# 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
Osmotrophs $\rightarrow$ Saprotrophs
Chitinous cell wall

3. Domain Eukarya includes how many kingdoms (w.r.t. six kingdom system)?
   (1) 2 (2) 3 (3) 1 (4) 4

**Sol.** Answer (4)

Six kingdom classification

Domain Eukarya – Protista, Fungi, Plantae, Animalia – 4 Kingdoms

**(Kingdom : Monera)**

4. Bacteria are considered primitive organisms because they

(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)

**Sol.** Answer (4)

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 ] Present
- Plasmids
- Pigments

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

**Sol.** Answer (4)

$\frac{1}{4}$ 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 presence 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 – dipicolinic acid and Ca in cortex.

11. Endospores formed by certain bacteria are actually the means for
(1) Reproduction (2) Perennation (3) Bioluminescence (4) Red snow formation

**Sol.** Answer (2)

Endospores formed by certain bacteria are actually means 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.

**(Kingdom : Protista)**

13. Sea water glows during night mainly due to occurrence 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 Auxospore

15. Leucosin (Chrysolaminarin) is a carbohydrate which is stored as reserve food in case of
(1) Diatom (2) *Euglena* (3) Dinoflagellates (4) *Paramoecium*

**Sol.** Answer (1)

| **Organism** | | **Reserve food** |
|---|---|---|
| Diatom | – | Leucosin (Chrysolaminarin) |
| *Euglena* | – | Paramylon |
| Dinoflagellates | – | Carbohydrate and oil |
| *Paramoecium* | – | Glycogen granules |

16. Flagellation in *Euglena* is
(1) Uniflagellation and stichonematic (2) Isokont and whiplash type
(3) Heterokont and whiplash type (4) Heterokont and stichonematic

**Sol.** Answer (4)

Flagellation in *Euglena*

- Flagella two but different size (Heterokont)
- One side mastigonemous (Stichonematic)

17. Special type of red pigment present in the eye-spot of *Euglena* and Crustacea is called

(1) Phycoerythrin (2) Astaxanthin (3) Carotene (4) Xanthophyll

**Sol.** Answer (2)

Eye spot of *Euglena* and Crustacea

– Red pigment (Astaxanthin)

18. Paraflagellar body of *Euglena* helps in

(1) Locomotion (2) Photoreception (3) Reproduction (4) Osmoregulation

**Sol.** Answer (2)

Paraflagellar body of *Euglena*

– Photosensitive (*Photoreception*)

19. Difference between a red sea and red tide is

(1) Red tide takes place in red sea

(2) Associated with a cyanobacteria and protist respectively

(3) One is by virus and other by bacteria

(4) Associated with Rhodophyceae and diatoms respectively

**Sol.** Answer (2)

| **Red sea** | **Red tide** |
|---|---|
| Cyanobacteria | Dinoflagellate |
| eg. *Trichodesmium erythrum* | eg. *Gonyaulax*, *Gymnodinium* |

**(Kingdom : Fungi, Kingdom Plantae, Kingdom Animalia)**

20. Find the **correct** match

| **Column I** | **Column II** |
|---|---|
| a. Gill fungi | (i) Salmon disease |
| b. Cup fungi | (ii) Trama |
| c. Black mould | (iii) Penicillin |
| d. Blue / green mould | (iv) Zygophore |
| | (v) Apothecium |

(1) a(ii), b(iii), c(i), d(v) (2) a(ii), b(v), c(iv), d(i)

(3) a(ii), b(v), c(iv), d(iii) (4) a(ii), b(iii), c(i), d(iv)

**Sol.** Answer (3)

Gill fungi – Trama (central part)

Cup fungi – Apothecium (*Peziza* & *Ascobolus*)

Black mould – Zygophore

Blue/Green mould – Penicillin

21. Select **incorrectly** matched pair

(1) *Mucor mucedo* - Coprophilous

(2) *Albugo candida* - Facultative parasite

(3) *Agaricus bisporus* - Edible basidiocarp

(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 material as glycogen

**Sol.** Answer (3)

Fungi differs from bacteria in flagellar structure

23. Fruiting body in *Aspergillus* (or *Penicillium*) is known as
(1) Cleistothecium (2) Apothecium (3) Perithecium (4) Ascus

**Sol.** Answer (1)

Ascocarp in *Aspergillus* & *Pencillium* is cleistothecium

24. The famous Irish famine is related to a disease of potato known as
(1) Late blight of potato (2) Early blight of potato (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 characters is correct for the given fungal group?
(1) Algal fungi : Coenocytic, cellulosic wall, zoospore, zygospore, dikaryophase present
(2) Conjugating fungi : Septate mycelium, chitinous cell wall, sporangiospore, shorter (n + n) phase
(3) Sac fungi : Septate mycelium, Ascogonium, Crozier stage, meiospores as ascospores, shorter dikaryophase
(4) Club fungi : Shorter primary mycelium stage, no sex organs, dominant dikaryophase, zygosporic meiosis

**Sol.** Answer (3)

Sac fungi
- Septate mycellium
- Ascogonium
- Crozier stage

27. Find set of edible basidiocarps.
(1) *Agaricus, Pleurotus* (2) *Agaricus, Morchella* (3) *Volvariella, Tuber* (4) *Amanita, Morchella*

**Sol.** Answer (1)

**Basidiocarps**
*Agaricus*, *Pleurotus*, *Volvariella* } Edible

**Ascocarp**
*Morchella*, *Tuber* } Edible

*Amanita* ⟶ Non-edible

**(Viruses, Viroids and Lichens)**

28. Read the statements carefully
a. Hartig net is the network of intracellular mycelium of *Boletus*
b. Ectomycorrhiza forms ten percent of total mycorrhiza
c. Fungal partner of endomycorrhiza belongs to zygomycetes or phycomycetes
(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
- Yellowing, vein clearing

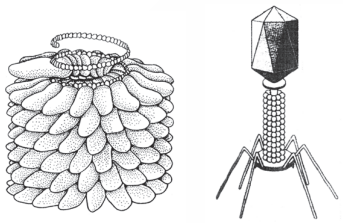
30. Viruses possess all the following properties, except

(1) They are non-cellular organisms
(2) Possess both DNA and RNA
(3) Capsid protects nucleic acid
(4) Have inert crystalline structure outside living cells

**Sol.** Answer (2)

Viruses posses either DNA or RNA.

31. Identify A and B given below:



A B

(1) A - DNA virus - Cauliflower mosaic virus
B - RNA virus - Pox virus

(2) A - RNA virus - T.M.V
B - DNA virus - $T_4$ bacteriophage

(3) A - RNA virus - Hepatitis B virus
B - Reterovirus - T.M.V

(4) A - Reterovirus - Hepatitis B virus
B - RNA virus - $T_4$ bacterophage

**Sol.** Answer (2)

TMV — RNA Virus

$T_4$ 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 statements are incorrect
(3) Only statement-3 is correct (4) Both statement-1 and statement-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 crucifers.

41. Mark the **correct** statement.
(1) Phycomycetes include mushrooms, bracket fungi or puff balls
(2) The mycelium of basidiomycetes is branched and septate
(3) *Neurospora* is used extensively in biochemical and genetic work, it belongs to group basidiomycetes
(4) Morels and truffles are non-edible

**Sol.** Answer (2)
Basidiomycetes include mushrooms, bracket fungi or puff balls.
*Neurospora* belongs to group Ascomycetes.
Morels and Truffles are edible.

42. Which one is **correctly** matched?
(1) *Agaricus* - Smut (2) *Ustilago* - Mushroom
(3) *Puccinia* - Insectivorous plant (4) Deuteromycetes - Imperfect fungi

**Sol.** Answer (4)
*Agaricus* – Mushroom
*Ustilago* – Smut
*Puccinia* – Rust
*Deuteromycetes* – Imperfect fungi

## SECTION - B

### Previous Years Questions

1. Which of the following organisms are known as chief producers 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 water
(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 produced during photosynthesis by **[NEET-2018]**

(1) Green sulphur bacteria (2) *Nostoc* (3) *Chara* (4) *Cycas*

**Sol.** Answer (1)

Green sulphur bacteria do not use $H_2O$ as source of proton, therefore they do not evolve $O_2$.

4. After karyogamy followed by meiosis, spores are produced exogenously in **[NEET-2018]**

(1) *Neurospora* (2) *Alternaria* (3) *Saccharomyces* (4) *Agaricus*

**Sol.** Answer (4)

- In *Agaricus* (a genus of basidiomycetes), basidiospores or meiospores are produced exogenously.
- *Neurospora* (a genus of ascomycetes) produces ascospores as meiospores but endogenously inside the ascus.)
- *Alternaria* (a genus of deuteromycetes) does not produce sexual spores.
- *Saccharomyces* (Unicellular ascomycetes) produces ascospores, endogenously.

5. Select the wrong statement : **[NEET-2018]**

(1) Cell wall is present in members of Fungi and Plantae

(2) Mushrooms belong to Basidiomycetes

(3) Mitochondria are the powerhouse of the cell in all kingdoms except Monera

(4) Pseudopodia are locomotory and feeding structures in Sporozoans

**Sol.** Answer (4)

Pseudopodia are locomotory structures in sarcodines (Amoeboid)

6. Viroids differ from viruses in having : **[NEET-2017]**

(1) DNA molecules with protein coat (2) DNA molecules without protein coat

(3) RNA molecules with protein coat (4) RNA molecules without protein coat

**Sol.** Answer (4)

Viroids are sub-viral agents as infectious RNA particles, without protein coat.

7. Which of the following are found in extreme saline conditions? **[NEET-2017]**

(1) Archaebacteria (2) Eubacteria (3) Cyanobacteria (4) Mycobacteria

**Sol.** Answer (1)

Archaebacteria are able to survive in harsh conditions because of branched lipid chain in cell membrane which reduces fluidity of cell membrane.

Halophiles are exclusively found in saline habitats.

8. Which among the following are the smallest living cells, known without a definite cell wall, pathogenic to plants as well as animals and can survive without oxygen? **[NEET-2017]**

(1) *Bacillus* (2) *Pseudomonas* (3) *Mycoplasma* (4) *Nostoc*

**Sol.** Answer (3)

*Mycoplasma* are smallest, wall-less prokaryotes, pleomorphic in nature. These are pathogenic on both plants and animals.

9. Which one of the following is **wrong** for fungi? **[NEET (Phase-2) 2016]**

(1) They are eukaryotic (2) All fungi possess a purely cellulosic cell wall

(3) They are heterotrophic (4) They are both unicellular and multicellular

**Sol.** Answer (2)

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

10. Methanogens belong to **[NEET (Phase-2) 2016]**

(1) Eubacteria (2) Archaebacteria (3) Dinoflagellates (4) Slime moulds

**Sol.** Answer (2)

Methanogens, halophiles and thermoacidophiles are Archaebacteria.

11. Select the **wrong** statement. **[NEET (Phase-2) 2016]**

(1) The walls of diatoms are easily destructible

(2) 'Diatomaceous earth' is formed by the cell walls of diatoms

(3) Diatoms are chief producers in the oceans

(4) Diatoms are microscopic and float passively in water

**Sol.** Answer (1)

The cell walls of diatoms are embedded with silica and thus the walls are indestructible.

12. Select the **wrong** statement **[NEET (Phase-2) 2016]**

(1) Bacterial cell wall is made up of peptidoglycan

(2) Pili and fimbriae are mainly involved in motility of bacterial cells

(3) Cyanobacteria lack flagellated cells

(4) *Mycoplasma* is a wall-less microorganism

**Sol.** Answer (2)

Pili and fimbriae are surface structures of the bacteria that do not play a role in motility.

13. Which one of the following statements is **wrong**? **[NEET-2016]**

(1) Phycomycetes are also called algal fungi (2) Cyanobacteria are also called blue-green algae

(3) Golden algae are also called desmids (4) Eubacteria are also called false bacteria

**Sol.** Answer (4)

Eubacteria are true bacteria.

14. Chrysophytes, Euglenoids, Dinoflagellates and Slime moulds are included in the kingdom **[NEET-2016]**

(1) Animalia (2) Monera (3) Protista (4) Fungi

**Sol.** Answer (3)

All single celled eukaryotes like chrysophytes [diatoms and desmids], Euglenoids [*Euglena*], Dinoflagellates and slime moulds are included in kingdom -Protista.

15. One of the major components 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 made up of chitin.

16. The primitive prokaryotes responsible for the production of biogas from the dung of ruminant animals, include the **[NEET-2016]**

(1) Eubacteria (2) Halophiles (3) Thermoacidophiles (4) Methanogens

**Sol.** Answer (4)

Methanogens are obligate anaerobic ancient and primitive bacteria. They are involved in methanogenesis.

17. Which of the following statements is **wrong** for viroids? **[NEET-2016]**

(1) Their RNA is of high molecular weight (2) They lack a protein coat

(3) They are smaller than viruses (4) They causes infections

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

**Sol.** Answer (3)

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. Whittaker is not based on **[AIPMT-2014]**

(1) Presence or absence of a well defined nucleus (2) Mode of reproduction

(3) Mode of nutrition (4) Complexity of body organisation

**Sol.** Answer (2)

Five kingdom system was not based on presence or absence of a well-defined nucleus

26. Archaebacteria differ from eubacteria in **[AIPMT-2014]**

(1) Cell membrane structure (2) Mode of nutrition

(3) Cell shape (4) Mode of reproduction

**Sol.** Answer (1)

Archaebacteria differ from eubacteria in cell membrane structure.

27. Which of the following shows coiled RNA strand and capsomeres? **[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 cyanobacteria 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? **[AIPMT (Prelims)-2012]**

(1) They have ability to synthesize nucleic acids and proteins

(2) Antibiotics have no effect on them

(3) All are parasites

(4) All of them have helical symmetry

**Sol.** Answer (4)

All viruses do not have helical symmetry

32. The cyanobacteria are also referred to as **[AIPMT (Prelims)-2012]**

(1) Slime moulds (2) Blue green algae (3) Protists (4) Golden algae

**Sol.** Answer (2)

Cynobacteria = Blue green algae

33. Which one single organism or the pair of organisms is correctly assigned to its or their named taxonomic group? **[AIPMT (Prelims)-2012]**

(1) Yeast used in making bread and beer is a fungus

(2) *Nostoc* and *Anabaena* are examples of protista

(3) *Paramoecium* and *Plasmodium* belong to the same kingdom as that of *Penicillum*

(4) Lichen is a composite organism formed from the symbiotic association of an algae and a protozoan

**Sol.** Answer (1)

34. How many organisms in the list given below are autotrophs?

*Lactobacillus, Nostoc, Chara, Nitrosomonas, Nitrobacter, Streptomyces, Saccharomyces, Trypanosoma, Porphyra, Wolfia* **[AIPMT (Mains)-2012]**

(1) Four (2) Five (3) Six (4) Three

**Sol.** Answer (3)

Autotrophs – *Nostoc*, *Chara*, *Nitrosomonas*, *Nitrobacter*, *Porphyra* & *Wolffia*

35. In the five-kingdom classification, *Chlamydomonas* and *Chlorella* have been included in **[AIPMT (Mains)-2012]**

(1) Protista (2) Algae (3) Plantae (4) Monera

**Sol.** Answer (1)

*Chlamydomonas* & *Chlorella* – *Protista*

36. Which one of the following organisms is not an example of eukaryotic cells? **[AIPMT (Prelims)-2011]**

(1) *Amoeba proteus* (2) *Paramoecium caudatum*

(3) *Escherichia coli* (4) *Euglena viridis*

**Sol.** Answer (3)

37. Membrane-bound organelles are absent in **[AIPMT (Prelims)-2010]**

(1) *Plasmodium* (2) *Saccharomyces* (3) *Streptococcus* (4) *Chlamydomonas*

**Sol.** Answer (3)

Membrane-bound organelles are absent in Prokaryotes.

38. Single-celled eukaryotes are included in **[AIPMT (Prelims)-2010]**

(1) Monera (2) Protista (3) Fungi (4) Archaea

**Sol.** Answer (2)

Protista – Single celled eukaryotes

39. Virus envelope is known as **[AIPMT (Prelims)-2010]**

(1) Core (2) Capsid (3) Virion (4) Nucleoprotein

**Sol.** Answer (2)

40. Algae have cell wall made up of **[AIPMT (Prelims)-2010]**

(1) Cellulose, hemicellulose and pectins (2) Cellulose, galactans and mannans

(3) Hemicellulose, pectins and proteins (4) Pectins, cellulose and proteins

**Sol.** Answer (2)

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

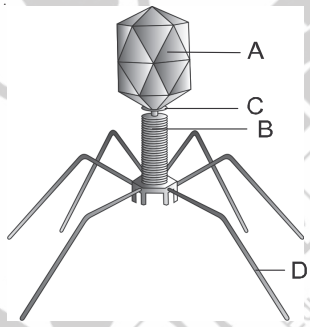
43. Black (stem) rust of wheat is caused by : **[AIPMT (Mains)-2010]**

(1) *Alternaria solani* (2) *Ustilago nuda*

(3) *Puccinia graminis* (4) *Xanthomonas oryzae*

**Sol.** Answer (3)

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 :**

| | A | B | C | 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 **[AIPMT (Mains)-2010]**

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

**Sol.** Answer (4)

Chemosynthetic autotrophic bacteria synthesize glucose from $CO_2$.

46. T.O. Diener discovered a **[AIPMT (Prelims-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 causal organism? **[AIPMT (Prelims)-2009]**

(1) Black rust of wheat – *Puccinia graminis* (2) Loose smut of wheat – *Ustilago nuda*

(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 *Methano--bacterium* exemplify **[AIPMT (Prelims)-2008]**

(1) Bacteria that contain a cytoskeleton and ribosomes

(2) Archaebacteria that contain protein homologous to eukaryotic core histones

(3) Archaebacteria that lack any histones resembling those found in eukaryotes but whose DNA is negatively supercoiled

(4) Bacteria whose DNA is relaxed or positively supercoiled but which have a cytoskeleton as well as mitochondria

**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 organisms into three domains of life (bacteria, archaea and eukarya), which one of the following statements is true about archaea? **[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 and eukaryotes

**Sol.** Answer (3)

Archaebacteria have some novel features that are absent in other prokaryotes and 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.** Answer (2)

54. Which one of the following is a slime mould? **[AIPMT (Prelims)-2007]**

(1) *Anabaena* (2) *Rhizopus* (3) *Physarum* (4) *Thiobacillus*

**Sol.** Answer (3)

*Physarum* – Slime mould

55. Which one of the following statements about *Mycoplasma* is wrong? **[AIPMT (Prelims)-2007]**

(1) They cause disease in plants (2) They are also called PPLO

(3) They are pleomorphic (4) They are sensitive to penicillin

**Sol.** Answer (4)

*Mycoplasma* is insensitive to penicillin

56. Which pair of the following belongs to Basidiomycetes? **[AIPMT (Prelims)-2007]**

(1) *Morchella* and Mushrooms (2) Birds' nest fungi and Puffballs

(3) Puffballs and *Claviceps* (4) *Peziza* and Stink horns

**Sol.** Answer (2)

| **Basidiomycetes** | **Ascomycetes** |
|---|---|
| Puffballs | *Claviceps* |
| Stink horns | *Peziza* |
| Mushrooms | *Morchella* |
| Birds nest fungi | *Cyathus* |

57. Ergot of rye is caused by a species of **[AIPMT (Prelims)-2007]**

(1) *Claviceps* (2) *Phytophthora* (3) *Uncinula* (4) *Ustilago*

**Sol.** Answer (1)

Ergot of rye – *Clavicep purpurea*

58. The thalloid body of a slime mould (Myxomycetes) is known as **[AIPMT (Prelims)-2006]**

(1) Protonema (2) Plasmodium (3) Fruiting body (4) Mycelium

**Sol.** Answer (2)

Plasmodium

- Thalloid body of slime mould
- Myxomycetes

59. The bacterium (*Clostridium botulinum*) that causes botulism is **[AIPMT (Prelims)-2006]**

(1) A facultative anaerobe (2) An obligate anaerobe

(3) A facultative aerobe (4) An obligate aerobe

**Sol.** Answer (2)

*Clostridium botulinum* is an obligate anaerobe.

60. Which of the following environmental conditions are essential for optimum growth of *Mucor* on a piece of bread ?

A. Temperature of about 25°C
B. Temperature of about 5°C
C. Relative humidity of about 5%
D. Relative humidity of about 95%
E. A shady place
F. A brightly illuminated place

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)

To improve the flavour and taste in tea bacteria are used for curing of tea leaves.

62. What is common about *Trypanosoma*, *Noctiluca*, *Monocystis* and *Giardia* ? **[AIPMT (Prelims)-2006]**

(1) These are all unicellular protists
(2) They have flagella
(3) They produce spores
(4) These are all parasites

**Sol.** Answer (1)

63. Barophilic prokaryotes **[AIPMT (Prelims)-2005]**

(1) Grow slowly in highly alkaline frozen lakes at high altitudes
(2) Occur in water containing high concentrations of barium hydroxide
(3) Grow and multiply in very deep marine sediments
(4) Readily grown and divides in sea water enriched in any soluble salt of barium

**Sol.** Answer (3)

Barophilic prokaryotes grow and multiply in very deep marine sediments.

64. Auxospores and hormocysts are formed, respectively, by **[AIPMT (Prelims)-2005]**

(1) Several diatoms and a few cyanobacteria
(2) Several cyanobacteria and several diatoms
(3) Some diatoms and several cyanobacteria
(4) Some cyanobacteria and many diatoms

**Sol.** Answer (1)

Auxospores – Diatoms

Hormocysts – Cyanobacteria

65. All of the following statements concerning the actinomycetous filamentous soil bacterium *Frankia* are correct except that *Frankia* : **[AIPMT (Prelims)-2005]**

(1) Can induce root nodules on many plant species
(2) Can fix nitrogen in the free-living state
(3) Like *Rhizobium*, it usually infects its host plant through root hair deformation and stimulates cell proliferation in the host's cortex
(4) Forms specialized vesicles in which the nitrogenase is protected from oxygen by a chemical barrier involving triterpene hopanoids

**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 unicellular organism has a macronucleus for trophic function and one or more micronuclei for reproduction? **[AIPMT (Prelims)-2005]**

(1) *Euglena* (2) *Amoeba* (3) *Paramoecium* (4) *Trypanosoma*

**Sol.** Answer (3)

67. For retting of jute the fermenting 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 acid bacteria

68. In the five kingdom system of classification, which single kingdom out of the following can include blue-green algae, nitrogen fixing bacteria and methanogenic archaebacteria?

(1) Plantae (2) Protista (3) Monera (4) Fungi

**Sol.** Answer (3)

Cyanobacteria, Nitrogen-fixing bacteria and Archaebacteria–Monera

69. In five kingdom system, the main basis of classification is

(1) Structure of nucleus (2) Mode of nutrition

(3) Structure of cell wall (4) Asexual reproduction

**Sol.** Answer (2)

Main basis of five-kingdom system is – mode of nutrition.

70. In which kingdom would you classify the archaea and nitrogen-fixing organisms, if the five-kingdom system of classification is used ?

(1) Plantae (2) Fungi (3) Protista (4) Monera

**Sol.** Answer (4)

Archaebacteria and Nitrogen-fixing bacteria–Monera.

71. Maximum nutritional diversity is found in the group

(1) Monera (2) Plantae (3) Fungi (4) Animalia

**Sol.** Answer (1)

Maximum nutritional diversity–Monera.

72. Specialized cells for fixing atmospheric nitrogen in *Nostoc* are

(1) Akinetes (2) Heterocysts (3) Hormogonia (4) Nodules

**Sol.** Answer (2)

Heterocystes – Specialised cells for Nitrogen-fixation in *Nostoc*.

73. Nuclear membrane is absent in

(1) *Volvox* (2) *Nostoc* (3) *Penicillium* (4) *Agaricus*

**Sol.** Answer (2)

*Nostoc* – Prokaryotes (Nuclear membrane absent)

74. The most abundant prokaryotes helpful to humans in making curd from milk and in production of antibiotics are the ones categorised as

(1) Chemosynthetic autotrophs (2) Heterotrophic bacteria

(3) Cyanobacteria (4) Archaebacteria

**Sol.** Answer (2)

Heterotrophic bacteria

– Making curd and antibiotics

75. Organisms called Methanogens are most abundant in a
(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 mainly produced by the activity of anaerobic bacteria on sewage?
(1) Marsh gas (2) Laughing gas (3) Propane (4) Mustard gas

**Sol.** Answer (1)

Marsh gas is mainly produced by the activity of anaerobic bacteria on sewage.

77. A peculiar odour that prevails in marshy areas and cow-sheds is on account of a gas produced by
(1) Mycoplasma (2) Archaebacteria (3) Slime moulds (4) Cyanobacteria

**Sol.** Answer (2)

Methane is produced by *Methanogens*.

78. Organisms, which fix atmospheric nitrogen in the soil, fall under the category of
(1) Bacteria (2) Green algae (3) Soil fungi (4) Mosses

**Sol.** Answer (1)

Nitrogen-fixing organisms 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 mediated by virus. (Phage vector)

80. Many blue-green algae occur in thermal springs (hot water springs). The temperature tolerance of these algae have been attributed to their
(1) Mitochondrial structure (2) Importance of homopolar bonds in their proteins
(3) Cell wall structure (4) Modern cell organization

**Sol.** Answer (2)

Temperature tolerance of BGA is due to homopolymer bonds in their protein.

81. For the first time, the bacteria were observed by
(1) Robert Koch (2) A.V. Leeuwenhoek (3) W.H. Stanley (4) Louis Pasteur

**Sol.** Answer (2)

A.V. Leeuwenhoek, first time observed the bacteria.

82. A large number of organic compounds can be decomposed by
(1) Photoheterotorphs (2) *Pseudomonas* (3) Photolithotrophs (4) Chemoheterotrophs

**Sol.** Answer (2)

*Pseudomonas* decomposes a large number of organic compounds.

83. What are the sex organs provided in some bacteria?
(1) Sex pili (2) Plasmid (3) Circular DNA (4) Gametes

**Sol.** Answer (1)

Sex pilli are the sex organs in some bacteria.

84. BGA (blue green algae) are included in which of the following groups?
(1) Bryophytes (2) Prokaryotes (3) Protista (4) Fungi

**Sol.** Answer (2)

BGA, (cyanobacteria) belong to prokaryotes.

85. Which type of DNA is found in bacteria?
(1) Circular DNA (2) Membrane bound DNA
(3) Straight DNA (4) Helical DNA

**Sol.** Answer (1)

Bacterial DNA is circular.

86. A few organisms are known to grow and multiply at temperatures of 100-105°C. They belong to
(1) Thermophilic sulphur bacteria (2) Hot spring blue-green algae
(3) Thermophilic subaerial fungi (4) Marine archaebacteria

**Sol.** Answer (2)

Bacteria grow and multiply at temperature of 100–105°C are hot spring blue-green algae.

87. The DNA of *E.coli* is
(1) Double stranded and linear (2) Double stranded and circular
(3) Single stranded and linear (4) Single stranded and circular

**Sol.** Answer (2)

DNA of *E.coli.* – Double stranded and circular

88. Photosynthetic bacteria have pigments in
(1) Chromoplasts (2) Chromatophores (3) Leucoplasts (4) Chloroplasts

**Sol.** Answer (2)

Photosynthetic bacteria have pigments in chromatophores

89. What is true for Archaebacteria?
(1) All are halophiles (2) All are photosynthetic (3) All are fossils (4) Oldest living beings

**Sol.** Answer (4)

Archaebacteria is oldest living beings.

90. What is true for cyanobacteria?
(1) Oxygenic with nitrogenase (2) Oxygenic without nitrogenase
(3) Non oxygenic with nitrogenase (4) Non oxygenic without nitrogenase

**Sol.** Answer (1)

Cynobacteria is oxygenic with nitrogenase (Nitrogen-fixation enzyme)

91. Organisms which obtain energy by the oxidation of reduced inorganic compounds are called
(1) Photoautotrophs (2) Chemoautotrophs (3) Saprozoic (4) Coproheterotrophs

**Sol.** Answer (2)

Chemoautotrophs – Energy source is from oxidation of reduced inorganic compounds.

92. Which statement is correct for bacterial transduction?
(1) Transfer of some genes from one bacteria to another bacteria through virus
(2) Transfer of genes from one bacteria to another bacteria by establishing contact
(3) Bacteria obtained its DNA directly from mother cell
(4) Bacteria obtained DNA from other external source

**Sol.** Answer (1)

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 ≡ C content
(2) Are always linear with more G ≡ 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 sporangium of
(1) *Dictyostelium* (2) *Polysphondylium* (3) *Physarum* (4) *Navicula*

**Sol.** Answer (3)
Capillitium present in slime mould. eg., *Physarum*

100. Which one of the following is true for fungi?
(1) They are phagotrophs
(2) They lack a rigid cell wall
(3) They are heterotrophs
(4) They lack nuclear membrane

**Sol.** Answer (3)
Fungi are heterotrophic.

101. When there are two haploid nuclei per cell in some fungi before the formation of diploid, this stage is called
(1) Diplotene (2) Diplophase (3) Dikaryophase (4) Dikaryote

**Sol.** Answer (3)
Two haploid nuclei per cell in some fungi – Dikaryophase.

102. Which one of the following is linked to the discovery of Bordeaux mixture as a popular 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. Millardet
– Control of Downy mildew

103. The black rust of wheat is a fungal disease caused by
(1) *Albugo candida* (2) *Puccinia graminis tritici*
(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 sporangium of
(1) *Spirogyra* (2) *Ulothrix* (3) *Rhizopus* (4) *Penicillium*

**Sol.** Answer (3)
Sporangiospore – Collumella present
*e.g.*, *Rhizopus*
*Mucor*
Dung mould

105. Adhesive pad of fungi penetrate the host with the help of

(1) Mechanical pressure and enzymes (2) Hooks and suckers

(3) Softening by enzymes only (4) Only by mechanical pressure

**Sol.** Answer (1)

Adhesive pad of fungi penetrate in the host with the help of – Mechanical pressure and enzymes

106. Which fungal disease spreads by seed and flowers?

(1) Loose smut of wheat (2) Corn smut

(3) Covered smut of barley (4) Soft rot of potato

**Sol.** Answer (1)

Fungal disease spreads by seed and flowers – Loose smut of wheat.

107. Which of the following secrete toxins during storage conditions of crop plants?

(1) *Aspergillus* (2) *Penicillium* (3) *Fusarium* (4) *Colletotrichum*

**Sol.** Answer (1)

*Aspergillus* secretes toxins during storage conditions of crop plants.

108. Mycorrhiza exhibits the phenomenon of

(1) Parasitism (2) Symbiosis (3) Antagonism (4) Endemism

**Sol.** Answer (2)

Mycorrhiza – Symbiotic relation

109. Mycorrhiza is correctly described as

(1) Parasitic association between roots and some fungi

(2) Symbiotic relationship between fungi and roots of higher plants

(3) Symbiosis of algae and fungi

(4) Relation of ants with the stem of some trees

**Sol.** Answer (2)

Mycorrhiza – Fungi and roots of higher plants

110. VAM is an example of

(1) Endomycorrhiza (2) Ectoparasitism (3) Endoparasitism (4) Ectomycorrhiza

**Sol.** Answer (1)

VAM – Endomycorrhiza

e.g., *Glomus*

111. An example of endomycorrhiza is

(1) *Nostoc* (2) *Glomus* (3) *Agaricus* (4) *Rhizobium*

**Sol.** Answer (2)

Endomycorrhiza

e.g., *Glomus* $\rightarrow$ Orchids

112. Satellite RNAs are present in some

(1) Plant viruses (2) Viroids (3) Prions (4) Bacteriophages

**Sol.** Answer (1)

Satellite RNAs (Plant viruses)

113. A cell-coded protein that is formed in response to infection with most animal viruses, 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 *(*TMV*)* genes are associated with

(1) Single stranded RNA (2) Double stranded DNA

(3) Single stranded DNA (4) Double stranded RNA

**Sol.** Answer (1)

TMV – Single stranded RNA

115. The tailed bacteriophages are

(1) Motile on surface of bacteria (2) Non-motile

(3) Motile on surface of plant leaves (4) Actively motile in water

**Sol.** Answer (2)

The tailed bacteriophages – Non-motile

116. Viruses posses

(1) Ribosomes to synthesize protein (2) Organelles for its vital mechanisms

(3) Either DNA or RNA (4) None of these

**Sol.** Answer (3)

Viruses – Either RNA or DNA

117. Enzymes are generally not found in

(1) Fungi (2) Algae (3) Virus (4) Cyanobacteria

**Sol.** Answer (3)

Enzymes are generally absent in viruses.

118. Viruses are living, because they

(1) Multiply in host cells

(2) Carry anaerobic respiration

(3) Carry metabolic activities

(4) Cause infection

**Sol.** Answer (1)

Viruses are living because they multiply in host cells.

119. Viruses are no more “alive” than isolated chromosomes because

(1) They require both RNA and DNA

(2) They both need food molecules

(3) They both require oxygen for respiration

(4) Both require the environment of a cell to replicate

**Sol.** Answer (4)

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 (3) 300 × 18 nm (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

**Sol.** Answer (1)

Reterovirus

$$RNA \xrightarrow{\text{Reverse transcriptase}} DNA$$

123. The causative agent of mad-cow disease is a

(1) Virus (2) Bacterium (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) (2) They show fungal and algal symbiotic relationships

(3) Some of its species are eaten by reindeers (4) These are pollution indicators

**Sol.** Answer (1)

Lichens grow very slow

125. Most of the lichens consist of

(1) Green algae and ascomycetes (2) Brown algae and higher plant

(3) Blue green algae and basidiomycetes (4) Red algae and ascomycetes

**Sol.** Answer (1)

Lichens – Green algae + Ascomycetes
(Algae) (Fungi)

126. Which of the following is the use of lichens in case of pollution?

(1) They promote pollution (2) Lichens are not related with pollution

(3) They treat the polluted water (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

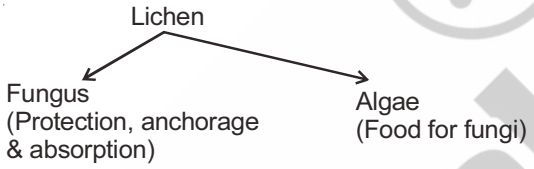
(1) Provides protection, anchorage and absorption for the algae

(2) Provides food for the alga

(3) Fixes the atmospheric nitrogen for the alga

(4) Releases oxygen for the alga

**Sol.** Answer (1)




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) *Ustilago* 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 (2) Trees are heavily infested

(3) Location is highly polluted (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 $SO_2$.

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 $H_2O$

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.

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