which one of the following combination of character	rs is cori	ect for the given fur	ngal group?
	(1) Algal fungi : Coenocytic, cellulosic wall, zoospo	ore, zygo	spore, dikaryophas	e present
	(2) Conjugating fungi : Septate mycelium, chitinous	s cell wa	II, sporangiospore,	shorter (n + n) phase
	(3) Sac fungi : Septate mycelium, Ascogonium, Cro dikaryophase	ozier sta	ige, meiospores as	ascospores, shorter
	(4) Club fungi : Shorter primary mycelium stage, no	o sex or	gans, dominant dika	aryophase, zygosporic meiosis
Sol.	Answer (3)			
	Sac fungi			
	Septate mycellium			
	Ascogonium			
	Crozier stage			
27.	Find set of edible basidiocarps.			
	(1) Agaricus, Pleurotus (2) Agaricus, Morchella	a (3)	Volvariella, Tuber	(4) Amanita, Morchella
Sol.	Answer (1)			
	Basidiocarps Ascocarp Agaricus Morchella Pleurotus Edible Volvariella Edible			
	Amanita \longrightarrow Non-edible			
(Vir	uses, Viroids and Lichens)			
28.	Read the statements carefully			
	a. Hartig net is the network of intracellular myceliu	um of Bo	oletus	
	b. Ectomycorrhiza forms ten percent of total myco	orrhiza		
	c. Fungal partner of endomycorrhiza belongs to zy	ygomyce	etes or phycomycete	es

(1) Only a & c are correct (2) Only b & c are correct (3) Only c is correct (4) All are correct

Sol. Answer (2)

In ectomycorrhiza Hartig net is the network mycelium of of Boletus (basidiomycetes) in Pinus root.

29. Symptom not seen in plants due to viruses is

(1) Mosaic formation (2) Leaf rolling and curling (3) Yellowing, vein clearing (4) Root knot

Sol. Answer (4)

Viral symptoms in plants

- Mosaic formation
 Leaf rolling and curling
- 30. Viruses possess all the following properties, except
 - (1) They are non-cellular organisms
 - (3) Capsid protects nucleic acid

Sol. Answer (2)

Viruses posses either DNA or RNA.

31. Identify A and B given below:

- Yellowing, vein clearing
- (2) Possess both DNA and RNA

(2) A - RNA virus - T.M.V

В

- DNA virus - T₄ bacteriophage

(4) A - Reterovirus - Hepatitis B virus

B - RNA virus - T₄ bacterophage

(4) Have inert crystalline structure outside living cells

Δ	, B

- (1) A DNA virus Cauliflower mosaic virus
 - B RNA virus Pox virus
- (3) A RNA virus Hepatitis B virus
 - B Reterovirus T.M.V

Sol. Answer (2)

TMV — RNA Virus

T₄ bacteriaphage – DNA virus

- 32. Read the following statements carefully and identify correct statements w.r.t. Lichens
 - a. The association cannot tolerate air pollution, especially due to sulphur dioxide
 - b. Lichens are annuals and their growth is slow
 - c. The fungal partner mostly belongs to ascomycetes.
 - d. Soredia are most efficient means of asexual reproduction
 - e. Orchids seldom occur without this association
 - f. Foliose lichens are pioneers of succession in a water body.

(1) c, d, f (2) a, c, d, f (3) a, b, e (4) a, c, d

Sol. Answer (4)

Lichens are perennial and their growth is slow.

- 33. In three kingdom classification, the kingdom Protista includes
 - (1) Unicellular eukaryotic organisms only
 - (2) Unicellular prokaryotic organisms only
 - (3) Wide variety of unicellular, mostly aquatic eukaryotes
 - (4) Wide variety of unicellular, mostly terrestrial Prokaryotes

Sol. Answer (3)

- 34. Which of the following was given the status of kingdom in the classification system given by Copeland?
 - (1) Prokaryotes (2) Myxomycetes
 - (3) Eukaryotic algae (4) Protista
- Sol. Answer (1)

Kingdom monera includes prokaryotes.

- 35. Find **odd** one w.r.t. phototrophic nutrition
 - (1) Chromatium and Chlorobium
 - (2) Rhodopseudomonas and Thiospirillum
 - (3) Chloronema and Chloroflexus
 - (4) Pseudomonas and Clostridium
- Sol. Answer (4)
- 36. Mark the incorrect option (w.r.t. nitrifying bacteria)
 - (1) Nitrococcus (2) Leptothrix
 - (3) Nitrobacter (4) Nitrocystis

Sol. Answer (2)

Leptothix is not a nitrifying bacteria.

- 37. Genetic recombination in which a small double stranded piece of DNA is transferred from donor bacterium to recipient bacterium by a bacteriophage was first demonstrated by
 - (1) Griffith
 - (2) Lederberg and Tatum
 - (3) Zinder and Lederberg
 - (4) Avery et.al.
- Sol. Answer (3)

It is transduction.

- 38. The characteristic photosynthetic pigments in cyanobacteria are
 - (1) Chlorophyll a and c
 - (2) Chlorophyll a and carotenes
 - (3) Chlorophyll a and phycobilins
 - (4) Chlorophyll a, carotenoids and phycobilins

Sol. Answer (4)

It is chl a, carotenoid and phycobilins.

- 39. Which is the **incorrect** statement regarding fungi?
 - (1) Wheat rust causing agent is Puccinia
 - (2) Penicillium is a source of antibiotic
 - (3) The cell wall of fungi are composed of peptidoglycan
 - (4) Fungi prefer to grow in warm and humid places

Sol. Answer (3)

Cell wall of fungi are composed of chitin and polysaccharide

40.	Statement-1 : Yeast is a multicellular fungus.								
	Statement-2 : Penicillium is an unicellular fungus.								
	Statement-3 : Albugo is a parasitic fungus on mustard.								
	(1) Only statement-1 and statement-2 are correct	(2)	All the above statem	nents	are incorrect				
	(3) Only statement-3 is correct	(4)	Both statement-1 an	id sta	atement-3 are correct				
Sol.	Answer (3)								
	Yeast is a unicellular fungus.								
	Penicillium is a multicellular fungus.								
	Albugo is a parasitic fungus, causes white rust in cruci	fers							
41.	Mark the correct statement.								
	(1) Phycomycetes include mushrooms, bracket fungi o	r pu	ff balls						
	(2) The mycelium of basidiomycetes is branched and s	septa	ate						
	(3) Neurospora is used extensively in biochemical and	gen	etic work, it belongs	to gr	oup basidiomycetes				
	(4) Morels and truffles are non-edible								
Sol.	Answer (2)								
	Basidiomycetes include mushrooms, bracket fungi or p	uff b	alls.						
	Neurospora belongs to group Ascomycetes.								
	Morels and Truffles are edible.								
42.	Which one is correctly matched?								
	(1) Agaricus - Smut	(2)	Ustilago	-	Mushroom				
	(3) <i>Puccinia</i> - Insectivorous plant	(4)	Deuteromycetes	-	Imperfect fungi				
Sol.	Answer (4)								
	Agaricus – Mushroom								
	Ustilago – Smut								
	Puccinia – Rust								
	Deuteromycetes – Imperfect fungi								
	SECTION	- E	3						
	Previous Years	Que	stions						
1.	Which of the following organisms are known as chief pr	rodu	cers in the oceans?		[NEET-2018]				
	(1) Dinoflagellates (2) Diatoms	(3)	Euglenoids	(4)	Cyanobacteria				
Sol.	Answer (2)								
	Diatoms are chief producers of the ocean.								
2.	Ciliates differ from all other protozoans in				[NEET-2018]				
	(1) using flagella for locomotion								
	(2) having a contractile vacuole for removing excess wa	ater							
	(3) having two types of nuclei								
	(4) using pseudopodia for capturing prey								

Sol. Answer (3)

Ciliates differs from other protozoans in having two types of nuclei.

eg. Paramoecium have two types of nuclei i.e. macronucleus & micronucleus.

3.	Oxygen is not p	produced during	photosynthesis by					[NEET-2018]
	(1) Green sulpl	nur bacteria (2)	Nostoc	(3)	Chara	(4)	Cycas	
Sol.	Answer (1)							
	Green sulphur l	oacteria do not	use H ₂ O as source of pr	roton	, therefore they do no	ot evo	olve O ₂ .	
4.	After karyogam	y followed by m	ieiosis, spores are produ	uced	exogenously in			[NEET-2018]
	(1) Neurospora	(2)	Alternaria	(3)	Saccharomyces	(4)	Agaricus	
Sol.	Answer (4)							
	• In Agaricus	(a genus of ba	sidiomycetes), basidiosp	oores	or meiospores are p	orodu	ced exoge	nously.
	• Neurospora ascus.)	(a genus of as	scomycetes) produces a	scos	pores as meiospores	s but	endogenou	isly inside the
	• Alternaria (a	a genus of deut	eromycetes) does not p	rodu	ce sexual spores.			
	Saccharom	yces (Unicellula	ar ascomycetes) produce	es as	cospores, endogeno	usly.		
5.	Select the wron	ig statement :						[NEET-2018]
	(1) Cell wall is	present in men	bers of Fungi and Plant	tae				
	(2) Mushrooms	belong to Bas	idiomycetes					
	(3) Mitochondri	a are the powe	rhouse of the cell in all I	kingc	loms except Monera			
	(4) Pseudopod	ia are locomoto	ry and feeding structure	s in S	Sporozoans			
Sol.	Answer (4)							
	Pseudopodia a	e locomotory s	tructures in sarcodines (Amo	eboid)			
6.	Viroids differ fro	m viruses in ha	ving :					[NEET-2017]
	(1) DNA molec	ules with protei	n coat	(2)	DNA molecules with	nout p	protein coa	t
	(3) RNA molec	ules with protei	n coat	(4)	RNA molecules with	nout p	protein coa	t
Sol.	Answer (4)							
_	Viroids are sub	-viral agents as	infectious RNA particles	s, wit	hout protein coat.			
7.	Which of the fo	lowing are four	id in extreme saline con	ditior	ns?			[NEET-2017]
0.01	(1) Archaebact	eria (2)	Eubacteria	(3)	Cyanobacteria	(4)	Mycobact	eria
501.	Answer (1)	aro ablo to sun	ivo in barsh conditions h		iso of branchod linid	chair	in coll mo	mbrana which
	reduces fluidity	of cell membra	ne.	Jecal		Chai		
	Halophiles are	exclusively four	d in saline habitats.					
8.	Which among the as well as anim	ne following are als and can su	the smallest living cells, vive without oxygen?	, kno	wn without a definite	cell v	vall, pathog	genic to plants [NEET-2017]
	(1) Bacillus	(2)	Pseudomonas	(3)	Mycoplasma	(4)	Nostoc	
Sol.	Answer (3)							
	<i>Mycoplasma</i> ar and animals.	e smallest, wall	-less prokaryotes, pleon	norph	nic in nature. These a	are pa	athogenic o	on both plants
9.	Which one of th	e following is v	rong for fungi?				[NEET (P	hase-2) 2016]
	(1) They are en	ukaryotic		(2)	All fungi possess a	pure	ly cellulosi	c cell wall
	(3) They are he	eterotrophic		(4)	They are both unice	llular	and multic	ellular
Sol.	Answer (2)							

Cell wall of fungi is made up of chitin and polysaccharides.

10.	Methanogens belong to					[NEET (Pr	ase-2) 2016]
	(1) Eubacteria	(2) Archaebacteria	(3)	Dinoflagellates	(4)	Slime mou	ılds
Sol.	Answer (2)						
	Methanogens, halophiles a	and thermoacidophiles are A	rcha	ebacteria.			
11.	Select the wrong stateme	ent.				[NEET (Pr	ase-2) 2016]
	(1) The walls of diatoms a	are easily destructible					
	(2) 'Diatomaceous earth' i	s formed by the cell walls of	diate	oms			
	(3) Diatoms are chief proc	ducers in the oceans					
	(4) Diatoms are microsco	pic and float passively in wat	er				
Sol.	Answer (1)						
	The cell walls of diatoms a	are embedded with silica and	thu	s the walls are indest	ructi	ble.	
12.	Select the wrong stateme	ent				[NEET (Pr	ase-2) 2016]
	(1) Bacterial cell wall is m	ade up of peptidoglycan					
	(2) Pili and fimbriae are m	nainly involved in motility of b	acte	rial cells			
	(3) Cyanobacteria lack fla	gellated cells					
	(4) Mycoplasma is a wall-	less microorganism					
Sol.	Answer (2)						
	Pili and fimbriae are surfa	ce structures of the bacteria	that	do not play a role in	moti	lity.	
13.	Which one of the following	g statements is wrong ?					[NEET-2016]
	(1) Phycomycetes are als	o called algal fungi	(2)	Cyanobacteria are al	so c	alled blue-g	reen algae
	(3) Golden algae are also	called desmids	(4)	Eubacteria are also	calle	d false bac	teria
Sol.	Answer (4)						
	Eubacteria are true bacter						
14.	Chrysophytes, Euglenoids	, Dinoflagellates and Slime m	noulo	is are included in the	king	dom	[NEET-2016]
	(1) Animalia	(2) Monera	(3)	Protista	(4)	Fungi	
Sol.	Answer (3)	- lile shares had foliatenes		d de encide]. Evelen ei			
	and slime moulds are inclu	uded in kingdom -Protista.	s an	a aesmiasj, Eugienoid	זן פנ	ugienaj, D	Inoflagellates
15.	One of the major compone	ents of cell wall of most fungi	is				[NEET-2016]
	(1) Hemicellulose	(2) Chitin	(3)	Peptidoglycan	(4)	Cellulose	
Sol.	Answer (2)		. ,				
	Cell wall of most fungi is r	nade up of chitin.					
16.	The primitive prokaryotes	responsible for the production	ר of	biogas from the dung	of r	uminant ani	mals, include
	the						[NEET-2016]
	(1) Eubacteria	(2) Halophiles	(3)	Thermoacidophiles	(4)	Methanoge	ens
Sol.	Answer (4)						
	Methanogens are obligate a	anaerobic ancient and primitive	bac	teria. They are involved	d in r	nethanogen	esis.
17.	Which of the following stat	tements is wrong for viroids?	>				[NEET-2016]
			-				
	(1) Their RNA is of high n	nolecular weight	(2)	They lack a protein o	coat		

Sol.	Answer (1)
	Viroids have RNA of low molecular weight.
18.	Choose the wrong statement [Re-AIPMT-2015]
	(1) Yeast is unicellular and useful in fermentation
	(2) Penicillium is multicellular and produces antibiotics
	(3) Neurospora is used in the study of biochemical genetics
	(4) Morels and truffles are poisonous mushrooms
Sol.	Answer (4)
	Morels and truffles are edible fungi belong to class Ascomycetes.
19.	In which group of organisms the cell walls form two thin overlapping shells which fit together? [Re-AIPMT-2015]
	(1) Slime moulds (2) Chrysophytes (3) Euglenoids (4) Dinoflagellates
Sol.	Answer (2)
	Chrysophytes are photosynthetic protists. They have overlapping cell wall like soap box.
20.	Choose the wrong statement [Re-AIPMT-2015]
	(1) Mosaic disease in tobacco and AIDS in human being are caused by viruses
	(2) The viroids were discovered by D.J. Ivanowsky
	(3) W.M. Stanley showed that viruses could be crystallized
	(4) The term Contagium vivum fluidum was coined by M.W. Beijerinek
Sol.	Answer (2)
	The viroids were discovered by T.O. Diener.
21.	The imperfect fungi which are decomposers of litter and help in mineral cycling belong to: [Re-AIPMT-2015]
	(1) Ascomycetes (2) Deuteromycetes (3) Basidiomycetes (4) Phycomycetes
Sol.	Answer (2)
	Deuteromycetes - Imperfect fungi which are decomposers of litter and help in mineral cycling.
22.	Pick up the wrong statement [Re-AIPMT-2015]
	(1) Nuclear membrane is present in Monera
	(2) Cell wall is absent in Animalia
	(3) Protista have photosynthetic and heterotrophic modes of nutrition
	(4) Some fungi are edible
Sol.	Answer (1)
	The members of kingdom-Monera are prokaryotes they lack nuclear membrane.
23.	Which one of the following matches is correct? [AIPMT-2015]
	(1) <i>Agaricus</i> Parasitic fungus Basidiomycetes

(2)	Phyto- phthora	Aseptate mycelium	Basidiomycetes
(3)	Alternaria	Sexual reproduction	Deuteromycetes
(4)	Mucor	absent Reproduction by conjugation	Ascomycetes

24.	The guts of cow and buffalo possess				[AIPMT-2015]
	(1) Cyanobacteria (2) Fucus sp.	(3)	Chlorella sp.	(4)	Methanogens
Sol.	Answer (4)				
25.	Five kingdom system of classification suggested by R.	H. V	/hittaker is not based	on	[AIPMT-2014]
	(1) Presence or absence of a well defined nucleus	(2)	Mode of reproduction	n	
	(3) Mode of nutrition	(4)	Complexity of body	orga	nisation
Sol.	Answer (2)				
	Five kingdom system was not based on presence or abs	ence	e of a well-defined nuc	leus	;
26.	Archaebacteria differ from eubacteria in				[AIPMT-2014]
	(1) Cell membrane structure	(2)	Mode of nutrition		
	(3) Cell shape	(4)	Mode of reproduction	n	
Sol.	Answer(1)				
	Archaebacteria differ from eubacteria in cell membrane s	struc	ture.		
27.	Which of the following shows coiled RNA strand and ca	apso	meres?		[AIPMT-2014]
	(1) Polio virus (2) Tobacco mosaic virus	(3)	Measles virus	(4)	Retrovirus
Sol.	Answer (2)				
	TMV – Coiled RNA strand and capsomeres				
28.	Viruses have				[AIPMT-2014]
	(1) DNA enclosed in a protein coat	(2)	Prokaryotic nucleus		
	(3) Single chromosome	(4)	Both DNA and RNA		
Sol.	Answer(1)				
	Viruses – DNA enclosed in a protein coat				
29.	The motile bacteria are able to move by:				[AIPMT-2014]
	(1) Fimbriae (2) Flagella	(3)	Cilia	(4)	Pili
Sol.	Answer (2)				
30.	Pigment-containing membranous extensions in some c	yanc	bacteria are		[NEET-2013]
	(1) Basal bodies (2) Pneumatophores	(3)	Chromatophores	(4)	Heterocysts
Sol.	Answer (3)				
	Chromatophores :				
	- Cynaobacteria				
	- Pigment-containing membranous extensions				
31.	Which statement is wrong for viruses?				[AIPM1 (Prelims)-2012]
	(1) They have ability to synthesize nucleic acids and p	orote	ins		
	(2) Antibiotics have no effect on them				
	(3) All af them have helical comments:				
0.1	(4) All of them have helical symmetry				
501.	Answer (4)				
20	All viruses do not nave nelical symmetry				[AIDMT (Dec!!
3Z.	(1) Slime moulde (2) Dive steep elses	(2)	Drotioto	(4)	[AIPWII (Prelims)-2012]
	(1) Sinne moulus (2) Blue green algaé	(3)	FIUIISIS	(4)	Golden algae

Sol.	Answer (2)						
	Cynobacteria = Blue green	alga	е				
33.	Which one single organism or the pair of organisms is correctly assigned to its or their named taxonomi group? [AIPMT (Prelims)-2012						
	(1) Yeast used in making b	orea	d and beer is a fungus				
	(2) Nostoc and Anabaena	are	examples of protista				
	(3) Paramoecium and Plas	smo	<i>dium</i> belong to the same	e kin	gdom as that of Pen	icilluı	п
	(4) Lichen is a composite or	gani	sm formed from the symb	oiotic	association of an alga	ie an	d a protozoan
Sol.	Answer(1)						
34.	How many organisms in th	e lis	t given below are autotr	ophs	s?		
	Lactobacillus, Nostoc, Ch Porphyra, Wolfia	ara,	Nitrosomonas, Nitroba	cter	, Streptomyces, Sac	cchai	romyces, Trypanosoma, [AIPMT (Mains)-2012]
	(1) Four	(2)	Five	(3)	Six	(4)	Three
Sol.	Answer (3)						
	Autotrophs - Nostoc, Chara	a, Ni	itrosomonas, Nitrobacter	, Po	rphyra & Wolffia		
35.	In the five-kingdom classific	catio	n, Chlamydomonas and	Chl	orella have been inclu	uded	in
							[AIPMT (Mains)-2012]
	(1) Protista	(2)	Algae	(3)	Plantae	(4)	Monera
Sol.	Answer (1)	()	0	()		()	
	Chlamydomonas & Chlorel	la – I	Protista				
36.	Which one of the following	org	anisms is not an exampl	e of	eukaryotic cells?		[AIPMT (Prelims)-2011]
	(1) Amoeba proteus			(2)	Paramoecium cauda	atum	
	(3) Escherichia coli			(4)	Euglena viridis		
Sol.	Answer (3)						
37.	Membrane-bound organelle	es ar	e absent in				[AIPMT (Prelims)-2010]
	(1) Plasmodium	(2)	Saccharomyces	(3)	Streptococcus	(4)	Chlamydomonas
Sol.	Answer (3)						
	Membrane-bound organelle	es ar	e absent in Prokaryotes.				
38.	Single-celled eukaryotes a	re in	cluded in				[AIPMT (Prelims)-2010]
	(1) Monera	(2)	Protista	(3)	Fungi	(4)	Archaea
Sol.	Answer (2)						
	Protista – Single celled euk	aryc	otes				
39.	Virus envelope is known as	S					[AIPMT (Prelims)-2010]
	(1) Core	(2)	Capsid	(3)	Virion	(4)	Nucleoprotein
Sol.	Answer (2)						
40.	Algae have cell wall made	up d	of				[AIPMT (Prelims)-2010]
	(1) Cellulose, hemicellulos	e ar	nd pectins	(2)	Cellulose, galactans	and	mannans
	(3) Hemicellulose, pectins	anc	proteins	(4)	Pectins, cellulose a	nd p	roteins
Sol.	Answer (2)						

[AIPMT (Prelims)-2010] (1) Liverworts and yeasts (2) Eubacteria and Archaea (3) Cyanobacteria and diatoms (4) Protists and mosses Sol. Answer (2) Eubacteria and Archaea - Hyperthermophilic Can grow at highly acidic pH. 42. Infectious proteins are present in [AIPMT (Prelims)-2010] (1) Satellite viruses (2) Gemini viruses (3) Prions (4) Viroids Sol. Answer (3) 43. Black (stem) rust of wheat is caused by : [AIPMT (Mains)-2010] (1) Alternaria solani (2) Ustilago nuda (3) Puccinia graminis (4) Xanthomonas oryzae

44. Given below is the diagram of a bacteriophage. In which one of the options all the four parts A, B,C and D are correct?

Options :

Sol. Answer(3)

	А	В	С	D
(1)	Tail fibres	Head	Sheath	Collar
(2)	Sheath	Collar	Head	Tail fibres
(3)	Head	Sheath	Collar	Tail fibres
(4)	Collar	Tail fibres	Head	Sheath

Sol. Answer(3)

Bacteriophage has Head, Sheath, Collar, Tail fibres

- 45. Select the correct combination of the statements (a-d) regarding the characteristics of certain organisms
 - (a) Methanogens are Archaebacteria which produce methane in marshy areas.
 - (b) Nostoc is a filamentous blue-green alga which fixes atmospheric nitrogen.
 - (c) Chemosynthetic autotrophic bacteria synthesize cellulose from glucose.
 - (d) Mycoplasma lack a cell wall and can survive without oxygen.

The correct statement are

(2) (a), (b), (c) (3) (b), (c), (d) (1) (b), (c)

41. Some hyperthermophilic organisms that grow in highly acidic (pH = 2) habitats belong to the two groups

A
C B
/ D
N

[AIPMT (Mains)-2010]

(4) (a), (b), (d)

Sol.	Answer (4)							
	Chemosynthetic autotrophic bacteria synthesize glucose from CO ₂ .							
46.	T.O. Diener discovered a	[AIPMT (Pro	elims-2009) & (Mains-2010)]					
	(1) Free infectious DNA (2) Infectious protein	(3) Bacteriophage	(4) Free infectious RNA					
Sol.	Answer (4)							
	Free infectious RNA (Viroids) – T.O. Diener							
47.	Which one is the wrong pairing for the disease and its of	causal organism?	[AIPMT (Prelims)-2009]					
	(1) Black rust of wheat – Puccinia graminis	(2) Loose smut of whea	t <i>– Ustilago nuda</i>					
	(3) Root-knot of vegetables – Meloidogyne	(4) Late blight of potato	– Alternaria solani					
Sol.	Answer (4)							
48.	Which of the following is a symbiotic nitrogen fixer?		[AIPMT (Prelims)-2009]					
	(1) Azotobacter (2) Frankia	(3) Azolla	(4) Glomus					
Sol.	Answer (2)							
49.	Thermococcus, Methanococcus and Methanobacterium	a exemplify	[AIPMT (Prelims)-2008]					
	(1) Bacteria that contain a cytoskeleton and ribosome	S						
	(2) Archaebacteria that contain protein homologous to	eukaryotic core histones						
	(3) Archaebacteria that lack any histones resembling th supercoiled	ose found in eukaryotes l	out whose DNA is negatively					
	 (4) Bacteria whose DNA is relaxed or positively sup mitochondria 	percoiled but which have	a cytoskeleton as well as					
Sol.	Answer (3)							
	Thermococcus, Methanococcus and Methanobacterium	-Archaebacteria						
50.	Cellulose is the major component of cell walls of		[AIPMT (Prelims)-2008]					
	(1) Saccharomyces (2) Pythium	(3) Xanthomonas	(4) Pseudomonas					
Sol.	Answer (2)							
	Pythium is Oomycetes and having cellulosic cell wall.							
51.	In the light of recent classification of living organism eukarya), which one of the following statements is true	is into three domains of about archaea?	life (bacteria, archaea and [AIPMT (Prelims)-2008]					
	(1) Archaea completely differ from prokaryotes							
	(2) Archaea resemble eukarya in all respects							
	(3) Archaea have some novel features that are absent	in other prokaryotes and	eukaryotes					
	(4) Archaea completely differ from both prokaryotes an	nd eukaryotes						
Sol.	Answer (3)							
	Archaebacteria have some novel features that are abser	nt in other prokaryotes and	l eukaryotes.					
52.	Bacterial leaf blight of rice is caused by a species of		[AIPMT (Prelims)-2008]					
	(1) Erwinia (2) Xanthomonas	(3) Pseudomonas	(4) Alternaria					
Sol.	Answer (2)							

53.	Biological organisation starts with:					[AIPMT (Prelims)-2007]	
	(1) Atomic level		(2)	Submicroscopic molecular level			
	(3) Cellular level		(4)	Organismic level			
Sol.	I. Answer (2)						
54.	Which one of the followi	ng is a slime mould?				[AIPMT (Prelims)-2007]	
	(1) Anabaena	(2) Rhizopus	(3)	Physarum	(4)	Thiobacillus	
Sol.	Answer (3)						
	Physarum - Slime mou	ld					
55.	Which one of the following	ng statements about Mycoplasr	na is	s wrong?		[AIPMT (Prelims)-2007]	
	(1) They cause disease	in plants	(2)	They are also called	PP	LO	
	(3) They are pleomorphi	с	(4)	They are sensitive to	o pe	nicillin	
Sol.	Answer (4)						
	Mycoplasma is insensitiv	e to penicillin					
56.	Which pair of the following	ng belongs to Basidiomycetes?)			[AIPMT (Prelims)-2007]	
	(1) Morchella and Mush	rooms	(2)	Birds' nest fungi and	Pu	ffballs	
	(3) Puffballs and Clavice	eps	(4)	Peziza and Stink hor	ms		
Sol.	Answer (2)						
	Basidiomycetes	Ascomycetes					
	Puffballs	Claviceps					
	Stink horns	Peziza					
	Mushrooms	Morchella					
	Birds nest fungi	Cyathus					
57.	Ergot of rye is caused b	y a species of				[AIPMT (Prelims)-2007]	
	(1) Claviceps	(2) Phytophthora	(3)	Uncinula	(4)	Ustilago	
Sol.	Answer(1)						
	Ergot of rye – Clavicep pu	ırpurea					
58.	The thalloid body of a sli	ime mould (Myxomycetes) is k	now	n as		[AIPMT (Prelims)-2006]	
	(1) Protonema	(2) Plasmodium	(3)	Fruiting body	(4)	Mycelium	
Sol.	Answer (2)						
	Plasmodium						
	Thalloid body of slime r	nould					
50	Myxomycetes		P	. •.			
59.	(1) A focultative apparent	<i>Im potulinum)</i> that causes both	uisn (2)	1 IS		[AIPM1 (Prelims)-2006]	
	 (1) A lacultative anaeron (3) A facultative across 		(Z)	An obligate anaerobe	;		
Sol	Answer (2)		(+)				
	<i>Clostridium botulinum</i> is	an obligate anaerobe.					

60.	. Which of the following environmental conditions are essential for optimum growth of <i>Mucor</i> on a piece of bread?						
	A. Temperature of about 25°C	В.	Temperature of about	emperature of about 5°C			
	C. Relative humidity of about 5%	D.	Relative humidity of a	Relative humidity of about			
	E. A shady place	F.	A brightly illuminated	l pla	ce		
	Choose the answer from the following options :				[AIPMT (Prelims)-2006]		
	(1) A, C and E only (2) A, D and E only	(3)	B, D and E only	(4)	B, C and F only		
Sol.	Answer (2)						
	Essential environmental conditions for Mucor.						
	• 25°C						
	 Relative humidity – 95 % 						
	Shady place						
61.	Curing of tea leaves is brought about by the activity of:				[AIPMT (Prelims)-2006]		
	(1) Bacteria (2) Mycorrhiza	(3)	Viruses	(4)	Fungi		
Sol.	Answer (1)						
60	To improve the flavour and taste in tea bacteria are used	tor	curing of tea leaves.		[AIDMT (Drolimo) 2006]		
02.	(1) These are all unicellular protiets	(2)					
	(1) These are an uncentral protists	(<u></u> 2)	They have hagelia	20			
Sal	(3) They produce spores	(4)	These are an parasite	55			
63	Sol. Answer (1) 63 Barophilic prokanyotes [AIPMT (Prelime)_						
00.	 Grow slowly in highly alkaline frozen lakes at high 	altit	udes				
	(2) Occur in water containing high concentrations of ba	ariur	n hydroxide				
	(3) Grow and multiply in very deep marine sediments						
	(4) Readily grown and divides in sea water enriched in	an	y soluble salt of bariur	m			
Sol.	Answer (3)						
	Barophilic prokaryotes grow and multiply in very deep m	arin	e sediments.				
64.	Auxospores and hormocysts are formed, respectively,	by			[AIPMT (Prelims)-2005]		
	(1) Several diatoms and a few cyanobacteria	(2)	Several cyanobacteri	ia a	nd several diatoms		
	(3) Some diatoms and several cyanobacteria	(4)	Some cyanobacteria	an	d many diatoms		
Sol.	Answer (1)						
	Auxospores – Diatoms						
65	All of the following statements concerning the actinemy	voot	ua filomontoua coil b	ooto	vium Frankia ara correct		
05.	except that Frankia :	/CEII		acie	[AIPMT (Prelims)-2005]		
	(1) Can induce root nodules on many plant species						
	(2) Can fix nitrogen in the free-living state						
	(3) Like <i>Rhizobium</i> , it usually infects its host plant proliferation in the host's cortex	thro	ough root hair deform	nati	on and stimulates cell		
	(4) Forms specialized vesicles in which the nitrogen involving triterpene hopanoids	ase	is protected from ox	yge	n by a chemical barrier		
Sol.	Answer (2)						

Frankia is free living bacteria but can fix nitrogen in free living as well as symbiotic state.

66.	Which of the following unice for reproduction?	ellula	r organism has a macron	ucle	us for trophic function	and	one or more micronuclei [AIPMT (Prelims)-2005]
	(1) Euglena	(2)	Amoeba	(3)	Paramoecium	(4)	Trypanosoma
Sol.	Answer (3)						
67.	For retting of jute the ferme	enting	g microbe used is:				[AIPMT (Prelims)-2005]
	(1) Helicobacter pylori			(2)	Methophilic bacteria		
	(3) Streptococcus lactin			(4)	Butyric acid bacteria		
Sol.	Answer (4)						
	Retting of jute – Butyric aci	d ba	cteria				
68.	In the five kingdom system algae, nitrogen fixing bacte	i of c ria a	classification, which singl nd methanogenic archae	e kii ebac	ngdom out of the follc teria?	wing	g can include blue-green
	(1) Plantae	(2)	Protista	(3)	Monera	(4)	Fungi
Sol.	Answer (3)						
	Cyanobacteria, Nitrogen-fix	ing t	acteria and Archaebacte	ria–l	Monera		
69.	In five kingdom system, the	e ma	ain basis of classification	is is			
	(1) Structure of nucleus			(2)	Mode of nutrition		
	(3) Structure of cell wall			(4)	Asexual reproduction	۱	
Sol.	Answer (2)						
	Main basis of five-kingdom	syst	em is – mode of nutrition	۱.			
70.	In which kingdom would yo classification is used ?	ou cla	assify the archaea and n	itrog	jen-fixing organisms,	if the	e five-kingdom system of
	(1) Plantae	(2)	Fungi	(3)	Protista	(4)	Monera
Sol.	Answer (4)						
	Archaebacteria and Nitroge	n-fix	ing bacteria–Monera.				
71.	Maximum nutritional divers	ity is	found in the group				
	(1) Monera	(2)	Plantae	(3)	Fungi	(4)	Animalia
Sol.	Answer(1)						
	Maximum nutritional diversi	ty–N	lonera.				
72.	Specialized cells for fixing	atmo	spheric nitrogen in Nost	oc a	are		
	(1) Akinetes	(2)	Heterocysts	(3)	Hormogonia	(4)	Nodules
Sol.	Answer (2)	0	- Carl Million and Charling In		1		
70	Heterocystes – Specialised		s for Nitrogen-fixation in	INOS	toc.		
13.	Nuclear memorane is abse	ent in	Maataa	(2)	Dominillium	(4)	Anorious
Sal	(1) $VOIVOX$	(2)	NOSIOC	(3)	Penicillum	(4)	Agaricus
301.	Nostoc – Prokarvotes (Nucl	oari	nembrane absent)				
74	The most abundant prokar	vote	s helpful to humans in r	naki	ng curd from milk an	d in	production of antibiotics
77.	are the ones categorised a	IS IS				a	
	 (1) Unemosynthetic autotro (2) Ovenebasteria 	opns	i	(Z)		а	
Sal	(3) Cyanobacteria			(4)	Archaebacleria		
301.	Heterotrophic bactoria						
	- Making curd and antibioti	ice					
	Making our and antibiot	00					

75.	Organisms called Methanog	gens are most abundant in a	à			
	(1) Hot spring	(2) Sulphur rock	(3)	Cattle yard	(4)	Polluted stream
Sol.	Answer (3)					
	Cattle yard – Methanogens	are most abundant				
76.	Which of the followings is n	mainly produced by the activi	ity o	f anaerobic bacteria o	on se	ewage?
	(1) Marsh gas	(2) Laughing gas	(3)	Propane	(4)	Mustard gas
Sol.	Answer(1)					
	Marsh gas is mainly produc	ced by the activity of anaerob	ic ba	acteria on sewage.		
77.	A peculiar odour that preva	ails in marshy areas and cow	/-she	eds is on account of a	i gas	produced by
	(1) Mycoplasma	(2) Archaebacteria	(3)	Slime moulds	(4)	Cyanobacteria
Sol.	Answer (2)					
	Methane is produced by Me	ethanogens.				
78.	Organisms, which fix atmost	spheric nitrogen in the soil, f	all u	nder the category of		
	(1) Bacteria	(2) Green algae	(3)	Soil fungi	(4)	Mosses
Sol.	Answer(1)					
	Nitrogen-fixing organisms a	are bacteria.				
79.	Transduction in bacteria is	mediated by				
	(1) Plasmid vector	(2) Phage vector	(3)	Cosmid	(4)	F-factor
Sol.	Answer (2)					
	Transduction in bacteria is r	mediated by virus. (Phage ve	ctor)		
80.	Many blue-green algae occ have been attributed to their	cur in thermal springs (hot wa ir	ater	springs). The tempera	iture	tolerance of these algae
	(1) Mitochondrial structure	•	(2)	Importance of homo	pola	r bonds in their proteins
	(3) Cell wall structure		(4)	Modern cell organiza	ation	
Sol.	Answer (2)					
	Temperature tolerance of B	GA is due to homopolymer b	ond	s in their protein.		
81.	For the first time, the bacte	ria were observed by				
	(1) Robert Koch	(2) A.V. Leeuwenhoek	(3)	W.H. Stanley	(4)	Louis Pasteur
Sol.	Answer (2)					
	A.V. Leeuwenhoek, first tim	e observed the bacteria.				
82.	A large number of organic of	compounds can be decompo	bsed	by		
	(1) Photoheterotorphs	(2) Pseudomonas	(3)	Photolithotrophs	(4)	Chemoheterotrophs
Sol.	Answer (2)					
	Pseudomonas decomposes	s a large number of organic c	omp	ounds.		
83.	What are the sex organs pr	rovided in some bacteria?				
	(1) Sex pili	(2) Plasmid	(3)	Circular DNA	(4)	Gametes
Sol.	Answer(1)					
	Sex pilli are the sex organs	s in some bacteria.				
84.	BGA (blue green algae) are	e included in which of the folle	owir	ng groups?		
	(1) Bryophytes	(2) Prokaryotes	(3)	Protista	(4)	Fungi
Sol.	Answer (2)					
	BGA, (cyanobacteria) belor	ng to prokaryotes.				

85.	Which type of DNA is found in b	pacteria?				
	(1) Circular DNA			Membrane bound DNA		
	(3) Straight DNA			Helical DNA		
Sol.	Answer(1)					
	Bacterial DNA is circular.					
86.	A few organisms are known to g	prow and multiply at tem	pera	atures of 100-105°C.	They	belong to
	(1) Thermophilic sulphur bacteri	ia	(2)	Hot spring blue-gree	n alg	jae
	(3) Thermophilic subaerial fungi		(4)	Marine archaebacter	ia	
Sol.	Answer (2)					
	Bacteria grow and multiply at terr	nperature of 100–105°C	are	hot spring blue-green	alga	ie.
87.	The DNA of <i>E.coli</i> is					
	(1) Double stranded and linear		(2)	Double stranded and	d circ	cular
	(3) Single stranded and linear		(4)	Single stranded and	circu	ular
Sol.	Answer (2)					
	DNA of <i>E.coli.</i> – Double stranded	d and circular				
88.	Photosynthetic bacteria have pig	gments in				
	(1) Chromoplasts (2) (Chromatophores	(3)	Leucoplasts	(4)	Chloroplasts
Sol.	Answer (2)					
	Photosynthetic bacteria have pig	ments in chromatophor	es			
89.	What is true for Archaebacteria?)				
	(1) All are halophiles (2) A	All are photosynthetic	(3)	All are fossils	(4)	Oldest living beings
Sol.	Answer (4)					
	Archaebacteria is oldest living be	eings.				
90.	What is true for cyanobacteria?		(-)			
	(1) Oxygenic with nitrogenase		(2)	Oxygenic without nit	roge	nase
	(3) Non oxygenic with nitrogena	ase	(4)	Non oxygenic withou	ut niti	rogenase
Sol.	Answer (1)			,		
04	Cynobacteria is oxygenic with nit	trogenase (Nitrogen-fixa	tion	enzyme)		
91.	Organisms which obtain energy	by the oxidation of redu			s are	
0.1	(1) Photoautotrophs (2) (Chemoautotrophs	(3)	Saprozoic	(4)	Coproneterotrophs
501.	Answer (2)	rea is from avidation of r			ndo	
02	Which statement is correct for h		auc	ced inorganic compou	nas.	
92.	(1) Transfer of some gapes from		or b	octoria through virus		
	(1) Transfer of some genes from	hastoria to another bac			haat	
	 (2) Transier of yenes from one (3) Bacteria obtained its DNA dire 	ectly from mother cell		a by colonioning com	au	
	(4) Bacteria obtained DNA from a					
Sal	Answer (1)	other external source				
301.						

Bacterial transduction – Transfer of some genes from one bacterium to another bacterium through virus.

- 93. Chromosomes in a bacterial cell can be 1 in number and
 - (1) Are always circular with more $G \equiv C$ content
 - (2) Are always linear with more $G \equiv C$ content
 - (3) Can be either circular or linear, but never both within the same cell
 - (4) Can be circular as well as linear within the same cell

Sol. Answer(1)

Bacteria

- Can be one chromosome
- Except Mycoplasma bacterial DNA is circular.
- 94. Viruses that infect bacteria and cause their lysis, are called
 - (1) Lysozymes (2) Lipolytic (3) Lytic (4) Lysogenic
- **Sol.** Answer (3)

Bacteriophage causes lysis of bacteria – Lytic bacteriophage.

- 95. The most thoroughly studied bacteria plant interactions is the
 - (1) Cyanobacterial symbiosis with some aquatic ferns
 - (2) Gall formation on certain angiosperms by Agrobacterium
 - (3) Nodulation of Sesbania stems by nitrogen fixing bacteria
 - (4) Plant growth stimulation by phosphate-solubilising bacteria
- Sol. Answer (2)

Gall formation on certain angiosperms by Agrobacterium is thoroughly studied.

- 96. What is true for photolithotrops?
 - (1) Obtain energy from radiations and hydrogen from organic compounds
 - (2) Obtain energy from radiations and hydrogen from inorganic compounds
 - (3) Obtain energy from organic compounds
 - (4) Obtain energy from inorganic compounds
- Sol. Answer (2)

Photolithotrophs

Energy from – Radiations

- Hydrogen from Inorganic compounds
- 97. The protists have
 - (1) Only free nucleic acid aggregates
 - (2) Membrane bound nucleoproteins lying embedded in the cytoplasm
 - (3) Gene containing nucleoproteins condensed together in loose mass
 - (4) Nucleoprotein in direct contact with the rest of the cell substance
- **Sol.** Answer (2)

Protists are eukaryotes and they have membrane-bound nucleoproteins in cytoplasm.

- 98. Which of the following organism possesses characteristics of a plant and an animal?
 - (1) Euglena (2) Paramoecium (3) Bacteria (4) Mycoplasma
- Sol. Answer(1)

Euglena possesses characteristics of plant and animal.

99.	Capillitium is present in the	e sporangium of							
	(1) Dictyostelium	(2) Polysphondylium	(3)	Physarum	(4)	Navicula			
Sol.	Answer (3)								
	Capillitium present in slime	e mould. eg., <i>Physarum</i>							
100.	Which one of the following	is true for fungi?							
	(1) They are phagotrophs								
	(2) They lack a rigid cell v	vall							
	(3) They are heterotrophs								
	(4) They lack nuclear men	nbrane							
Sol.	Answer (3)								
	Fungi are heterotrophic.								
101.	When there are two haploi	d nuclei per cell in some fun	gi be	efore the formation of	dipl	oid, this stage is called			
	(1) Diplotene	(2) Diplophase	(3)	Dikaryophase	(4)	Dikaryote			
Sol.	Answer (3)								
	Two haploid nuclei per cell	in some fungi – Dikaryophas	e.						
102.	Which one of the following	is linked to the discovery of	Bor	deaux mixture as a po	pula	ar fungicide?			
	(1) Black rust of wheat								
	(2) Bacterial leaf blight of	rice							
	(3) Downy mildew of grapes								
	(4) Loose smut of wheat								
Sol.	Answer (3)								
	Bordeaux mixture								
	- Fungicide								
	 Discovered by R.M.A. M 	illardet							
	 Control of Downy mildev 	V							
103.	The black rust of wheat is	a fungal disease caused by							
	(1) Albugo candida		(2)	Puccinia graminis tr	itici				
	(3) Ustilago nuda		(4)	Cleviceps purpurea					
Sol.	Answer (2)								
	Black rust of wheat	White rust in crucifer							
	Puccinia graminis tritici	 Albugo candida 							
		or							
		Cystopus candidus							
	 Ergot of rye 	 Loose smut 							
	 Clavicep purpurea 	 Ustilago nuda 							
104.	Columella is a specialized	structure found in the sporar	ngiur	n of					
	(1) Spirogyra	(2) Ulothrix	(3)	Rhizopus	(4)	Penicillium			
Sol.	Answer (3)								
	Sporangiospore - Collume	ella present							
	e.g., Rhizopus								
	Mucor								
	Dung mould								

105	105. Adhesive pad of fungi penetrate the host with the help of							
	(1) Mechanical pressure a	nd enzymes	(2)	Hooks and suckers				
	(3) Softening by enzymes	only	(4)	Only by mechanical	pres	ssure		
Sol	Answer(1)							
	Adhesive pad of fungi pene	trate in the host with the help	o of –	Mechanical pressure	and	denzymes		
106	Which fungal disease sprea	ads by seed and flowers?						
	(1) Loose smut of wheat		(2)	Corn smut				
	(3) Covered smut of barley	1	(4)	Soft rot of potato				
Sol	Answer (1)							
	Fungal disease spreads by	seed and flowers - Loose si	mut o	of wheat.				
107	Which of the following secr	ete toxins during storage co	nditic	ons of crop plants?				
	(1) Aspergillus	(2) Penicillium	(3)	Fusarium	(4)	Colletotrichum		
Sol	Answer (1)							
	Aspergillus secretes toxins	during storage conditions of	f crop	plants.				
108	Mycorrhiza exhibits the phe	enomenon of						
	(1) Parasitism	(2) Symbiosis	(3)	Antagonism	(4)	Endemism		
Sol	Answer (2)							
	Mycorrhiza – Symbiotic rela	ation						
109	Mycorrhiza is correctly des	cribed as						
	(1) Parasitic association b	etween roots and some fung	gi					
	(2) Symbiotic relationship	between fungi and roots of I	highe	er plants				
	(3) Symbiosis of algae and	d fungi						
	(4) Relation of ants with the	ne stem of some trees						
Sol	Answer (2)							
	Mycorrhiza – Fungi and roc	ots of higher plants						
110.	VAM is an example of							
	(1) Endomycorrhiza	(2) Ectoparasitism	(3)	Endoparasitism	(4)	Ectomycorrhiza		
Sol	Answer (1)							
	VAM – Endomycorrhiza							
	e.g., <i>Glomus</i>							
111.	An example of endomycorr	hiza is	(-)					
	(1) Nostoc	(2) Glomus	(3)	Agaricus	(4)	Rhizobium		
Sol	Answer (2)							
	Endomycorrhiza							
	e.g., <i>Glomus</i> \rightarrow Orchids							
112.	Satellite RNAs are present	in some		D :				
•	(1) Plant viruses	(2) Viroids	(3)	Prions	(4)	Bacteriophages		
Sol	Answer (1)							
	Satellite RNAs (Plant viruse	es)						

113.	A cell-coded protein that is	s formed in response to infec	ction	with most animal viru	lses,	, is called
	(1) Histone	(2) Antibody	(3)	Interferon	(4)	Antigen
Sol.	Answer (3)					
	Interferon					
	 Cell-coded protein 					
	- In response to infection	with animal viruses				
114.	Tobacco mosaic virus (TM	V) genes are associated with	n			
	(1) Single stranded RNA		(2)	Double stranded DN	А	
	(3) Single stranded DNA		(4)	Double stranded RN	IA	
Sol.	Answer(1)					
	TMV – Single stranded RM	NA				
115.	The tailed bacteriophages	are				
	(1) Motile on surface of ba	acteria	(2)	Non-motile		
	(3) Motile on surface of pl	ant leaves	(4)	Actively motile in wa	ater	
Sol.	Answer (2)					
	The tailed bacteriophages -	– Non-motile				
116.	Viruses posses					
	(1) Ribosomes to synthes	size protein	(2)	Organelles for its vit	tal m	echanisms
	(3) Either DNA or RNA		(4)	None of these		
Sol.	Answer (3)					
	Viruses – Either RNA or Di	NA				
117.	Enzymes are generally not	t found in				
	(1) Fungi	(2) Algae	(3)	Virus	(4)	Cyanobacteria
Sol.	Answer (3)					
	Enzymes are generally abs	sent in viruses.				
118.	Viruses are living, because	e they				
	(1) Multiply in host cells					
	(2) Carry anaerobic respire	ation				
	(3) Carry metabolic activit	lies				
	(4) Cause infection					
Sol.	Answer (1)					
440	Viruses are living because	they multiply in host cells.				
119.	Viruses are no more "alive		s be	cause		
	(1) They require both RNA					
	(\angle) They both need food r					
	(3) They both require oxy(
6 -1	(4) Both require the enviro	onment of a cell to replicate				
301.						

Viruses and isolated chromosomes require the environment of a cell to replicate.

120. Tobacco mosaic virus is elongated rod like with size

(1) 300 × 10 nm (2) 300 × 5 nm

m	(4)	700 × 30 nm	

Sol. Answer (3)

TMV

- Elongated rod-like
- 300 × 18 nm size
- 121. Which one of the following statements about viruses is correct ?
 - (1) Viruses possess their own metabolic system
 - (2) All viruses contain both RNA and DNA
 - (3) Viruses are obligate parasites
 - (4) Nucleic acid of viruses is known as capsid
- Sol. Answer(3)

Viruses - Obligate parasites

- 122. Which of the following statements is not true for retroviruses?
 - (1) DNA is not present at any stage in the life cycle of retroviruses
 - (2) Retroviruses carry gene for RNA-dependent DNA polymerase
 - (3) The genetic material in mature retroviruses is RNA
 - (4) Retroviruses are causative agents for certain kinds of cancer in man

(2) Bacterium

Sol. Answer (1)

Reterovirus

- RNA ______ DNA
- 123. The causative agent of mad-cow disease is a
 - (1) Virus

(3) Prion

(4) Worm

Sol. Answer (3)

Prion (= Proteins)

Mad cow disease Kuru disease Creutz Feldt Jakob disease

Only in animals

- 124. Which one of the following statement about lichens is wrong?
 - (1) These grow very rapidly (2 cm per day)
 - (3) Some of its species are eaten by reindeers
- **Sol.** Answer (1)

Lichens grow very slow

- 125. Most of the lichens consist of
 - (1) Green algae and ascomycetes
 - (3) Blue green algae and basidiomycetes
- **Sol.** Answer (1)
 - Lichens Green algae + Ascomycetes (Algae) (Fungi)

- (2) They show fungal and algal symbiotic relationships
- (4) These are pollution indicators
- (2) Brown algae and higher plant
- (4) Red algae and ascomycetes

- 126. Which of the following is the use of lichens in case of pollution?
 - (1) They promote pollution
 - (3) They treat the polluted water

- (2) Lichens are not related with pollution
- (4) They act as bioindicators of pollution

Sol. Answer (4)

Lichens - Bioindicator of air pollution

- 127. Lichens are well known combination of an alga and a fungus where fungus has
 - (1) A saprophytic relationship with the alga
 - (2) An epiphytic relations1hip with the alga
 - (3) A parasitic relationship with alga
 - (4) A symbiotic relationship with alga
- Sol. Answer (4)

Lichen – Symbiotic relation of fungi with algae

- 128. There exists a close association between the alga and the fungus within a lichen. The fungus
 - (1) Provides protection, anchorage and absorption for the algae
 - (2) Provides food for the alga
 - (3) Fixes the atmospheric nitrogen for the alga
 - (4) Releases oxygen for the alga
- **Sol.** Answer (1)

	Lichen						
	Fungus (Protection, anchorage & absorption)	_	Algae (Food for fungi)				
129.	What is the genetic material in Influenza virus?						
	(1) Double helical DNA	(2)	RNA	(3)	Single helix DNA	(4)	None of these
Sol.	Answer (2)						
	Influenza virus – Genetric material – RNA						
130.	. The sexual reproduction is absent in						
	(1) Spirogyra	(2)	Nostoc	(3)	Ulothrix	(4)	Volvox
Sol.	Answer (2)						
	Sexual reproduction is absent in prokaryotes e.g., Nostoc						
131.	. Which one of the following fungi contains hallucinogens?						
	(1) Morchella esculenta	(2)	Amanita muscaria	(3)	Neurospora sp.	(4)	<i>Ustilago</i> sp.
Sol.	Answer (2)						
	Hallucinogen – Amanita muscaria						
132. Anoxygenic photosynthesis is characteristic of							
	(1) Rhodospirillum	(2)	Spirogyra	(3)	Chlamydomonas	(4)	Ulva
Sol.	Answer(1)						
	Anoxygenic phototrophs – Rhodospirillum						

133. A location with luxuriant growth of lichens on the trees indicates that the

- (1) Trees are very healthy
- (3) Location is highly polluted

(2) Trees are heavily infested

(4) Location is not polluted

Sol. Answer(4)

Lichens

- Bioindicator of pollution
- Pollutant free environment (luxuriant growth of lichens on the trees)

SECTION - C

Assertion-Reason Type Questions

- 1. A : Slime moulds have the characters of both plants and animals.
 - R : Reproductive phase is animal like and vegetative phase is plant-like.
- Sol. Answer (3)

Slime moulds

- Reproductive phase is plant-like (Cell wall present in spore)
- Vegetative phase is animal-like (Cell wall absent)
- 2. A : Methanogens can show symbiotic association with eukaryotic organisms.
 - R : They are used for the production of biogas.
- Sol. Answer (2)

Both statements are correct but reason is not correct explanation.

- 3. A : Lichens do not grow in polluted area having SO₂.
 - R : Lichens secrete carbonic acid and oxalic acid on barren rocks.
- Sol. Answer (2)

Both (A) & (R) are correct

- 4. A: Secondary mycelium of Agaricus is binucleated.
 - R : Secondary mycelium is formed by somatogamy of primary mycelium.
- Sol. Answer (1)
- 5. A : Phycobiont is dominant parent in lichens.
 - R : Algal component in the dual organisms can be eukaryotic only.
- Sol. Answer (4)

Mycobiont is dominant parent in lichens.

Fungi is eukaryote but algae can be prokaryote or eukaryote.

- 6. A : Unicellular eukaryotes are included in Monera.
 - R: Unicellular eukaryotes have 70S cytoribosomes.
- Sol. Answer (4)

Unicellular eukaryotes are in protista.

- 7. A : Slime moulds form fruiting bodies under unfavourable conditions.
 - R : Naked plasmodium is formed during favourable conditions.
- Sol. Answer (2)
 - Both (A) & (R) are correct

- 8. A: DNase can inhibit the process of transformation.
 - R: Transformation is absorption of DNA segment from the surrounding medium by a living bacterium.
- Sol. Answer (2)

Both (A) & (R) are correct

9. A: MLOs are pleomorphic and non-motile monerans.

R: They are insensitive to antibiotics like penicillin.

Sol. Answer (2)

Both (A) & (R) are correct

- 10. A : Majority of bacteria are autotrophs.
 - R : Chemoheterotrophic nutrition is absent in bacteria.
- Sol. Answer (4)

Majority of bacteria are heterotrophs.

- 11. A : Holophytic protistans are important phytoplanktons and they contribute 80% of the total photosynthesis.
 - R : They lack chemosynthetic nutrition and utilize non sulphur organic compound as the source of electron and proton in carbon assimilation.
- Sol. Answer (3)

Holophytic protistans

- 80% of total photosynthesis
- Source of electron is H₂O
- 12. A : Sexual spores in pink mould are meiospores produced endogenously.
- R: They develop flask shaped fruiting body in sexual life cycle.
- Sol. Answer (2)
- 13. A : Azotodesmic lichens are biofertilisers enriching nitrogen contents in soil.
 - R: This ability is due to the presence of heterocystous blue-green algae as phycobiont component.
- Sol. Answer (1)
- 14. A : Viroids are not included in five kingdom system.
 - R: They are non-cellular.
- Sol. Answer (1)
- 15. A : Viruses which infect animals generally possess ssRNA or dsRNA or dsDNA.
 - R: Phytophagineae generally contain dsDNA.
- Sol. Answer (3)

Phytophginae generally contain ssRNA.