

DPP - Daily Practice Problems

Chapter-wise Sheets

Date :

Start Time :

End Time :

BIOLOGY

CB02

SYLLABUS : Biological Classification

Max. Marks : 180

Marking Scheme : + 4 for correct & (–1) for incorrect

Time : 60 min.

INSTRUCTIONS : This Daily Practice Problem Sheet contains 45 MCQs. For each question only one option is correct. Darken the correct circle/ bubble in the Response Grid provided on each page.

1. Which of the following processes are involved in the reproduction of protista?
 - (a) Binary fission and fragmentation
 - (b) Cell fusion and zygote formation
 - (c) Spore formation and fragmentation
 - (d) Budding and spore formation
2. In prokaryotes, the genetic material is
 - (a) linear DNA with histones
 - (b) circular DNA with histones
 - (c) linear DNA without histones
 - (d) circular DNA without histones
3. Which of the following bacteria carry out oxygenic photosynthesis by means of a photosynthetic apparatus similar to the eukaryotes?
 - (a) Purple sulphur bacteria
 - (b) Green sulphur bacteria
 - (c) Cyanobacteria
 - (d) More than one option is correct
4. Bacteria is a group of prokaryotic organisms which is characterised by
 - (a) 70 S ribosomes
 - (b) Peptidoglycan cell wall
 - (c) Simple structure and complex behaviour
 - (d) All of the above.
5. What may be a 'photosynthetic protistian' to one biologist may be 'a plant' to another? Which of the given below features of slime moulds shows linkage with plant?
 - (a) Presence of holozoic nutrition
 - (b) Presence of diverse sexual reproduction
 - (c) Slime moulds have cellulosic spore wall
 - (d) Formation of fruiting bodies

RESPONSE GRID

1. (a)(b)(c)(d)

2. (a)(b)(c)(d)

3. (a)(b)(c)(d)

4. (a)(b)(c)(d)

5. (a)(b)(c)(d)

Space for Rough Work

6. Choose the correct match
 (a) *Gonyaulax* – Red sea
 (b) *Euglena* – Chlorophyll a & c
 (c) Desmids – Chrysophytes
 (d) *Gymnodinium* – Hemicellulosic plates in wall
7. Nuclear dimorphism is shown by
 (a) *Paramecium* (b) *Amoeba*
 (c) *Plasmodium* (d) *Trypanosoma*
8. Most common type of genetic material present in bacteriophages is
 (a) ds RNA (b) ss RNA
 (c) ds DNA (d) ss DNA
9. Which of the following statement about Mycoplasma is true:
 (a) They are smallest, disease causing thin walled organisms
 (b) They differ from viruses in being cellular in organisation
 (c) Insensitive to several antibiotics as they have 70S ribosomes
 (d) They can survive without photosynthetic pigments and genetic material
10. Consider the following characters:
 Non-motile spores, saprophytic unicellular eukaryotes, transfer of gametes by wind currents, Differentiation of plasmodium under suitable conditions.
 How many of the characters given in box belong to slime moulds?
 (a) Four (b) One
 (c) Three (d) Two
11. Eubacteria can be differentiated from archaeobacteria on the basis of
 (a) Ribosomes (b) Gene of tRNA
 (c) Cell wall (d) Nutrition
12. Select the pair that consists of plant or animal bacterial diseases.
 (a) Cholera and typhoid
 (b) Citrus canker and crown gall
 (c) Malaria and dengue
 (d) Both (a) and (b)
13. Cyanobacteria are classified under which of the following kingdoms?
 (a) Monera (b) Protista
 (c) Algae (d) Plantae
14. _____ are important decomposers that cause decay and decomposition of dead bodies of plants and animals.
 (a) Saprotrophic bacteria
 (b) Saprotrophic fungi
 (c) Plants, like *Sarracenia*
 (d) Both (a) and (b)
15. Chrysophytes are
 (a) planktons (b) nektons
 (c) benthic organisms (d) rooted submerged.
16. Eukaryotic, achlorophyllous and heterotrophic organisms are grouped under which of the following kingdoms?
 (a) Monera (b) Protista
 (c) Fungi (d) Plantae
17. Virion is
 (a) nucleic acid of virus
 (b) antiviral agent
 (c) protein of virus
 (d) completely assembled virus outside host.
18. In the five-kingdom system of classification, which single kingdom out of the following can include blue, green algae, nitrogen-fixing bacteria and methanogenic archaeobacteria?
 (a) Fungi (b) Plantae
 (c) Protista (d) Monera
19. Viruses that infect bacteria, multiply and cause their lysis, are called
 (a) Lysozymes (b) Lipolytic
 (c) Lytic (d) Lysogenic
20. Phenetic classification of organisms is based on
 (a) Observable characteristics of existing organisms
 (b) The ancestral lineage of existing organisms
 (c) Dendrogram based on DNA characteristics
 (d) Sexual characteristics
21. The practical purpose of classification of living organisms is to
 (a) explain the origin of living organisms
 (b) trace the evolution of living organisms
 (c) name the living organisms
 (d) facilitate identification of unknown organisms

**RESPONSE
GRID**

- | | | | | |
|---------------------|---------------------|---------------------|---------------------|---------------------|
| 6. (a) (b) (c) (d) | 7. (a) (b) (c) (d) | 8. (a) (b) (c) (d) | 9. (a) (b) (c) (d) | 10. (a) (b) (c) (d) |
| 11. (a) (b) (c) (d) | 12. (a) (b) (c) (d) | 13. (a) (b) (c) (d) | 14. (a) (b) (c) (d) | 15. (a) (b) (c) (d) |
| 16. (a) (b) (c) (d) | 17. (a) (b) (c) (d) | 18. (a) (b) (c) (d) | 19. (a) (b) (c) (d) | 20. (a) (b) (c) (d) |
| 21. (a) (b) (c) (d) | | | | |

Space for Rough Work

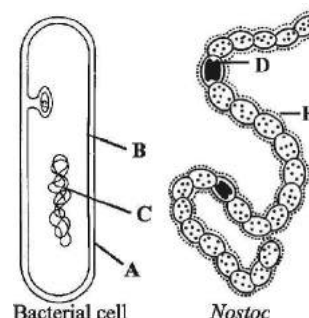
22. A system of classification in which a large number of traits are considered, is
 (a) artificial system (b) synthetic system
 (c) natural system (d) phylogenetic system
23. In five kingdom system, the main basis of classification is
 (a) structure of nucleus (b) mode of nutrition
 (c) structure of cell wall (d) asexual reproduction
24. Phenetic classification is based on
 (a) Sexual characteristics
 (b) The ancestral lineage of existing organisms
 (c) Observable characteristics of existing organisms
 (d) Dendograms based on DNA characteristics
25. In which kingdom would you classify the archaeobacteria and nitrogen-fixing organisms. If the five-kingdom system of classification is used ?
 (a) Monera (b) Plantae
 (c) Fungi (d) Protista
26. Which of the following statements is not true for retroviruses?
 (a) DNA is not present at any stage in the life cycle of retroviruses
 (b) Retroviruses carry gene for RNA-dependent DNA polymerase
 (c) The genetic material in mature retroviruses is RNA
 (d) Retroviruses are causative agents for certain kinds of cancer in man
27. On how many criteria living organisms have been classified into five kingdoms ?
 (a) Two (b) Four
 (c) Five (d) Three
28. First true phylogenetic system of classification was given by
 (a) Eichler (b) Engler and Prantl
 (c) de Jussieu (d) de Candolle
29. Which of the following is not a protist ?
 (a) *Taenia* (b) *Amoeba*
 (c) *Paramecium* (d) *Euglena*
30. Which of the following is not correctly matched?
 (a) Root knot disease - *Meloidogyne javanica*
 (b) Smut of bajra - *Tolysporium penicillariae*
 (c) Covered smut of barley - *Ustilago nuda*
 (d) Late blight of potato - *Phytophthora infestans*
31. Which one of the following character was not used by R.H. Whittaker for biological classification ?
 (a) Cell structure
 (b) Physiological characters
 (c) Thallus organisation
 (d) Phylogenetic relationships
32. The first organisms to appear on earth were
 (a) photoautotrophs (b) chemoautotrophs
 (c) chemoheterotrophs (d) heterotrophs
33. 'Comma' shaped bacteria are known as
 (a) coccus (b) spiral
 (c) spirillum (d) vibrio
34. Slime moulds in the division myxomycota (true slime moulds) have
 (a) pseudoplasmodia.
 (b) spores that develop into free living amoeboid cells.
 (c) spores that develop into flagellated gametes.
 (d) feeding stages consisting of solitary individual cells.
35. Which one of the following statements about Mycoplasma is wrong ?
 (a) They are pleomorphic.
 (b) They are sensitive to penicillin.
 (c) They cause diseases in plants.
 (d) They are also called (Pleuro pneumonia like organisms) PPLO.
36. African sleeping sickness is due to
 (a) *Plasmodium vivax* transmitted by Tse-tse fly
 (b) *Trypanosoma lewisi* transmitted by Bed Bug
 (c) *Trypanosoma gambiense* transmitted by *Glossina palpalis*
 (d) *Entamoeba gingivalis* spread by Housefly

RESPONSE
GRID

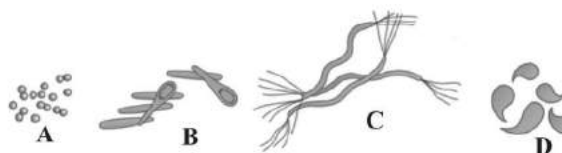
22. (a) (b) (c) (d) 23. (a) (b) (c) (d) 24. (a) (b) (c) (d) 25. (a) (b) (c) (d) 26. (a) (b) (c) (d)
 27. (a) (b) (c) (d) 28. (a) (b) (c) (d) 29. (a) (b) (c) (d) 30. (a) (b) (c) (d) 31. (a) (b) (c) (d)
 32. (a) (b) (c) (d) 33. (a) (b) (c) (d) 34. (a) (b) (c) (d) 35. (a) (b) (c) (d) 36. (a) (b) (c) (d)

Space for Rough Work

37. Which one single organism or the pair of organisms is **correctly** assigned to its taxonomic group?
- Paramecium* and *Plasmodium* belong to the same kingdom as that of *Penicillium*
 - Lichen is a composite organism formed from the symbiotic association of an algae and a protozoan
 - Yeast used in making bread and beer is a fungus
 - Nostoc* and *Anabaena* are examples of protista
38. Two animals which are the members of the same order must also be the members of the same :
- Class
 - Family
 - Genus
 - Species
39. Bacteria lack alternation of generation because there is
- neither syngamy nor reduction division.
 - distinct chromosomes are absent.
 - no conjugation.
 - no exchange of genetic material.
40. Capsid is
- genetic material of virus
 - protein cover of virus
 - extra genetic material of bacterium
 - house keeping genome of bacterium
41. A group of fungi with septate mycelium in which sexual reproduction is either unknown or lacking are classified under
- phycomycetes
 - deuteromycetes
 - ascomycetes
 - basidiomycetes
42. A few organisms are known to grow and multiply at temperatures of 100–105°C. They belong to
- marine archaebacteria
 - thermophilic sulphur bacteria
 - blue-green algae (cyanobacteria)
 - thermophilic, subaerial fungi
43. Mycoplasma is pleuromorphic due to
- absence of cell wall
 - presence of three layered cell membrane
 - the presence of sterol
 - None of these
44. Refer to the given figures of bacteria cell and *Nostoc* and choose the option which shows correct label for the structures marked as A, B, C, D and E ?



- A – Cell wall, B – Cell membrane, C – Heterocyst, D – DNA, E – Mucilaginous sheath
 - A – Cell wall, B – Cell membrane, C – DNA, D – Heterocyst, E – Mucilaginous sheath
 - A – Mucilaginous sheath, B – Cell membrane, C – DNA, D – Heterocyst, E – Cell wall
 - A – Cell membrane, B – Cell wall, C – DNA, D – Heterocyst, E – Mucilaginous sheath
45. Choose the correct names of the different bacteria given below according to their shapes.



- A – Cocci, B – Bacilli, C – Spirilla, D – Vibrio
- A – Bacilli, B – Cocci, C – Spirilla, D – Vibrio
- A – Spirilla, B – Bacilli, C – Cocci, D – Vibrio
- A – Spirilla, B – Vibrio, C – Cocci, D – Bacilli

**RESPONSE
GRID**

37. (a) (b) (c) (d) 38. (a) (b) (c) (d) 39. (a) (b) (c) (d) 40. (a) (b) (c) (d) 41. (a) (b) (c) (d)
42. (a) (b) (c) (d) 43. (a) (b) (c) (d) 44. (a) (b) (c) (d) 45. (a) (b) (c) (d)

Space for Rough Work

DAILY PRACTICE PROBLEM DPP CHAPTERWISE 2 - BIOLOGY

Total Questions	45	Total Marks	180
Attempted		Correct	
Incorrect		Net Score	
Cut-off Score	45	Qualifying Score	60
Success Gap = Net Score – Qualifying Score			
Net Score = (Correct × 4) – (Incorrect × 1)			

HINTS & SOLUTIONS

DPP/CB02

1. (b) 2. (d)
3. (c) Cyanobacteria, chlorophyll a, PS I and II.
4. (d)
5. (c) Vegetative phase-animal-like and reproductive phase- plant-like.
6. (c) Desmids i.e golden algae belongs to group chrysophytes. These are found in freshwater as well as marine environment.
7. (a)
8. (c) T₂ phage consists of linear ds DNA.
9. (b) Cell wall is absent in Mycoplasma.
10. (d) Non-motile spores, saprophytic protists.
11. (c) Eubacteria can be differentiated from archaeobacteria and bacteria on the basis of cell wall. Eubacteria possess true cell wall, made up of NAM and NAG i.e. N-acetyl muramic acid and N-acetyl glucoseamine. Cell wall of archaeobacteria is made up of N-acetyl talosaminuric acid.
12. (d) Pathogen of cholera is *Vibrio cholerae* bacterium. Cholera is transmitted by contaminated water. Typhoid or enteric fever spreads through contaminated water in which bacterium *Salmonella typhi* is present. Citrus canker and crown gall are bacterial disease of plants caused by *Xanthomonas citri* and *Agrobacterium tumefaciens* respectively.
13. (a) Cyanobacteria or blue-green algae are Gram + photosynthetic prokaryotes which perform oxygenic photosynthesis. Photosynthetic pigments include chlorophyll a, carotenoids and phycobilins. Cyanobacteria are classified under kingdom Monera. Cyanobacterial cell structure is typically prokaryotic – one envelope organisation with peptidoglycan wall, naked DNA, 70S ribosomes and absence of membrane bound structure like endoplasmic reticulum, mitochondria, golgi bodies, plastids, lysosomes, sap vacuoles. The outer part of the protoplast, called chromoplasm, contains a number of photosynthetic thylakoids.
14. (d) Saprophytic bacteria are free living bacteria which obtain their food from organic remains, plant and animal origin. Aerobic breakdown of organic compounds is known as decay. In nature saprophytic bacteria alongwith saprotrophic fungi are the decomposers of organic remains.
15. (a) Diatoms are very important photosynthesizers. About half of all the organic matter synthesized in the world is believed to be produced by them. Diatoms are probably the most numerous of all plants like protists. Because of this abundance, they are one of the most important primary producers of the sea. There are about 5,500 species of diatoms, mainly marine. The diatoms constitute an important phytoplankton component of the oceans.
16. (c) Fungi is a large kingdom of over 100,000 species. They are achlorophyllous, heterotrophic, spore-forming, non-vascular, eukaryotic organisms which often contain chitin or fungal cellulose in their walls and possess glycogen as food reserve. They are cosmopolitan in occurrence being present in air, water, soil, over and inside animals and plants.
17. (d) Virus is an obligate parasite and is inert outside the host cell. An inert virus outside host is called virion.
18. (d) Monera is the kingdom of all prokaryotes and includes bacteria, blue green algae (cyanobacteria) and archae- bacteria- a group of ancient bacteria kingdom. Protista includes slime unicellular and colonial eukaryotes. The important members are diatoms, dinoflagellates, euglenoids, alone moulds and protozoans. Fungi the kingdom of multicellular or multinucleate heterophyllous and spore producing eukaryotic organisms like *Rhizopus* mildews, mushroom etc. Kingdom plantae includes all coloured multicellular photosynthetic organisms (plants).
19. (c) Viruses that get integrated with the bacterial host genome are called Lysogenic. Lysozymes are present in the saliva and are antibacterial agents. Lipolytic enzymes are the enzymes which catalyse breakdown (lysis) of fats (Lipids).
20. (a) Phenetic classification is purely based on appearances. Phylogenetic classification is based on ancestral lineage. Karyotaxonomy is based on DNA characteristics. Morphotaxonomy involves morphological characters.
21. (d) Biological classification is the scientific arrangement of organisms in a hierarchical series of groups and subgroups on the basis of similarities and differences in their traits. It helps in building evolutionary pathways and in identifying new organisms.
22. (c) Artificial system of classification is based on comparison of on or a few characters. Phylogenetic system of classification indicates the evolutionary or phylogenetic relationship of organisms.
23. (b) The five kingdom classification is a mode of classification based on the following criteria.
 - Complexity of cell structure
 - Complexity of body structure
 - Modes of nutrition
 - Ecological life styles
 - Phylogenetic relationship
24. (c) Phylogenetic system of classification is a system indicating the evolutionary or phylogenetic relationship of organisms.
25. (a) Bacteria are prokaryotes which are grouped under Monera. Protista is a kingdom of unicellular eukaryotes. Fungi is a kingdom of multicellular spore-producing eukaryotes. Plantae are photosynthetic eukaryotes.
26. (a) Retroviruses have RNA as the genetic material and hence they exhibit reverse transcription whereby DNA is synthesized on RNA template. They have reverse transcriptase as the enzyme.
27. (b) Four criteria are : (i) complexity of cell, (ii) complexity of organism, (iii) mode of nutrition and (iv) major ecological role
28. (b) First phylogenetic classification was given by Eichler but that was partially phylogenetic and first true phylogenetic classification was given by Engler and Prantl.
29. (a) *Taenia*, commonly known as tapeworm is not a protist, it belongs to phylum Platyhelminthes (Kingdom Animalia)

30. (c)
31. (b) Physiological characters
32. (c) During the origin of life, the first organisms evolved were chemoheterotrophs. They obtained the organic material from outside which they utilized in energy production and synthesis of their own organic material.
33. (d) Bacteria possess various forms and shapes and are of 4 different types - coccus (round), bacillus (rod shaped), vibrio (comma shaped) and spirillum (spiral like corkscrew).
34. (c) Slime moulds in the division of myxomycota have spores that develop into flagellated gametes.
35. (b) While working at the Rockefeller Institute, Brown reported isolation of a PPLO from human arthritic joint tissue in 1938. In discussing the significance of this observation, Brown reported successful treatment of arthritic patients in 1949 with a new antibiotic called aureomycin.
36. (c)
37. (c) *Saccharomyces cerevisiae* is a yeast used in making bread (Baker's yeast) and commercial production of ethanol. *Paramecium* & *Plasmodium* are of animal kingdom while *Penicillium* is a fungi. Lichen is composite organism formed from the symbiotic association of an algae and a fungus. *Nostoc* & *Anabaena* are examples of kingdom monera.
38. (a) 39. (a) 40. (b) 41. (b) 42. (a)
43. (a)
44. (b) The correct labeling in the figures of bacterial cell and *Nostoc* are - A - cell wall, B - cell membranes, C - DNA, D - heterocysts, E - mucilaginous sheath.
45. (a) A - Cocci (spherical), B - Bacilli (rod shaped), C - Spirilla (spiral), D - Vibrio (comma shaped). These are all the shapes of the bacteria.