Roll No _____ (To be filled in by the candidate) **(Academic Sessions 2020 – 2022 to 2023 – 2025)**

BIOLOGY 224-1st Annual-(INTER PART – I) Time Allowed : 20 Minutes

Q.PAPER – I (Objective Type) GROUP – I Maximum Marks : 17

PAPER CODE = 6461

Note : Four possible answers A, B, C and D to each question are given. The choice which you think is correct, fill that circle in front of that question with Marker or Pen ink in the answer-book. Cutting or filling two or more circles will result in zero mark in that question.

1-1	Which one of the following group evolved during Cenozoic era :			
	(A) Fishes	(B) Amphibians	(C) Reptiles	(D) Mammals ●
2	Keratin is an example of fibrous proteins present in :			
	(A) Nail and hair ●	(B) Blood	(C) Muscle	(D) Bone
3	Which one the following is essential for co-enzymes :			
	(A) Carbohydrates	(B) Proteins	(C) Vitamins ●	(D) Lipids
4	Which one of the following protein is present in microtubules :			
	(A) Tropomyosin	(B) Tubulin ●	(C) Myosin	(D) Actin
5	About 60% of adults are immune to disease			
	(A) Measles	(B) Mumps ●	(C) Influenza	(D) Polio
6	Misuse of streptomycin may causes :			
	(A) Fever	(B) Discolouration of teeth	(C) Allergy	(D) Deafness ●
7	--- are involved in the formation of red tides :			
	(A) ● Dinoflagellates	(B) Zooflagellates	(C) Diatoms	(D) Euglenoids ●

(Turn Over)

1-8	Which one of the following is the largest group of fungi :			
	(A) Deuteromycetes	(B) Basidiomycetes	(C) Ascomycetes ●	(D) Zygomycetes
9	Musci are commonly called :			
	(A) Liverworts	(B) Hornworts	(C) Mosses ●	(D) Club mosses
10	Flame cells are the excretory cells in :			
	(A) Flat-worm ●	(B) Segmented worm	(C) Round-worm	(D) Pin-worm
11	Two ovaries and oviducts are functional in :			
	(A) Kiwi	(B) Eagle ●	(C) Hen	(D) Dog fish
12	Which one of the following is molecular formula of lactic acid :			
	(A) $C_3H_4O_3$	(B) $C_3H_5O_3$	(C) $C_3H_6O_3$ ●	(D) C_2H_5OH
13	Haem portion of haemoglobin contains :			
	(A) Mg^{++}	(B) Fe^{++} ●	(C) Fe^{+++}	(D) Ca^{++}
14	Pepsinogen is secreted by :			
	(A) Mucous cells	(B) Parietal cells	(C) Zymogen cells ●	(D) Epithelial cells
15	Which one of the disease is caused by breakdown of alveoli of lungs :			
	(A) Asthma	(B) Emphysema ●	(C) Tuberculosis	(D) Lung Cancer
16	How many litres of blood are present in man whose body weight is 72 kgs :			
	(A) 9	(B) 8	(C) 7	(D) 6 ●
17	If $\psi_p = 800\,kPa$ and $\psi_s = -2000\,kPa$, then ψ_w will be :			
	(A) 2800 kPa	(B) - 2800 kPa	(C) 1200 kPa	(D) - 1200 kPa ●

Roll No _____ (To be filled in by the candidate) **(Academic Sessions 2020 – 2022 to 2023 – 2025)**

BIOLOGY 224-1st Annual-(INTER PART – I) Time Allowed : 2.40 hours

PAPER – I (Essay Type) GROUP – I Maximum Marks : 68

SECTION – I

2. Write short answers to any EIGHT (8) questions : 16

(i) What is the unit of biological inheritance and where the information for structure and function of a cell are stored?
(ii) How does low temperature affect the activity of an enzyme?
(iii) If more concentration of enzymes is added beyond optimum level in a system, the rate of reaction remain unchanged, Why?
(iv) What is ES-Complex? How it is formed?
(v) What is a hypha? What is the advantage of having incomplete septa?
(vi) On which basis the deuteromycetes are classified as imperfect fungi?
(vii) Differentiate polyps and medusa.
(viii) Why exoskeleton of echinoderm is called endoskeleton?
(ix) What is notochord? Write its function.
(x) List any four harms of insects.
(xi) Define bioenergetics. Does it obey the law of thermodynamics?
(xii) What are cytochromes? Give their function.

3. Write short answers to any EIGHT (8) questions : 16

(i) Define biome. What is the use of biome?
(ii) Differentiate the population and community.
(iii) What are plastids? Name their types.
(iv) What is the chlorella? Give its habitat.
(v) Define thallus. Give examples of thallophytes.
(vi) What is the commercial importance of marine algae?
(vii) Enlist four major groups of kingdom protista.
(viii) What is lysosome? Give its function.
(ix) What is myoglobin? State its any one function.
(x) Name respiratory pigment in human beings and where it is found?
(xi) Differentiate the plasmolysis and incipient plasmolysis.
(xii) What is the importance of transpiration?

4. Write short answers to any SIX (6) questions : 12

(i) Write down biological classification of corn.
(ii) Name four phases of bacterial growth curve.
(iii) Differentiate the archegonia and antheridia.
(iv) What is double fertilization? In which group of plants it occurs?
(v) Lycopsids are also called club mosses. Why?
(vi) Write biological name of rice and tomato.
(vii) What is Jaundice? Give its causes.
(viii) How do the nematocysts help the animal in ingestion of the prey?
(ix) Name the kinds of cells and their secretions of gastric gland.

SECTION – II

Note : Attempt any THREE questions.

5. (a) How genetically identical organisms can be produced by cloning? 2,2
   (b) In what ways respiration in birds is the most efficient. 2,2
6. (a) What is RNA? Describe three types of RNAs. 1,3
   (b) State various features of fungi that adapt them to terrestrial mode of life. 4
7. (a) The structure and functions of peroxisomes and glyoxysomes are different. How? 2,2
   (b) Describe the digestion in cockroach. Also draw labelled diagram of digestive system. 2,2
8. (a) Write a detailed note on hepatitis? Explaining its causes and different types. 2,2
   (b) Explain structure of arteries and capillaries. How these are involved in exchange of material? 2,2
9. (a) Discuss nutrition in bacteria. 4
   (b) Draw and discuss non-cyclic photophosphorylation. 4

. No _____ (To be filled in by the candidate) **(Academic Sessions 2020 – 2022 to 2023 – 2025)**

ıOLOGY 224-1st Annual-(INTER PART – I) Time Allowed : 20 Minutes

Q.PAPER – I (Objective Type) GROUP – II Maximum Marks : 17

PAPER CODE = 6462

Note : Four possible answers A, B, C and D to each question are given. The choice which you think is correct, fill that circle in front of that question with Marker or Pen ink in the answer-book. Cutting or filling two or more circles will result in zero mark in that question.

1-1	Which one of the following is not well defined in plants than animals : (A) Tissue (B) Organs ● (C) Cells (D) Organelles
2	The type of monosaccharide rare in nature is : (A) Triose (B) Pentose (C) Tetrose ● (D) Hexose
3	The region in the active site of an enzyme that recognizes the proper substrate is : (A) Binding site ● (B) Catalytic site (C) Prosthetic group (D) Inhibitor
4	The cells which produce new cells for growth and development of the plant are : (A) Chlorenchymatous cells (B) Meristematic cells ● (C) Parenchymatous cells (D) Sclerenchymatous cells
5	An ancient disease caused by enveloped DNA virus is : (A) Small pox (B) Poliomyelitis (C) Influenza (D) Measles ●
6	When death rate becomes equal to newly formed bacteria is : (A) Lag phase (B) Log phase (C) Stationary phase ● (D) Decline phase
7	Which one of the following have a shell of interlocking cellulose plates impregnated with silica: (A) Dinoflagellates ● (B) Diatoms (C) Kelps (D) Red algae

(Turn Over)

1-8	Most of the visible part of the following organism consist of fungus : (A) Mycorrhizae (B) Lichen ● (C) Plant (D) Algae
9	The reproductive structure having two wings in the life-cycle of pinus is : (A) Ovule (B) Microsporophyll (C) Megasporophyll (D) Pollen grain ●
10	Coelenterate that exist only in polyp form is : (A) Hydra ● (B) Obelia (C) Aurelia (D) Physalia
11	The organ of excretion in arthropods is : (A) Nephridia (B) Malpighian tubules ● (C) Booklungs (D) Kidney
12	What is the location of ETC and chemiosmosis in animal cell : (A) Lysosomes (B) Mitochondria (C) Stroma (D) Granum ●
13	Who hypothesized that plants split water as a source of hydrogen, releasing oxygen as a by-product : (A) Calvin (B) Hans Kreb (C) Van Niel ● (D) T.W. Engelmann
14	The loss of appetite due to the fear of becoming obese is known as : (A) Dyspepsia (B) Obesity (C) Bulimia nervosa (D) Anorexia nervosa ●
15	The single circuit heart does not pump blood directly to all body parts in : (A) Salamandar (B) Crow (C) Monkey (D) Shark ●
16	Guttation is loss of water through water secreting glands. What is the name of these glands : (A) Lenticels (B) Stomata (C) Hydathodes ● (D) Imbibition
17	The main body cavity in cockroach is known as : (A) Haemocoel ● (B) Coelom (C) Pseudocoel (D) Pericardium

Roll No _____ (To be filled in by the candidate) **(Academic Sessions 2020 – 2022 to 2023 – 2025)**

BIOLOGY 224-1st Annual-(INTER PART – I) Time Allowed : 2.40 hours

PAPER – I (Essay Type) GROUP – II Maximum Marks : 68

SECTION – I

2. Write short answers to any EIGHT (8) questions : 16

(i) Define specific heat capacity of water. What is the value of specific heat of vaporization of water?
(ii) Define enzyme. What is the function of binding site of the enzyme?
(iii) Distinguish between reversible and irreversible inhibitors of enzymes.
(iv) How the low and high temperatures respectively effect an enzyme activity?
(v) Name soil dwelling carnivorous fungus. How does it feed on soil nematodes?
(vi) Define bioremediation. What is the role of lichens during ecological succession?
(vii) Why annelids and arthropods are considered having same origin?
(viii) What is the economic importance of mollusca?
(ix) Differentiate the ostia and osculum.
(x) Define regeneration. Name the phylum in which regeneration is common.
(xi) State the location of chloroplasts inside the leaf. Give their number per square millimeter of leaf surface also.
(xii) Differentiate the external and cellular respiration.

3. Write short answers to any EIGHT (8) questions : 16

(i) What is biological control? Write one example.
(ii) Differentiate terms biotechnology and molecular biology.
(iii) Give chemical composition of primary and secondary cell wall.
(iv) Write down two salient features of cell theory.
(v) What are trichonymphas?
(vi) Give important features of red algae (any two).
(vii) What is the role of pellicle in ciliates?
(viii) How chalk was and is formed by foraminiferans?
(ix) What is respiratory distress syndrome?
(x) Write down two properties of respiratory surfaces in animals.
(xi) Differentiate terms imbibition and guttation.
(xii) What is incipient plasmolysis?

4. Write short answers to any SIX (6) questions : 12

(i) Differentiate the capsids and capsomeres.
(ii) Compare nucleus with nucleoid.
(iii) Name two living genera of Psilopsida.
(iv) How would you compare microphylls and megaphylls?
(v) What is prothallus? Give an example.
(vi) What do you know about an embryo sac?
(vii) What are deficiency symptoms of potassium and nitrogen in plants?
(viii) How the predator-prey interaction helps in maintaining ecosystem stable?
(ix) What is the difference between carnivores and omnivores?

SECTION – II

Note : Attempt any THREE questions.

5. (a) What is biological organization, explain it at organ and system level. 1,3
   (b) Describe respiration in birds. 4
6. (a) Give first two levels of protein organization. 4
   (b) Discuss different methods of asexual reproduction in fungi. 4
7. (a) Differentiate the prokaryotic and eukaryotic cells. 2,2
   (b) Write detailed note on digestion in cockroach. 4
8. (a) Discuss four viral diseases. 4
   (b) Describe lymphatic system. 4
9. (a) Describe different methods of nutrition in bacteria. 2,2
   (b) Describe Z-scheme of non-cyclic phosphorylation. 4

Roll No _____ (To be filled in by the candidate) **(Academic Sessions 2019 – 2021 to 2022 – 2024)**

BIOLOGY 223-1st Annual-(INTER PART – I) Time Allowed : 20 Minutes

Q.PAPER – I (Objective Type) GROUP – I Maximum Marks : 17

PAPER CODE = 6461

Note : Four possible answers A, B, C and D to each question are given. The choice which you think is correct, fill that circle in front of that question with Marker or Pen ink in the answer-book. Cutting or filling two or more circles will result in zero mark in that question.

1-1	The reasoning which moves from specific to general :			
	(A) Productive	(B) Inclusive	(C) Deductive	(D) Inductive
2	Nucleohistones play an important role in the regulation of :			
	(A) Assimilation	(B) Nerve impulse		
	(C) Gene expression	(D) Gene replication		
3	Which is active form of protein digesting enzyme :			
	(A) Lipase	(B) Pepsin	(C) Pepsinogen	(D) Amylase
4	Who discovered the nucleus in the cell 1st time :			
	(A) Robert Koch	(B) F. Mischer	(C) P.A Leven	(D) Robert Brown
5	The major cells infected by HIV are :			
	(A) Red blood cells	(B) White blood cells		
	(C) T-lymphocyte	(D) Platelets		
6	Spirochete bacteria are :			
	(A) Thick	(B) Rigid		
	(C) Thin and flexible	(D) Rigid and flexible		
7	Which parasitic flagellate cause sleeping sickness :			
	(A) Abacter	(B) Trypanosoma	(C) Paramecium	(D) Stentor
8	The ecological aspect of fungi is :			
	(A) Runner	(B) Parasitic	(C) Pathogenic	(D) Recycler
9	The example of arthrophyte is :			
	(A) Equisetum	(B) Lycopodium	(C) Psilotum	(D) Selaginella
10	The internal buds in the sponges are called :			
	(A) Substratum	(B) Osculum	(C) Gemmules	(D) Blastostyle
11	The most primitive and jawless fishes include the class :			
	(A) Chondrichthyes	(B) Cyclostomata	(C) Osteichthyes	(D) Operculata
12	Which one is energy capturing process :			
	(A) Thermodynamics	(B) Photosynthesis	(C) Respiration	(D) Bioenergetics
13	In which part of chloroplast dark reactions take place :			
	(A) Grana	(B) Intergrana	(C) Stroma	(D) Thylakoid
14	Which is the example of omnivore :			
	(A) Earthworm	(B) Parrot	(C) Goat	(D) Crows
15	The volume of residual air in the human lungs is :			
	(A) 1.5 litre	(B) 3.5 litre	(C) 5 litre	(D) 2.5 litre
16	Which type of leucocytes form pus at infection sites :			
	(A) Basophils	(B) Neutrophils	(C) Oesinophils	(D) Leptophils
17	Antibodies are manufactured in :			
	(A) B lymphocytes	(B) Erythrocytes	(C) Leucocytes	(D) Bryophytes

Roll No _____ (To be filled in by the candidate) **(Academic Sessions 2019 – 2021 to 2022 – 2024)**

BIOLOGY 223-1st Annual-(INTER PART – I) Time Allowed : 2.40 hours

PAPER – I (Essay Type) GROUP – I Maximum Marks : 68

SECTION – I

2. Write short answers to any EIGHT (8) questions : 16

(i) Give the function of mRNA.
(ii) Define reversible and irreversible inhibitors.
(iii) Differentiate between apoenzyme and holoenzyme.
(iv) Give the effect of temperature on the rate of enzyme action.
(v) What is aspergillosis?
(vi) Give two ecological importance of fungi.
(vii) Compare bilateral symmetry and radial symmetry.
(viii) Give two characteristics of phylum Cnidaria with example.
(ix) What are tunicates? Give example.
(x) Why birds have gizzard, justify.
(xi) What are cytochromes? Give their role.
(xii) Define Glycolysis, where it takes place?

3. Write short answers to any EIGHT (8) questions : 16

(i) What is the use of chemotherapy?
(ii) Define biodiversity. Give percentage of different groups of organisms.
(iii) Write down functions of endoplasmic reticulum. (at least 4)
(iv) What is cell fractionation?
(v) Give important features of red algae.
(vi) What are trichonymphas, give role.
(vii) Define thallus.
(viii) Give two features of ciliates.
(ix) What are fronds?
(x) Differentiate between homospory and heterospory.
(xi) Why pericardium is important for heart?
(xii) What do you know about blue babies?

4. Write short answers to any SIX (6) questions : 12

(i) Write the scientific name of potato and tomato.
(ii) How microbes are controlled by disinfectants?
(iii) Differentiate between ingestion and egestion.
(iv) How does absorption of fats differ from absorption of glucose?
(v) What is the role of ' secretin' in digestion?
(vi) How does breathing differ from cellular respiration?
(vii) Give percentage of CO_2 in arterial and venous blood.
(viii) Why photorespiration occurs in plants?
(ix) What is epiglottis? Write its function.

SECTION – II

Note : Attempt any THREE questions.

5. (a) How scientific problem is resolved? Write its methodology. 4
   (b) Explain lymphatic system in man. 4

6. (a) Write a note on Acylglycerols. 4
   (b) Draw the life cycle of Rhizopus (Black Bread Mold). 4

7. (a) Describe chemical methods for the control of bacteria. 4
   (b) Write down characteristics of anthoceropsida. 4

8. (a) Describe the infection cycle of HIV. 4
   (b) Photosynthesis is a energy producing process. Justify the statement. 4

9. (a) What are the four main differences between prokaryotes and eukaryotes? 4
   (b) Explain the phenomenon of digestion in oral cavity of human's. 4

Roll No _____ (To be filled in by the candidate) **(Academic Sessions 2019 – 2021 to 2022 – 2024)**

BIOLOGY 223-1st Annual-(INTER PART – I) Time Allowed : 20 Minutes

Q.PAPER – I (Objective Type) GROUP – II Maximum Marks : 17

PAPER CODE = 6466

Note : Four possible answers A, B, C and D to each question are given. The choice which you think is correct, fill that circle in front of that question with Marker or Pen ink in the answer-book. Cutting or filling two or more circles will result in zero mark in that question.

1-1	Loligo, Sepia and Octopus are examples of class :			
	(A) Bivalvia	(B) Cephalopoda	(C) Oligochaeta	(D) Gastropoda
2	Bacteria divide at exponential rate during :			
	(A) Decline phase	(B) Log phase	(C) Lag phase	(D) Stationary phase
3	The number of chloroplast in each mesophyll cell is about :			
	(A) 10 – 100	(B) 10 – 200	(C) 20 – 100	(D) 20 – 200
4	In free state, glucose is present in :			
	(A) Dates	(B) Amylose	(C) Glycogen	(D) Cellulose
5	Histamine is produced by :			
	(A) Neutrophils	(B) Oesinophils	(C) Basophils	(D) Monocytes
6	Fungi can tolerate wide range of pH from :			
	(A) 2 – 9	(B) 3 – 10	(C) 4 – 11	(D) 1 – 13
7	The nucleus and cytoplasm collectively form :			
	(A) Cytosol	(B) A Sol.	(C) A Gel	(D) Protoplasm
8	The number of species of insects in biodiversity is :			
	(A) 17.6	(B) 53.1	(C) 19.9	(D) 9.4
9	Madreporite is related to :			
	(A) Annelida	(B) Echinodermata	(C) Birds	(D) Mollusca
10	The number of air sacs in birds are :			
	(A) 6	(B) 7	(C) 8	(D) 9
11	Double fertilization occurs in :			
	(A) Bryophyta	(B) Pteridophytes	(C) Angiosperms	(D) Gymnosperms
12	Hepatitis " D" is also called :			
	(A) Serum hepatitis	(B) Infectious hepatitis		
	(C) Delta hepatitis	(D) Bacterial hepatitis		
13	The left systemic disappears in :			
	(A) Amphibians	(B) Birds	(C) Fishes	(D) Reptiles
14	Mosquitoes inject plasmodium to human in form of :			
	(A) Cysts	(B) Sporozoites	(C) Merozoites	(D) Gametocytes
15	Non-protein part attached to enzyme is called :			
	(A) Activator	(B) Coenzyme	(C) Co-factor	(D) Substrate
16	Dark reactions take place :			
	(A) Thylakoids	(B) Grana	(C) Stroma	(D) Mitochondria
17	Liver secretes bile into :			
	(A) Stomach	(B) Duodenum	(C) Jejunum	(D) Ilum

Roll No _____ (To be filled in by the candidate) **(Academic Sessions 2019 – 2021 to 2022 – 2024)**

BIOLOGY 223-1st Annual-(INTER PART – I) Time Allowed : 2.40 hours

PAPER – I (Essay Type) GROUP – II Maximum Marks : 68

SECTION – I

2. Write short answers to any EIGHT (8) questions : **16**

(i) Differentiate between fibrous and globular proteins.
(ii) How does Lock and Key model of enzymes differ from induce fit model of enzymes?
(iii) Explain effects of PH at the activity of enzymes.
(iv) Distinguish between irreversible and reversible inhibitors.
(v) What do you know about active predators fungi?
(vi) Differentiate between rusts and smuts.
(vii) How does corals differ from coral reefs?
(viii) Write zoological names of any two parasites belong to aschelminthes.
(ix) Write any four characteristics of class cyclostomata.
(x) Why varanope is important in mammals?
(xi) Define bioenergetics.
(xii) What is the role of RUBP for plants?

3. Write short answers to any EIGHT (8) questions : **16**

(i) Differentiate tissue and organ level.
(ii) What is the effective control of a disastrous disease, write shortly?
(iii) Define fluid mosaic model of cell membrane.
(iv) What are ribonucleo-proteins? What are their functions?
(v) How choanoflagellates differ from trichonymphas?
(vi) Why the ciliates have two nuclei?
(vii) How phylum rhodophyta is unique from the other groups of algae?
(viii) Write a short note on amoebas.
(ix) Differentiate class gymnospermae from angiospermae.
(x) What are arthrophytes? Write down the name of one living organism.
(xi) What is the result of uncontrolled growth of white blood cells?
(xii) Define the term guttation.

4. Write short answers to any SIX (6) questions : **12**

(i) HIV is host specific. Give reason.
(ii) What are plasmids?
(iii) What are gastric glands?
(iv) Differentiate between appendix and appendicitis.
(v) How tripsinogen is activated?
(vi) Compare composition of inhaled and exhaled air.
(vii) How diving mammals differ from non divers?
(viii) What is asthma?
(ix) Differentiate between pleura and diaphragm.

SECTION – II

Note : Attempt any THREE questions.

5. (a) Describe the conservation and protection of environment. 4
   (b) In what way transpiration is evil or beneficial for plants. 4

6. (a) What are oligosaccharides? Give example. 4
   (b) Describe land adaptation of fungi. 4

7. (a) How many groups of bacteria are present in nature on the basis of shape of bacteria? 4
   (b) Describe life cycle of pinus. 4

8. (a) Write a detailed note on Hepatitis, causes and different types. 4
   (b) What is oxidative phosphorylation? Explain respiratory ETC. 4

9. (a) Write a note on golgi apparatus. 4
   (b) Describe digestion in oral cavity in man. 4

Roll No _____ (To be filled in by the candidate) **(Academic Sessions 2018 – 2020 to 2021 – 2023)**

BIOLOGY 222-(INTER PART – I) Time Allowed : 20 Minutes

Q.PAPER – I (Objective Type) GROUP – I Maximum Marks : 17

PAPER CODE = 6467

Note : Four possible answers A, B, C and D to each question are given. The choice which you think is correct, fill that circle in front of that question with Marker or Pen ink in the answer-book. Cutting or filling two or more circles will result in zero mark in that question.

1-1	Enterokinase enzyme is secreted by lining of :			
	(A) Pancreas	(B) Liver	(C) Duodenum	(D) Stomach
2	Corn smut is caused by :			
	(A) Candida albicans	(B) Aspergillus fumigatus		
	(C) Penicillium notatum	(D) Ustilago maydis		
3	Prions are made up of :			
	(A) Nucleic acids	(B) Proteins	(C) Lipids	(D) Carbohydrates
4	The parasite which produces anticoagulant to prevent blood clotting is :			
	(A) Hook worm	(B) Pin worm	(C) Ascaris	(D) Fasciola
5	The female gametophyte of flowering plant consists of ---- cells :			
	(A) 2	(B) 4	(C) 7	(D) 8
6	The compounds which on hydrolysis yield polyhydroxy aldehyde or ketone sub units are :			
	(A) Carbohydrates	(B) Proteins	(C) Lipids	(D) Nucleic acids
7	The cells which supply ATP and proteins to sieve tubes are :			
	(A) Fibers	(B) Companion cells	(C) Scleriedes	(D) Guard cells
8	A cube of eight cocci is called :			
	(A) Diplococci	(B) Streptococci	(C) Tetrad	(D) Sarcina
9	Which part of light spectrum produces more oxygen during photosynthesis :			
	(A) Blue	(B) Green	(C) Yellow	(D) Red
10	Pasteurization technique is widely used for preservation of :			
	(A) Water	(B) Meat	(C) Milk and milk products	(D) Vaccines
11	Blastopore forms anus in :			
	(A) Echinodermata	(B) Annelida	(C) Nematoda	(D) Mollusca
12	The raw material from which coenzymes are made :			
	(A) Proteins	(B) Nucleic acids	(C) Vitamins	(D) Carbohydrates
13	Smoker's cough cause :			
	(A) Asthma	(B) Emphysema	(C) Cancer	(D) Tuberculosis
14	Number of NADH produced by passing one pyruvate molecule through Krebs Cycle and pyruvic acid oxidation is / are :			
	(A) 1	(B) 2	(C) 3	(D) 4
15	The weight of blood in a man of 60 kg is :			
	(A) 5 kg	(B) 10 kg	(C) 15 kg	(D) 20 kg
16	Tests of foraminifera are made of :			
	(A) Potassium	(B) Calcium	(C) Silica	(D) Iron
17	Organelle involved in the synthesis of ATP is :			
	(A) Ribosomes	(B) Nucleus	(C) Centriole	(D) Mitochondria

Roll No _____ (To be filled in by the candidate) **(Academic Sessions 2018 – 2020 to 2021 – 2023)**

BIOLOGY 222-(INTER PART – I) Time Allowed : 2.40 hours

PAPER – I (Essay Type) GROUP – I Maximum Marks : 68

SECTION – I

2. Write short answers to any EIGHT (8) questions : 16

(i) Why lipids store double amount of energy than carbohydrates?
(ii) Why inhibitors affect enzyme function? Mention with examples.
(iii) Why binding site and catalytic site are important for enzymes?
(iv) Why enzymes are affected by extreme changes in pH?
(v) Enlist six plant diseases caused by fungi.
(vi) Define nuclear mitosis in fungi.
(vii) Give four diagnostic characters of mammals.
(viii) What do you know about harmful insects?
(ix) Differentiate between polyp and medusa.
(x) Define radial and bilateral symmetry with examples.
(xi) What is compensation point? When it occurs?
(xii) How action spectrum can be obtained?

3. Write short answers to any EIGHT (8) questions : 16

(i) Define population and give its four attributes.
(ii) What do you know about integrated disease management?
(iii) Why plasma membrane do not allow all the substances to cross it?
(iv) Which organelle of the cell engulfs the foreign objects, also give the purpose of this process?
(v) Why protists are considered as polyphyletic? Give two examples of animal like protists.
(vi) How foraminiferous have poles in their shells? By which way shell is transformed into chalk?
(vii) What do you know about amoeba?
(viii) How red algae are differentiated from green algae?
(ix) What is phylogenetic system of classification?
(x) Give characteristics of bryophytes (briefly).
(xi) Write factors which are responsible for bleeding in plants.
(xii) Define immunity and name its types.

4. Write short answers to any [illegible] questions : 12

(i) On the basis of morphology, how viruses are classified?
(ii) What are mesosomes? Describe their functions.
(iii) Write name of four parts of digestive system of cockroach.
(iv) How our oral cavity selects food for further digestion?
(v) Differentiate between peristalsis and antiperistalsis.
(vi) What is rubisco? Give its function.
(vii) Enlist types of respiration in frog.
(viii) Differentiate between diaphragm and pleura.
(ix) What is myoglobin? How it differs from haemoglobin?

SECTION – II

Note : Attempt any THREE questions.

5. (a) The environment of Pakistan is deteriorating day by day, suggest various measures to conserve it. 4
   (b) Write down any eight functions of blood. 4
6. (a) What are polysaccharides? Give details of some biologically important polysaccharides. 4
   (b) Describe economic gains due to fungi. 4
7. (a) How bacteria are classified on the basis of nutrients and energy trapping methods? 4
   (b) How plants applied their different features to live successfully on land? 4
8. (a) What is nomenclature, describe its importance with the help of examples? 4
   (b) Draw the outlines of Kreb's Cycle. 4
9. (a) What do you know about endoplasmic reticulum? Explain with diagram. 4
   (b) Food poisoning and obesity are diseases related to nutrition. Discuss. 4

Roll No _____ (To be filled in by the candidate) **(Academic Sessions 2018 – 2020 to 2021 – 2023)**

BIOLOGY 222-(INTER PART – I) Time Allowed : 20 Minutes

Q.PAPER – I (Objective Type) GROUP – II Maximum Marks : 17

PAPER CODE = 6462

Note : Four possible answers A, B, C and D to each question are given. The choice which you think is correct, fill that circle in front of that question with Marker or Pen ink in the answer-book. Cutting or filling two or more circles will result in zero mark in that question.

1-1	The study of distribution of animals in nature is called :			
	(A) Wildlife	(B) Zoogeography	(C) Geography	(D) Biodiversity
2	Fats and oil have specific gravity of about :			
	(A) 0.8	(B) 8	(C) 0.08	(D) 0.008
3	Co-enzyme is closely related to :			
	(A) Vitamins	(B) Water	(C) Minerals	(D) Lipids
4	The number of nuclear pores in undifferentiated cells (such as eggs) are :			
	(A) 3000	(B) 40,000	(C) 5000	(D) 30,000
5	Prions are made up of :			
	(A) Lipid	(B) DNA	(C) Protein	(D) RNA
6	Choose the smallest bacteria :			
	(A) E.Coli	(B) Mycoplasma	(C) Spirochetes	(D) Staphylococci
7	Example of apicomplexans is :			
	(A) Amoeba	(B) Paramecium	(C) Bacteria	(D) Plasmodium
8	Histoplasmosis is a disease of :			
	(A) Liver	(B) Skin	(C) Lung	(D) Brain
9	Clitoria ternatea is used against :			
	(A) Dog bite	(B) Scorpion bite	(C) Snake bite	(D) Wasp bite
10	The largest invertebrate is :			
	(A) Earthworm	(B) Giant squid	(C) Ascaris	(D) Star fish
11	Which one of the following does not belong to phylum platyhelminthes :			
	(A) Crab	(B) Planaria	(C) Liver fluke	(D) Tape worm
12	How many CO_2 molecules are produced from complete breakdown of one pyruvate :			
	(A) 2	(B) 4	(C) 6	(D) 3
13	Chlorophyll molecule contains following except :			
	(A) Magnesium	(B) Iron	(C) Porphyrin ring	(D) Phytol
14	A plant requires nitrogen and sulphur for its :			
	(A) DNA replication	(B) Cell wall	(C) Enzymes	(D) Starch
15	How much air can hold fully inflated lungs :			
	(A) 4 litres	(B) 4.5 litres	(C) 5 litres	(D) 5.5 litres
16	Closed circulatory system is present in animals except :			
	(A) Squid	(B) Spiders	(C) Octopus	(D) Fish
17	Following are organic nutrients present in the blood except :			
	(A) Glucose	(B) Fats	(C) Amino acids	(D) Sodium chloride

Roll No _____ (To be filled in by the candidate) **(Academic Sessions 2018 – 2020 to 2021 – 2023)**

BIOLOGY 222-(INTER PART – I) Time Allowed : 2.40 hours

PAPER – I (Essay Type) GROUP – II Maximum Marks : 68

SECTION – I

2. Write short answers to any EIGHT (8) questions : 16

(i) Which role is played by cellulose digesting enzymes in plant eating animals, discuss briefly.
(ii) At constant temperature and pH, how rate of reaction can be doubled?
(iii) In which way inhibitors stop catalytic activity of the enzymes? Give one example.
(iv) Why enzymes remain unaltered after the formation of products?
(v) How rust is differentiated from smut?
(vi) What is parasexuality in fungi?
(vii) Name the phylum of these animals, octopus, tape worm, leech and dolphin.
(viii) Give two differences between protostomes and deuterostomes.
(ix) What do you know about pseudocoelomates?
(x) Define polymorphism, also give an example.
(xi) Differentiate between photosystem-I and photosystem-II.
(xii) Write name of four stages of cellular respiration.

3. Write short answers to any EIGHT (8) questions : 16

(i) Compare radiotherapy and gene therapy to control diseases.
(ii) Differentiate between embryonic and organism cloning.
(iii) How cell membrane is differentially permeable membrane? Justify it.
(iv) What is the factory of synthesis of protein and ribosomes?
(v) Basically kingdom protista is defined by exclusion, how?
(vi) How slime moulds adopt unfavourable and favourable conditions?
(vii) Why phytophthora infestans is infamous in human history?
(viii) What type of pigments are found in rhodophyta and chlorophyta?
(ix) Define double fertilization. Give its importance.
(x) Write scientific names of potato and amaltas.
(xi) Describe apoplast pathway.
(xii) What are granulocytes?

4. Write short answers to any SIX (6) questions : 12

(i) Write down contributions of E-Chatton.
(ii) Shortly write down the structure of bacteria.
(iii) Write down the role of nitrogen and phosphorus in plant growth.
(iv) Write few lines on filter feeders.
(v) Differentiate cardiac and pyloric sphincter with reference to their function.
(vi) Write down CO_2 concentration in arterial and venous blood.
(vii) What is the role of partial pressure of O_2 during shock?
(viii) Write short note on asthma.
(ix) How rubisco is converted into serine?

SECTION – II

Note : Attempt any THREE questions.

5. (a) Give the details of biological conservation and protection of environment. 4
   (b) What is immunity? Discuss its major types. 4

6. (a) What is RNA? Describe its different types. 4
   (b) Discuss the economic gains due to fungi. 4

7. (a) Cell membrane and nuclear material of bacteria differ from that of eukaryotic cell. Explain. 4
   (b) How the life cycle of an angiospermic plant differs from a gymnospermic plant? 4

8. (a) Illustrate the life cycle of bacteriophage diagrammatically. 4
   (b) Give in detail the carbon fixation and reduction phase of Calvin Cycle. 4

9. (a) Discuss structure and chemical composition of cell wall. 4
   (b) Explain the process of digestion in oral cavity of man. 4

Roll No _____ (To be filled in by the candidate) **(Academic Sessions 2017 – 2019 to 2020 – 2022)**

BIOLOGY 221-(INTER PART – I) Time Allowed : 20 Minutes

Q.PAPER – I (Objective Type) GROUP – I Maximum Marks : 17

PAPER CODE = 6465

Note : Four possible answers A, B, C and D to each question are given. The choice which you think is correct, fill that circle in front of that question with Marker or Pen ink in the answer-book. Cutting or filling two or more circles will result in zero mark in that question.

1-1	A respiratory pigment of blue in color called haemocyanin is present in animals of which phylum : (A) Porifera (B) Coelentrata (C) Mollusca (D) Arthropoda
2	In bacteria when the division is in three planes it will produce which arrangement : (A) Streptococcus (B) Tetrad (C) Sarcina (D) Diplococcus
3	As a result of energy conversion during light dependant reaction, reducing and assimilatory power is formed in the form of : (A) NADP (B) ADP (C) NAD (D) $NADPH_2$ and ATP
4	Water makes how much percent of total cell weight in bacterial cell : (A) 40% (B) 50% (C) 60% (D) 70%
5	In myocardial infarction, which organ is affected : (A) Lungs (B) Eye (C) Kidney (D) Heart
6	Nuclear fusion in basidium is followed by : (A) Meiosis (B) Mitosis (C) Budding (D) Binary fission
7	One micrometer (μm) is equal to : (A) 1×10^{-6} of a meter (B) 1×10^{-7} of a meter (C) 1×10^{-8} of a meter (D) 1×10^{-9} of a meter
8	Zoogeography is study of distribution of what in nature : (A) Animals (B) Plants (C) Trees (D) Zoos
9	Shark liver oil is used in medicine as a source of vitamins : (A) A and B (B) A and C (C) A and D (D) A and E
10	Oxygen diffuses how many times more quickly in air than in water : (A) 8 times (B) 80 times (C) 800 times (D) 8000 times
11	Which is included in non-vascular plants : (A) Hornworts (B) Whisk ferns (C) Club mosses (D) Horse tails
12	The major cell infected by HIV is : (A) B-lymphocytes (B) Neutrophils (C) Helper T-lymphocytes (D) Basophils
13	It is a third mechanism to defend the body against the foreign invaders is : (A) Skin (B) Mucous membranes (C) Phagocytes (D) Immune system
14	Trypanosoma is transmitted by the bite of infected : (A) Mosquito (B) Dragon fly (C) House fly (D) Tsetse fly
15	An activated enzyme consisting of polypeptide chain and a cofactor is known as : (A) Holoenzyme (B) Apoenzyme (C) Alloenzyme (D) Co-enzyme
16	Which of the following is related to phytol : (A) $C_{20}H_{39}$ (B) $C_{39}H_{20}$ (C) $C_{22}H_{40}$ (D) $C_{40}H_{22}$
17	Incomplete or imperfect digestion is called : (A) Ulcer (B) Obesity (C) Dyspepsia (D) Botulism

Roll No _____ (To be filled in by the candidate) **(Academic Sessions 2017 – 2019 to 2020 – 2022)**

BIOLOGY 221-(INTER PART – I) Time Allowed : 2.40 hours

PAPER – I (Essay Type) GROUP – I Maximum Marks : 68

SECTION – I

2. Write short answers to any EIGHT (8) questions : **16**

(i) Write down the functions of proteins.
(ii) Define co-factor and activator.
(iii) What do you mean by lock and key method?
(iv) Differentiate between competitive and non-competitive inhibitors.
(v) Differentiate between septate and non-septate hyphae.
(vi) How fungi is economically helpful in food industry?
(vii) Differentiate between proterostomia and deuterostomia
(viii) How locomotion takes place in annelids?
(ix) Define metamorphosis.
(x) How mammals have evolved from reptilian ancestors?
(xi) What is Rubisco? Write down its functions.
(xii) Write down the molecular formulae for chlorophyll " a " and " b ".

3. Write short answers to any EIGHT (8) questions : **16**

(i) Define biotechnology.
(ii) Define hydroponic culture technique.
(iii) What is cell fractionation technique?
(iv) Differentiate between microtubule and microfilament.
(v) What are amoebae? Give example.
(vi) What are kelps?
(vii) Give characteristics of red algae.
(viii) Define slime molds.
(ix) Define bryophytes.
(x) What is double fertilization?
(xi) Differentiate between granulocytes and agranulocytes.
(xii) What are blue babies?

4. Write short answers to any SIX (6) questions : **12**

(i) Define binomial nomenclature. Give two examples.
(ii) Write down about the structure of plasmid in bacteria.
(iii) Write about three important ingredients of saliva.
(iv) Define symbiotic nutrition.
(v) How trapping and decomposition of insects occur in pitcher plant?
(vi) Write two properties of respiratory surfaces in animals.
(vii) Define larynx.
(viii) Differentiate between diaphragm and pleura.
(ix) What is asthma?

SECTION – II

Note : Attempt any THREE questions.

5. (a) What is biological method? Discuss it under following headings : (i) Theory (ii) Law 4
   (b) Write a note on types of immunity. 4
6. (a) Describe secondary and tertiary structure of protein. 4
   (b) Write a note on ascomycetes. Also give importance of yeast. 4
7. (a) Describe physical and chemical methods to control bacteria. 4
   (b) Describe land adaptations in bryophytes. 4
8. (a) Write notes on smallpox and polio. 4
   (b) Draw and describe the Calvin Cycle. 4
9. (a) What are plastids? Give their three types and explain only chloroplast in detail. 4
   (b) Discuss nutrition in insectivorous plants. (Any two) 4

Roll No _____ (To be filled in by the candidate) **(Academic Sessions 2017 – 2019 to 2020 – 2022)**

BIOLOGY 221-(INTER PART – I) Time Allowed : 20 Minutes

Q.PAPER – I (Objective Type) GROUP – II Maximum Marks : 17

PAPER CODE = 6466

Note : Four possible answers A, B, C and D to each question are given. The choice which you think is correct, fill that circle in front of that question with Marker or Pen ink in the answer-book. Cutting or filling two or more circles will result in zero mark in that question.

1-1	Mammals have evolved from reptilian ancestors called :			
	(A) Cotylosaurs	(B) Echidna	(C) Opossum	(D) Archaeopteryx
2	Mesosomes are internal extensions of the :			
	(A) Cell membrane	(B) Cell wall	(C) Capsule	(D) Slime
3	Calvin cycle is also known as :			
	(A) C_3 pathway	(B) C_4 pathway	(C) C_5 pathway	(D) C_6 pathway
4	The heterogenous group of compounds related to fatty acids is called :			
	(A) Lipids	(B) Carbohydrates	(C) Proteins	(D) Water
5	Single circuit heart is found in :			
	(A) Amphibians	(B) Reptiles	(C) Aves	(D) Fishes
6	Lovastatin is fungal product which lowers blood :			
	(A) Sugar	(B) Cholesterol	(C) Urea	(D) Calcium
7	The process of taking in solid material by cell membrane is called :			
	(A) Pinocytosis	(B) Exocytosis	(C) Phagocytosis	(D) Autophagy
8	The reasoning that moves from general to specific is called :			
	(A) Inductive	(B) Deductive	(C) Scientific	(D) None of these
9	Which one of the following is placental mammal :			
	(A) Echidna	(B) Kangaroo	(C) Bat	(D) Kingfisher
10	Respiratory pigment present in muscles is called :			
	(A) Myoglobin	(B) Haemoglobin	(C) Haemocyanin	(D) Globulin
11	All seed producing plants are called :			
	(A) Bryophytes	(B) Anthrophytes	(C) Pteridophytes	(D) Spermatophytes
12	Solanum tuberosum is the scientific name of :			
	(A) Onion	(B) Tomato	(C) Potato	(D) Garlic
13	The pathway involving system of adjacent cell walls throughout plant root is called :			
	(A) Symplast	(B) Apoplast	(C) Plasmodesmata	(D) Vacuolar
14	Algae differ from plants in that sex organs in algae are :			
	(A) Multicellular	(B) Acellular	(C) Unicellular	(D) None of these
15	Enzymes involved in photosynthesis are found in :			
	(A) Lysosomes	(B) Chloroplast	(C) Leucoplast	(D) Vacuoles
16	Chlorophyll " a " is :			
	(A) Yellow green	(B) Blue green	(C) Orange green	(D) Red green
17	The first part of small intestine is called :			
	(A) Rectum	(B) Ileum	(C) Jejunum	(D) Duodenum

Roll No _____ (To be filled in by the candidate) **(Academic Sessions 2017 – 2019 to 2020 – 2022)**

BIOLOGY 221-(INTER PART – I) Time Allowed : 2.40 hours

PAPER – I (Essay Type) GROUP – II Maximum Marks : 68

SECTION – I

2. Write short answers to any EIGHT (8) questions : **16**

(i) What is chemical definition of carbohydrates? Give its general formulae.
(ii) Define reversible inhibitors. Name its two types.
(iii) Write the induce-fit-model of enzyme action.
(iv) Write the function of penicillin and lovastatin.
(v) Name the fruiting body of Fungi, Ascomycota and Basidiomycota.
(vi) Describe co-factor and co-enzyme.
(vii) Define term protandrous and gemmule.
(viii) What is archaeopteryx? Give its two characters.
(ix) Name two super classes of vertebrates. Give example.
(x) Write any four characters of class osteichthyes (Bony fish).
(xi) What is Cytochrome? Give its role.
(xii) Define chemiosmosis.

3. Write short answers to any EIGHT (8) questions : **16**

(i) What is inductive reasoning, give one example?
(ii) Write briefly about hydroponic culture technique.
(iii) Why the plasma membrane is a differentially permeable membrane?
(iv) Differentiate between microtubules and microfilaments.
(v) Write two characters of Zooflagellates.
(vi) Write the functions of micronucleus and macronucleus in ciliates.
(vii) Write two characters of euglenoids.
(viii) How does conjugation occur in ciliates?
(ix) What is heterospory?
(x) Define double fertilization, in which plants it occur.
(xi) What is apoplast pathway?
(xii) Define imbibition in plants.

4. Write short answers to any SIX (6) questions : **12**

(i) Define binomial system of nomenclature.
(ii) What are microaerophilic bacteria? Give one example.
(iii) What are leguminous plants?
(iv) Differentiate between intracellular and extra cellular digestion.
(v) What is antiperistalsis?
(vi) How aquatic plants obtain their oxygen?
(vii) What is a larynx?
(viii) What is diaphragm?
(ix) What is the main cause of lungs cancer?

SECTION – II

Note : Attempt any THREE questions.

5. (a) How biology has helped in increasing food production? 4
   (b) Explain various functions of blood in human. 4

6. (a) Write short note on lipids. 4
   (b) Give detail of taxonomic status of fungi. 4

7. (a) Describe characteristics of cyanobacteria. 4
   (b) Elaborate evolution of seed habit in plants. 4

8. (a) Describe infection cycle of HIV. 4
   (b) Draw and explain glycolysis in detail. 4

9. (a) Write a note on structure and function of plastids. 4
   (b) Write about food poisoning and obesity. 4

No _____ (To be filled in by the candidate) **(Academic Sessions 2015 – 2017 to 2018 – 2020)**

LOGY 219-(INTER PART – I) Time Allowed : 20 Minutes

\PER – I (Objective Type) GROUP – I Maximum Marks : 17

PAPER CODE = 6467

Four possible answers A, B, C and D to each question are given. The choice which you think is correct, fill that circle in front of that question with Marker or Pen ink in the answer-book. Cutting or filling two or more circles will result in zero mark in that question.

1-1	In cockroach partly digested food is temporarily stored in :			
	(A) Rectum	(B) Gizzard	(C) Crop	(D) Colon
2	Most common smut fungi are :			
	(A) Ustilago	(B) Puccinia	(C) Penicillium	(D) Yeast
3	AIDS is caused by :			
	(A) Fungi	(B) Bacteria	(C) Virus	(D) Algae
4	Ascaris Lumbricoides is an intestinal parasite of :			
	(A) Monkey	(B) Man	(C) Horse	(D) Camel
5	Lycopsids are commonly called :			
	(A) Whisk ferns	(B) Horse tails	(C) Club mosses	(D) Hornworts
6	Cotton is a pure form of :			
	(A) Cellulose	(B) Glycogen	(C) Wax	(D) Starch
7	The casparian strips are present in :			
	(A) Cortex cells of roots	(B) Cells of pericycle		
	(C) Endodermis cells of roots	(D) Cells of phloem		
8	Which one of the following is acrobic bacteria :			
	(A) Campylobacter	(B) E.Coli	(C) Pseudomonas	(D) Spirochaete
9	In respiratory chain NADH is oxidized by :			
	(A) Cytochrome b	(B) Co-enzyme Q	(C) Oxygen	(D) H_2O
10	Muscles of stomach are of which type :			
	(A) Skeletal	(B) Smooth	(C) Cardiac	(D) Voluntary
11	Excretory system of flatworms is composed of :			
	(A) Nephron	(B) Nephridia	(C) Flame cells	(D) Villi
12	Poisons, like cyanide are examples of :			
	(A) Enzymes	(B) Co-enzymes	(C) Inhibitors	(D) Co-factors
13	The respiratory system is most efficient in :			
	(A) Man	(B) Birds	(C) Fish	(D) Snake
14	Which metal atom is present in chlorophyll :			
	(A) Cu	(B) Fe	(C) Mg	(D) K
15	The substance which inhibits blood clotting :			
	(A) Heparin	(B) Histamine	(C) Fibrin	(D) Albumin
16	Common name for pyrrophyta is :			
	(A) Euglenoids	(B) Diatoms	(C) Dinoflagellates	(D) Kelps
17	Cell membrane has 60 – 80 % :			
	(A) Lipids	(B) Proteins	(C) Carbohydrates	(D) Vitamins

Roll No _____ (To be filled in by the candidate) (Academic Sessions 2015 – 2017 to 2018 – 2020)

BIOLOGY 219-(INTER PART – I) Time Allowed : 2.40 hours

PAPER – I (Essay Type) GROUP – I Maximum Marks : 68

SECTION – I

2. Write short answers to any EIGHT (8) questions : 16

(i) Define conjugated molecules.
(ii) How enzyme concentration affects the rate of enzyme action?
(iii) Define lock and key model of enzyme.
(iv) What is enzyme to enzyme chain?
(v) Differentiate between fragmentation and budding in fungi.
(vi) What is mycorrhizae? Give its types.
(vii) Differentiate between proterostomia and deuterostomia.
(viii) Define polymorphism. Also give example.
(ix) What do you know about class hirudinca?
(x) Write down some general characteristics of class chondrichthyes.
(xi) Define chemiosmosis.
(xii) Write down the molecular formulae of chlorophyll " a " and " b ".

3. Write short answers to any EIGHT (8) questions : 16

(i) Differentiate between biocontrol and bioremediation.
(ii) What is cloning? Write one method of cloning.
(iii) How intermediate filaments support cell?
(iv) Give role of vacuole in plant cell.
(v) Why slime molds are included in kingdom protoctista?
(vi) Differentiate between zooflagellates and dinoflagellates.
(vii) Why euglena is difficult to classify?
(viii) Write features of chrysophyta.
(ix) Differentiate between monocots and dicots.
(x) Which plant group is called arthrophytes and why?
(xi) What are lenticels? Write their use.
(xii) Give blood route in fish circulatory system.

4. Write short answers to any SIX (6) questions : 12

(i) What is capsid and capsomeres?
(ii) What is contribution of Louis Pasteur in microbiology?
(iii) What are hunger pangs?
(iv) What are hemorrhoids?
(v) Define assimilation.
(vi) What are spiracles?
(vii) Why photorespiration occurs in plants?
(viii) What are parabronchi?
(ix) What is respiratory distress syndrome?

SECTION – II

Note : Attempt any THREE questions.

5. (a) Write in detail, drug treatment and gene therapy. 4
   (b) Discuss functions of lymphatic system. 4
6. (a) Describe primary and secondary structure of protein. 4
   (b) Discuss asexual reproduction in fungi. 4
7. (a) Discuss nutrition of bacteria. 4
   (b) Describe economic importance of poaceae. 4
8. (a) Discuss life cycle of bacteriophage. 4
   (b) Sketch two phases of glycolysis. 4
9. (a) Describe structure and functions of mitochondria. 4
   (b) Discuss process of absorption in large intestine. 4

Roll No _____ (To be filled in by the candidate) (Academic Sessions 2015 – 2017 to 2018 – 2020)

BIOLOGY 219-(INTER PART – I) Time Allowed : 20 Minutes

Q.PAPER – I (Objective Type) GROUP – II Maximum Marks : 17

PAPER CODE = 6466

Note : Four possible answers A, B, C and D to each question are given. The choice which you think is correct, fill that circle in front of that question with Marker or Pen ink in the answer-book. Cutting or filling two or more circles will result in zero mark in that question.

1-1	Organ of voice in birds is called as			
	(A) Syrinx	(B) Larynx	(C) Tongue	(D) Pharynx
2	Cell wall is only absent in :			
	(A) E.Coli	(B) Diplococcus pneumoniae		
	(C) Hypomicrobium	(D) Mycoplasma		
3	Haem portion of haemoglobin is also a porphyrin ring but containing on iron instead of :			
	(A) Magnesium	(B) Potassium	(C) Sodium	(D) Chlorine
4	Total number of amino acids in insulin are :			
	(A) 51	(B) 141	(C) 151	(D) 50
5	Basophils produce a substance that inhibits blood clotting.			
	(A) Heparin	(B) Platelets	(C) Fibrinogen	(D) Eosinophil
6	Loose smut of wheat is caused by :			
	(A) Ustilago	(B) Penicillium	(C) Aspergillus	(D) Alternaria
7	The factory of ribosome is the :			
	(A) Nucleolus	(B) Mitochondria	(C) Chloroplast	(D) Vacuole
8	Radiotherapy and chemotherapy are used in the treatment of :			
	(A) Fever	(B) Cancer	(C) Dengue	(D) Arthritis
9	Mammals become dominant in the :			
	(A) Ordovician period	(B) Silurian period		
	(C) Cenozoic period	(D) Devonian period		
10	Most elaborate and efficient respiratory system is present in :			
	(A) Man	(B) Fish	(C) Birds	(D) Reptiles
11	The earliest group of vascular plants is :			
	(A) Lycopsida	(B) Sphenopsida	(C) Psilopsida	(D) Pteropsida
12	Pig could be the source of infection of hepatitis :			
	(A) A	(B) B	(C) E	(D) C
13	The left systemic arch disappears in :			
	(A) Mammals	(B) Fish	(C) Reptiles	(D) Birds
14	Trypanosoma is an example of :			
	(A) Amoebae	(B) Zooflagellates	(C) Ciliates	(D) Foraminiferan
15	The enzyme with optimum pH 5.50 is :			
	(A) Arginase	(B) Sucrase	(C) Pepsin	(D) Enterokinase
16	In the first step of the citric acid cycle, acetyl-CoA reacts with oxaloacetate to form :			
	(A) Succinate	(B) Rubisco	(C) Malate	(D) Citrate
17	In human stomach HCl is secreted by :			
	(A) Mucous cells	(B) Oxyntic / parietal cells		
	(C) Zymogen cells	(D) Chief cells		

)ll No _____ (To be filled in by the candidate) (Academic Sessions 2015 – 2017 to 2018 – 2020)

.OLOGY 219-(INTER PART – I) Time Allowed : 2.40 hours

\PER – I (Essay Type) GROUP – II Maximum Marks : 68

SECTION – I

Write short answers to any EIGHT (8) questions : 16

(i) What are conjugated compounds?
(ii) Differentiate between prosthetic group and coenzyme.
(iii) How enzyme substrate complex is formed?
(iv) If more enzymes are added in a system its rate of reaction remain unchanged, why?
(v) Define rust. Give example.
(vi) What are symptoms of ergotism?
(vii) Differentiate between enterocoelous and schizocoelous feature.
(viii) What is blastostyle?
(ix) How madrepora is important?
(x) Write similarities of birds and reptiles.
(xi) Draw action spectrum showing photosynthesis rate at various light colours.
(xii) Differentiate between chlorophyll – a and chlorophyll – b.

Write short answers to any EIGHT (8) questions : 16

(i) Define biotechnology.
(ii) What is deductive reasoning?
(iii) What is magnification?
(iv) Describe salient features of cell theory.
(v) What is thromboembolism?
(vi) What is systemic circulation?
(vii) How green algae and plants are identical?
(viii) What are trichonymphas?
(ix) Write two characteristics of dinoflagellates.
(x) What are the basis of diversity in protista?
(xi) What is protonema?
(xii) What are integuments?

Write short answers to any SIX (6) questions : 12

(i) Give disadvantages of common names.
(ii) Name different types of bacteria on the basis of flagella presence.
(iii) Enlist various functions of oral cavity.
(iv) What is peristalsis and antiperistalsis?
(v) Tubular digestive system is more efficient than sac like digestive system. Give reasons.
(vi) Why ventilation in water is far more difficult than air?
(vii) Write down the causes of asthma.
(viii) What happens when diving reflex is activated?
(ix) Briefly describe tuberculosis.

SECTION – II

ote : Attempt any THREE questions.

(a) Write a note on protection and conservation of environment. 4
(b) Give any eight functions of blood. 4

(a) What are polysaccharides? Discuss starch and glycogen in detail. 4
(b) Describe, giving examples, different ways in which fungi are useful to human. 4

(a) Describe characteristics of cyanobacteria. 4
(b) What adaptation made bryophytes able to live on land? 4

(a) Describe lytic cycle of bacteriophage. 4
(b) Write note on Calvin Cycle. 4

(a) Define plastids. Discuss structure and function of chloroplast. 4
(b) Discuss the process of absorption of food in small intestine. 4

Roll No _____ (To be filled in by the candidate) **(Academic Sessions 2015 – 2017 to 2017 – 2019)**

BIOLOGY 218-(INTER PART – I) Time Allowed : 20 Minutes

Q.PAPER – I (Objective Type) GROUP – I Maximum Marks : 17

PAPER CODE = 6461

Note : Four possible answers A, B, C and D to each question are given. The choice which you think is correct, fill that circle in front of that question with Marker or Pen ink in the answer-book. Cutting or filling two or more circles will result in zero mark in that question.

1-1	A group of similar cells that perform similar function is called :			
	(A) Organ	(B) Tissue	(C) System	(D) Organelle
2	Covalent bond between two monosaccharides is called :			
	(A) Glycosidic bond	(B) Peptide bond		
	(C) Hydrogen bond	(D) Ester bond		
3	Optimum pH for action of pancreatic lipase is :			
	(A) 3.00	(B) 5.00	(C) 7.00	(D) 9.00
4	De Duve discovered cell organelle :			
	(A) Mitochondria	(B) Lysosome	(C) Plastids	(D) Golgi complex
5	Which one is not a viral disease :			
	(A) Cow pox	(B) Mumps	(C) Tetanus	(D) Measles
6	Mesosomes are internal extensions of :			
	(A) Cell wall	(B) Cell membrane	(C) Golgi complex	(D) Endoplasmic reticulum
7	Amoeba moves and obtains food by means of :			
	(A) Flagella	(B) Pseudopodia	(C) Flexing	(D) Cilia
8	Parasitic fungi directly absorb nutrients from living host by :			
	(A) Haustoria	(B) Roots	(C) Rhizoids	(D) Gametangia
9	In psilopsida sporangia are produced at :			
	(A) Tips of branches	(B) In the axils of branches		
	(C) Margins of leaves	(D) Axils of leaves		
10	In mollusca, a blue respiratory pigment is present called :			
	(A) Haemoglobin	(B) Haemoerythrin	(C) Prothombin	(D) Haemocyanin
11	Cartilaginous fishes contain scales :			
	(A) Placoid	(B) Cycloid	(C) Ganoid	(D) Ctenoid
12	Calvin cycle is also known as :			
	(A) C_3 pathway	(B) C_2 pathway	(C) C_4 pathway	(D) C_5 pathway
13	Oxygen released during photosynthesis comes from :			
	(A) Water	(B) CO_2	(C) Glucose	(D) Chlorophyll
14	Organisms that live upon or within another organism are called :			
	(A) Predators	(B) Pests	(C) Parasites	(D) Hosts
15	During photorespiration glycine is converted into serine in :			
	(A) Mitochondria	(B) Golgi complex	(C) Chloroplast	(D) Ribosome
16	The total transpiration through cuticle is :			
	(A) 5 – 7%	(B) 1 – 7%	(C) 2 – 4%	(D) 2 – 5%
17	Passive immunity is developed by injecting :			
	(A) Vaccine	(B) Serum	(C) Antiserum	(D) Antibiotics

Roll No _____ (To be filled in by the candidate) **(Academic Sessions 2015 – 2017 to 2017 – 2019)**

BIOLOGY 218-(INTER PART – I) Time Allowed : 2.40 hours

PAPER – I (Essay Type) GROUP – I Maximum Marks : 68

SECTION – I

2. Write short answers to any EIGHT (8) questions : **16**

(i) Differentiate between anatomy and morphology.
(ii) Define ecosystem with an example.
(iii) Differentiate between procariotique and eucariotique.
(iv) Differentiate between substrate and active site of enzymes.
(v) Define feed back inhibition of enzymes with diagram.
(vi) What is induce fit model of enzyme action, who proposed it?
(vii) Differentiate between oligochaeta and polychaeta.
(viii) What is meant by arachnida, give its two features?
(ix) Differentiate between gastropods and cephalopods.
(x) What is regeneration, give its importance?
(xi) What is meant by parasexuality, give its importance?
(xii) Differentiate between conidiphores and coenocytic hypha.

3. Write short answers to any EIGHT (8) questions : **16**

(i) Write down four postulates of germ theory of diseases by Robert Koch.
(ii) Write four important features of algae.
(iii) What are diatoms? Write their importance.
(iv) What are the red tides? How they are formed?
(v) What are the apicomplexans?
(vi) What are the fronds?
(vii) Write botanical name of two plants belong to family solanaceae.
(viii) Write photolysis of water in photosynthesis.
(ix) What is Z-scheme of phosphorylation?
(x) Write the role of human pancreas in digestion.
(xi) What are the piles?
(xii) Differentiate between obligate parasite and facultative parasite.

4. Write short answers to any SIX (6) questions : **12**

(i) Give functions of smooth endoplasmic reticulum.
(ii) What is nucleolus? Give its function.
(iii) Define heat of vaporization. Give heat of vaporization of water.
(iv) What is imbibition?
(v) What is honey dew? Give its composition.
(vi) Give percentage of CO_2 in arterial and venous blood.
(vii) What are the important factors which affect the capacity of hemoglobin to combine with oxygen?
(viii) Write different ways of respiration in frog.
(ix) What is larynx or voice box?

SECTION – II

Note : Attempt any THREE questions.

5. (a) Write a note on population and community level of biological organization. 4
   (b) Discuss two main types of immunity. 4

6. (a) Give an account of acylglycerols. 4
   (b) Write down economic losses due to fungi. 4

7. (a) Define cell membrane. Explain its functions. 4
   (b) Write a note on digestion in amoeba. 4

8. (a) Write a note on small-pox and polio. 4
   (b) Sketch Krebs Cycle. (No description) 4

9. (a) Describe structure and reproduction in Nostoc. 4
   (b) Discuss evolution of leaf. 4

Roll No _____ (To be filled in by the candidate) **(Academic Sessions 2015 – 2017 to 2017 – 2019)**

BIOLOGY 218-(INTER PART – I) Time Allowed : 20 Minutes

Q.PAPER – I (Objective Type) GROUP – II Maximum Marks : 17

PAPER CODE = 6468

Note : Four possible answers A, B, C and D to each question are given. The choice which you think is correct, fill that circle in front of that question with Marker or Pen ink in the answer-book. Cutting or filling two or more circles will result in zero mark in that question.

1-1	Thalassaemia is also called : (A) Cooley's anaemia (B) Thomas anaemia (C) Peter's anaemia (D) Mendl's anaemia
2	All fungal nuclei are haploid except for transient diploid : (A) Spores (B) Zygote (C) Conidia (D) Zygospores
3	The single stranded RNA-tumor viruses are : (A) Spherical (B) Elongated (C) Spiral (D) Cubical
4	The asexual reproduction in sponges is by : (A) Binary fission (B) Transverse fission (C) Budding (D) Parthenogenesis
5	An ovule is an integumented in dehiscent : (A) Microsporangium (B) Megasporangium (C) Sporangium (D) Seed
6	Hydrogen bonds between adenine and thymine are : (A) Three (B) Four (C) Five (D) Two
7	The heart of fishes is : (A) Single circuit (B) Double circuit (C) Triple circuit (D) Multi circuit
8	When cocci occur in pairs, their arrangement is : (A) Tetrad (B) Diplococcus (C) Sarcina (D) Streptococci
9	Chloroplasts has a double membranous envelope that encloses dense fluid filled region known as : (A) Matrix (B) Stroma (C) Thylakoid (D) Granum
10	The bioelements which account for 99% of the total mass in the human's body are : (A) Four (B) Six (C) Eight (D) Three
11	Ascaris lumbricoides is an intestinal parasite of : (A) Horse (B) Man (C) Donkey (D) Monkey
12	An enzyme reacts only with its specific : (A) Surface (B) Product (C) Substrate (D) Inhibitor
13	Enlargement of spleen is seen in : (A) Blood cancer (B) Thalassaemia (C) Odema (D) Hepatitis
14	Thylakoid membranes are involved in ATP synthesis by a process known as : (A) Photolysis (B) Glycolysis (C) Chemiosmosis (D) Redox process
15	The enzyme that digest carbohydrates are : (A) Lipase (B) Amylase (C) Pepsin (D) Erypsin
16	The classification of algae into phyla is largely based on the composition of : (A) Cell wall (B) Cell membrane (C) Cytoplasm (D) Pigments
17	Robert Hooke reported his work in his famous publication known as : (A) Micrographia (B) Biologia (C) Zoologia (D) Britanica

Roll No _____ (To be filled in by the candidate) **(Academic Sessions 2015 – 2017 to 2017 – 2019)**

BIOLOGY 218-(INTER PART – I) Time Allowed : 2.40 hours

PAPER – I (Essay Type) GROUP – II Maximum Marks : 68

SECTION – I

2. Write short answers to any EIGHT (8) questions : 16

(i) Differentiate between micromolecules and macromolecules.
(ii) Differentiate between gene therapy and chemotherapy.
(iii) What is effect of changed pH on the working of enzymes?
(iv) Differentiate between competitive and non-competitive inhibitors.
(v) What is meant by optimum temperature? Give an example.
(vi) Write down biological classification of corn.
(vii) Differentiate between ascus and basidium.
(viii) What are toad stools? Give example.
(ix) What is diaphragm? In which group of animals it is found?
(x) Differentiate between coelomates and acoelomates.
(xi) Differentiate between diploblastic and triploblastic animals.
(xii) Write down affinities of echinoderms with hemichordates.

3. Write short answers to any EIGHT (8) questions : 16

(i) Differentiate between amphitrichous and peritrichous bacteria.
(ii) Write down the importance of algae.
(iii) Write down evolutionary significance of euglenoids.
(iv) How flagellates obtain food?
(v) Write down the ecological role of dinoflagellates.
(vi) Differentiate between microgametophyte and megagametophyte.
(vii) Define circinate vernation. Give an example.
(viii) Differentiate between photophosphorylation and oxidative phosphorylation.
(ix) Define alcoholic fermentation. Write its equation.
(x) How Sundew (Drosera) shows its insectivorous activity?
(xi) Differentiate between intracellular and extracellular digestion.
(xii) Enlist the enzymes of digestive juice of pancreas with their function.

4. Write short answers to any SIX (6) questions : 12

(i) Define autophagosome.
(ii) What is resolution of human eye and electron microscope?
(iii) Write structural formula of ribofuranose and glucopyranose.
(iv) What do you know about bleeding in plants?
(v) What is cell-mediated and humoral immune response?
(vi) What is the rate of breathing at rest and during exercise?
(vii) Differentiate between bronchi and bronchioles.
(viii) What is diving reflex?
(ix) What are the fronds?

SECTION – II

Note : Attempt any THREE questions.

5. (a) How biology has helped mankind in construction of environment? 4
   (b) How CO_2 concentration and humidity affect the rate of transpiration? 4

6. (a) Explain the structure of DNA. 4
   (b) Write a note on ascomycota. 4

7. (a) What are lysosomes and explain its phagocytic role with the help of diagram? 4
   (b) Discuss digestion and absorption in small intestine. 4

8. (a) Explain lytic cycle of virus in bacteria. 4
   (b) Sketch Calvin Cycle (no description). 4

9. (a) Discuss nutrition in bacteria. 4
   (b) Describe prothallus of adiantum. 4