☆	Roll No _____

HSSC-(P-I)-A/2024
(For All Sessions)

Paper Code	6	4	6	1

Biology (Objective)

(Group-I) **Time: 20 Minutes** **Marks : 17**

Note: Write Answers to the Questions on the objective answer sheet provided. Four possible answers A, B, C and D to each question are given. Which answer you consider correct, fill the corresponding circle A, B, C or D given in front of each question with Marker or Pen ink on the answer sheet provided.

1.1 The most recent era is:
(A) Paleozoic (B) Mesozoic (C) Cenozoic ● (D) Proterozoic

2. Monosaccharides which are rare in nature and occur in some bacteria are:
(A) Hexoses (B) Pentoses (C) Trioses (D) Tetroses ●

3. An activated enzyme with a polypeptide chain and a co-factor is:
(A) Apaenzyme (B) Holoenzyme ● (C) Coenzyme (D) Activator

4. Which of the following are involved in the breakdown of old organelles:
(A) Lysosomes ● (B) Glyoxisomes (C) Peroxisomes (D) Ribosomes

5. HIV belongs to group of viruses called:
(A) DNA virus (B) Pox virus (C) Retro virus ● (D) Bacteriophage

6. If the whole cell of bacteria is covered by flagella, the bacteria is called:
(A) Atrichous (B) Peritrichous ● (C) Amphitrichous (D) Lophotrichous

7. The vector of "African sleeping sickness" is:
(A) Mosquito (B) House fly (C) Yellow fly (D) Tsetse fly ●

8. The group of fungi in which sexual reproduction is not observed:
(A) Ascomycota (B) Basidiomycota (C) Deuteromycota ● (D) Zygomycota

9. The rhizome in Adiantum is protected by:
(A) Ramenta ● (B) Stipe (C) Fronds (D) Stomium

10. Excretory system in Arthropods is composed of:
(A) Flame cells (B) ● Malpighian tubules (C) Nephridia (D) Nephrons

11. Which of the following are not included in amniotes:
(A) Birds (B) Reptiles (C) Mammals (D) Amphibians ●

12. Dark reaction of photosynthesis occurs in the part of chloroplast named as:
(A) Stroma ● (B) Grana (C) Inter-grana (D) Inner membrane

13. The first action spectrum was obtained by T.W.Engelman in 1883 working on:
(A) Volvox (B) Nostoc (C) Spirogyra ● (D) Chlorella

14. In cockroach partly digested food is temporarily stored in:
(A) Colon (B) Crop ● (C) Gizzard (D) Rectum

15. Respiratory pigment present in muscles is called:
(A) Haemoglobin (B) Haemocyanin (C) Haemoerthrin (D) Myoglobin ●

16. The left systematic arch disappears in:
(A) Birds ● (B) Fish (C) Mammals (D) Reptiles

17. The narrowing and hardening of arteries is called as:
(A) Apoptosis (B) Necrosis (C) ● Atherosclerosis (D) Sclerosis

Roll No _____

HSSC-(P-I)-A/2024
(For All Sessions)

pakcity.org

Marks : 68

Biology (Subjective)

(GROUP-I)

Time: 2:40 Hours

SECTION-I

2. Write short answers of any eight parts from the following: (8x2=16)

i. What are terpenoids? Give two examples.
ii. Draw diagrammatic representation of an enzyme – substrate reaction (Lock and Key Model)
iii. How enzyme concentration affects the rate of enzyme action?
iv. What are inhibitors? Give their types.
v. Differentiate septate and non septate hyphae
vi. Compare obligate parasites with facultative parasites.
vii. Differentiate polyps and medusae.
viii. How infestation is different from disinfestations?
ix. What do you know about pinworms?
x. Name the scales of fish.
xi. The oxygen releases during photosynthesis comes from water, how you prove?
xii. What is the importance of phosphorylation in energy driving reactions?

3. Write short answers of any eight parts from the following: (8x2=16)

i. What is biological method? Name its steps in order.
ii. What is biological control? Give an example.
iii. How outer membrane of mitochondria differs from inner membrane?
iv. Why peroxisomes are called so?
v. Write two characteristics of protozoa.
vi. Give at least two examples of Dinoflagellates. Which pigments are found in them?
vii. In which group, the giants of protist kingdom are included? Name any giant protist.
viii. Why pelomyxa palustris may be the most primitive of all eukaryote-like forms?
ix. How breathing is different from cellular respiration?
x. What changes occur in animal during diving reflex?
xi. What is brain haemorrhage? Give its preventive measures.
xii. What is pericardium? Write its function.

4. Write short answers of any six parts from the following: (6x2=12)

i. How virion differs from prion?
ii. What are plasmids? Give their role
iii. Give two important features of Lycopsida.
iv. Differentiate over topping and plannation.
v. What are paraphyses? Give their function.
vi. Compare homospory with heterospory.
vii. Give the role of secretion in digestion.
viii. How pepsinogen is converted into pepsin?
ix. Differentiate herbivores and carnivores with example.

SECTION-II

Note **Attempt any three questions. Each question carries equal marks:** (8x3=24)

5. (a) How diseases can be controlled? Give preventive measures. (2+2=4)
(b) Explain respiration in cockroach. Draw its labeled diagram. (2+2=4)
6. (a) Describe three main types of RNA. (4)
(b) Discuss important features of ascomycota. (4)
7. (a) What are plastids? Discuss their types and functions. (1+1+2=4)
(b) How digestion in Duodenum takes place? Write role of liver and pancreas. (1+3=4)
8. (a) Discuss the structure of a virion (4)
(b) Define immunity. Discuss its types. (1+3=4)
9. (a) Describe habitat, occurrence and reproduction in Nostoc (1+1+2=4)
(b) Sketch various steps of Krebs' cycle (2+2=4)

☆☆☆☆ Roll No _____

HSSC-(P-I)-A/2024
(For All Sessions)

Paper Code	6	4	6	8

Biology (Objective)

(Group-II) **Time: 20 Minutes** **Marks : 17**

Note: Write Answers to the Questions on the objective answer sheet provided. Four possible answers A, B, C and D to each question are given. Which answer you consider correct, fill the corresponding circle A, B, C or D given in front of each question with Marker or Pen ink on the answer sheet provided.

1.1 Reserve food material in cyanobacteria is in the form of:
(A) Starch (B) ● Proteins (C) Sucrose (D) Glycogen

2. Malaria spreads by :
(A) ● Plasmodium (B) Female anopheles mosquito (C) Tsetse fly (D) Trypanosoma

3. Which of the following is unicellular but not included in protoctista?
(A) Kelps (B) ● Volvox (C) Yeast (D) Plasmodium

4. Most powerful Alkaloids are obtained from plants of family called:
(A) Solanaceae (B) ● Fabaceae (C) Rosaceae (D) Poaceae

5. Sphenodon is found in:
(A) Australia (B) Texas (C) ● New Zealand (D) Pakistan

6. Syrinx is an organ of voice present in:
(A) Apes (B) ● Parrots (C) Snakes (D) Frogs

7. Transfer of energy from antenna complex to reaction center of Photosystem occurs by phenomenon called:
(A) Oxidation (B) Reduction (C) ● Resonance (D) Hydrogenation

8. How many number of electrons would be needed at a time to reduce two moles of $NADP^+$?
(A) ● Two (B) One (C) Three (D) Four

9. Constipation is called by the excessive absorption of:
(A) CO_2 (B) ● Water (C) Food (D) Oxygen

10. If plasma proteins carry about 5% CO_2 / 100 ml of blood. How much CO_2 is carried by 500 ml of blood from tissue fluid to lungs?
(A) 5 ml (B) 20 ml (C) ● 25 ml (D) 100 ml

11. Which layer of arteries become thick due to Atheroma?
(A) ● Middle (B) Inner most (C) External (D) Any layer

12. If ψ_w (water potential) of a cell is – 400 KPa and pressure potential (ψ_p) is 800 KPa. What would be the solute potential (ψ_s) of cell at equilibrium:
(A) 1200 KPa (B) –400 KPa (C) ● –1200 KPa (D) 800 KPa

13. Which of the following element is a heavy metal?
(A) Zinc (B) Iron (C) Copper (D) ● Chromium

14. One strand of DNA contains ACGT nitrogenous bases and opposite strand has TGCA. How many number of hydrogen bonds would be present between these complementary nitrogenous bases?
(A) 08 (B) 12 (C) ● 10 (D) 14

15. Rate of reaction (catalysis) is inversely proportional to the:
(A) ● Activation energy (B) Enzyme concentration (C) Optimum temperature (D) Optimum pH

16. If ocular lens is of 10X and objective lense is of 40X, resolution of compound microscope would be _____of human naked eye.
(A) 100X (B) 400X (C) ● 500X (D) 250,000X

17. Which of the following is an organelle of symbiontic origin?
(A) Ribosomes (B) ● Mitochorndria (C) Centrioles (D) Lysosomes

Roll No _____

HSSC-(P-I)-A/2024

(For All Sessions)

Marks : 68

Time: 2:40 Hours

Biology (Subjective)

(GROUP-II)

SECTION-I

2. Write short answers of any eight parts from the following: (8x2=16)

i. What is the difference between fibrous proteins and globular proteins?
ii. What are inhibitors? Write their two types.
iii. Differentiate between apoenzyme & holoenzyme.
iv. The low and high temperature respectively affect an enzyme activity. How?
v. Enlist four types of asexual reproduction in fungi.
vi. What is aspergillosis? Name the fungus which causes it.
vii. Enlist four examples of sponges with their habitat.
viii. Define polymorphism. What is the generic name of 'Portuguese man of war'?
ix. Give names of any two sub-classes of mammalia.
x. What is Notochord? State its function.
xi. Differentiate between catabolism and anabolism.
xii. Which form of anaerobic respiration occurs in muscle cells of human during sprinting? Also represent it by equation.

3. Write short answers of any eight parts from the following: (8x2=16)

i. How does Phyletic Lineage extend back to the common origin of all early life?
ii. Write down attributes of population.
iii. How cell cytoplasm play role in cell physiology?
iv. What is chemical composition of bacterial (Prokaryote) cell wall?
v. How would you differentiate fungus-like protists and fungi?
vi. What are amoebas? Give their types
vii. What functions are performed by micronuclei and macronuclei in ciliates?
viii. Why Euglenoids are placed in Algae as well as in Protozoa?
ix. How does temperature affect the oxygen carrying capacity of Haemoglobin?
x. How does the skin of earthworm is kept moist for the exchange of respiratory gases?
xi. Differentiate Antigen and Antibody.
xii. What is the difference between single circuit and double circuit Heart?

4. Write short answers of any six parts from the following: (6x2=12)

i. What are the pocks? Give their cause.
ii. Write the difference between archaeo bacteria & eubacteria?
iii. Differentiate the Archegonia and Antheridia.
iv. What is circinate vernation? Give an example.
v. What do you know about annulus and stomium?
vi. How can adipose tissue is formed?
vii. Which plants are called supermatophytes?
viii. What are hunger pangs? When do they begin?
ix. Why humans develop intestinal gas from consuming milk products?

SECTION-II

Note **Attempt any three questions. Each question carries equal marks:** (8x3=24)

5. (a) What is an organ? Discuss organ and organ system level of organization. (2+2=4)
(b) How CO_2 is transported from tissues to lungs? (4)

6. (a) What is RNA? Describe its three types. (b) Give economic losses due to fungi. (1+3=4) & (4)

7. (a) What are plastids? Give three types & explain chloroplast in detail and draw its labeled diagram. (1/2+1/2+2+1=4)
(b) Explain role of pancreas and liver in digestion in human beings. (2+2=4)

8. (a) Write detailed note on AIDS. (4)
(b) Discuss symptoms and reasons of Leucaemia and thalassaemia. (2+2=4)

9. (a) Discuss nutrition in bacteria. (4)
(b) What is photophosphorylation? Discuss non-cyclic photophosphorylation in plants. (1+3=4)

☆☆☆ | Roll No _____ to be filled in by the candidate | HSSC-(P-I)-A/2023 | Paper Code | 6 | 4 | 6 | 5 |

(For All Sessions)

Biology (Objective) (Group-I) Time: 20 Minutes Marks : 17

Note: Write Answers to the Questions on the objective answer sheet provided. Four possible answers A, B, C and D to each question are given. Which answer you consider correct, fill the corresponding circle A, B, C or D given in front of each question with Marker or Pen ink on the answer sheet provided.

1.1. In protostomes, the blastopore forms the:

(A) Anus (B) Brain (C) Mouth (D) Excretory pore

2. The body cavity of Nematodes is called:

(A) Blastocoel (B) Coelom (C) Pseudocoelom (D) Haemocoel

3. Which one is not accessory pigment?

(A) Chlorophyll "a" (B) Chlorophyll "b" (C) Xanthophyll (D) Carotene

4. Glycolysis occurs in:

(A) Mitochondria (B) Nucleus (C) Ribosomes (D) Cytosol

5. The stunted growth and chlorosis takes place by the deficiency of:-

(A) Iron (B) Magnesium (C) Nitrogen (D) Phosphorus

6. Lungs of birds have thin walled ducts called:

(A) Alveoli (B) Alveolar ducts (C) Bronchi (D) Parabronchi

7. The heart of which animal never receive oxygenated blood?

(A) Amphibians (B) Fishes (C) Birds (D) Reptiles

8. An hormone released by mesophyll cells at high temperature is:

(A) Abscisic Acid (B) Thyroxin (C) H_2SO_4 (D) HCl

9. The lowest level of biological organization is:

(A) Biosphere (B) Ecosystem (C) Community (D) Population

10. Fats and oils have specific gravity of about:

(A) 0.8 (B) 0.10 (C) 0.12 (D) 0.16

11. The coenzyme is closely related to:

(A) Apoenzyme (B) Holoenzyme (C) Polypeptide (D) Vitamins

12. The fluid which surrounds the thylakoid is called:

(A) Stroma (B) Matrix (C) Medium (D) Chlorophyll

13. Temperate phage may exist as:

(A) Capsid (B) Prophage (C) Viriod (D) Reterovirus

14. The structure which primarily involved in conjugation between bacterial cells is:

(A) Capsule (B) Slime (C) Flagella (D) Pilli

15. Which are the major producers in aquatic ecosystem?

(A) Green algae (B) Diatoms (C) Slime molds (D) Euglenoids

16. Poisonous mushrooms are also called:

(A) Agaricus (B) Morels (C) Truffles (D) Toad stools

17. All seed producing plants are called:

(A) Bryophyta (B) Pteridophyta (C) Rhodophyta (D) Spermatophytes

Biology (Subjective)

(GROUP-I) Time: 2:40 Hours

SECTION-I

2. **Write short answers of any eight parts from the following:** (8x2=16)

i. Define biochemistry.

ii. Differentiate between prosthetic group and co-enzyme.

iii. How does binding site differ from catalytic site?

iv. Explain effects of temperature at an enzyme's activity

v. What is nuclear mitosis?

vi. Differentiate between karyogamy and plasmogamy.

vii. Differentiate between proterostomia and deuterostomia (any two points).

viii. How does polyps differ from medusae?

ix. Write any two characteristics of chordates.

x. Explain swim bladder.

xii. What is compensation point?

xiii. How does electron transport chain necessary for living organisms?

3. **Write short answers of any eight parts from the following:** (8x2=16)

i. Differentiate fresh water biology from Marine biology.

ii. How hypothesis is formed by an observer?

iii. Differentiate prokaryotes from Eukaryotes.

iv. How F_1 particles play a role in energy production?

v. Differentiate foraminiferans from Actinopods.

vi. Write down four characters of Diatoms.

vii. Why Apicomplexans are considered dangerous? How they can locomote?

viii. Define imbibition.

ix. Write down four economic importance of Algae.

x. Differentiate Homospores from heterospores.

xi. Why division Tracheophyta is considered as most successful on land give any two reasons?

xii. In which group of vertebrates the division of heart is incomplete and why?

4. **Write short answers of any six parts from the following:** (6x2=12)

i. Viruses are called obligate intracellular parasites. Why?

ii. What are mesosome? Write down their function.

iii. How scrapping occurs in garden snail.

iv. Why digestive system of cockroach is more efficient than Hydra?

v. Define peristalsis.

vi. The ventilation of water is far more difficult than air. Give reasons.

vii. Enlist properties of respiratory surfaces in animals.

viii. How inhalation and exhalation occurs in cockroach?

ix. Write down carbon dioxide concentration in arterial and venous blood.

SECTION-II

Note **Attempt any three questions. Each question carries equal marks:** (8x3=24)

5. (a) Describe the various steps of biological methods to solve a biological problem.

(b) Write down the chemical composition of blood plasma.

6. (a) Discuss primary structure of protein

(b) Explain Asexual reproduction in Fungi.

7. (a) Why use and misuse of antibiotics are important for human?

(b) What are different adaptive characters developed in bryophytes for land habitat.

8. (a) Discuss the Linaeus system of Binomial nomenclature in detail.

(b) Prove that water is source of oxygen during photosynthesis.

9.(a) Explain structure and function of endoplasmic reticulum.

(b) Write a note on digestion in hydra.

Biology (Objective)

Group-II **Time: 20 Minutes** **Marks : 17**

Note: Write Answers to the Questions on the objective answer sheet provided. Four possible answers A, B, C and D to each question are given. Which answer you consider correct, fill the corresponding circle A, B, C or D given in front of each question with Marker or Pen ink on the answer sheet provided.

1.1. The amount of CO_2 in Arterial blood per $100ml$ is:

(A) $50ml$ (B) $54ml$ (C) $73ml$ (D) $79ml$

2. The process of Guttation takes place through:

(A) Stomata (B) Lenticels (C) Bark (D) Hydathodes

3. Red blood cells are formed in:

(A) Heart (B) Lungs (C) Red bone marrow (D) Kidney

4. Which one is not a viral disease?

(A) Mumps (B) Cow pox (C) Tetanus (D) Small pox

5. The normal percentage of glucose in human body is:

(A) 8% (B) 0.08% (C) 0.8% (D) 7.4%

6. The lock & key model was proposed by:

(A) Koshland (B) Emil Fischer (C) M. Mischer (D) P.A. Levene

7. The chromosome number of Garden Pea is:

(A) 14 (B) 48 (C) 08 (D) 26

8. The botanical name of brinjal is:

(A) Solanum melogena (B) Solanum specie (C) Solanum tubersum (D) Lycopersicum esculentum

9. The example of disinfectant is:

(A) Lifebuoy (B) Dettol (C) Antibiotics (D) Phenols

10. The example of actinopods is:

(A) Forams (B) Radiolarians (C) Vorticella (D) Stentor

11. The scientists who study the fungi are known was:

(A) Phycologist (B) Brylogist (C) Mycologist (D) Psychologist

12. The fruit type of family solanaceae is known as:

(A) Caryopsis (B) Berry (C) Pod (D) Lomentum

13. Which phylum includes the series Deuterostomia?

(A) Mollusca (B) Nematoda (C) Annelida (D) Echinodermata

14. Trochophone larva is found in the life history of:

(A) Leech (B) Nereis (C) Earthworm (D) Loligo

15. The first action spectrum was obtained by:

(A) Niel (B) Bohar (C) Engelmann (D) Garaham

16. What percentage of surface area is covered by stomata?

(A) 10 – 12 % (B) 6 – 8 % (C) 3 – 6 % (D) 1 – 2 %

17. Stunted growth of root is caused by the deficiency of:

(A) Phosphorus (B) Nitrogen (C) Magnesium (D) Calcium

_____ to be filled in by the candidate

HSSC-(P-I)-A/2023

Marks : 68

(For All Sessions)

ology (Subjective)

GROUP-I

Time: 2:40 hours

SECTION-I

2. **Write short answers of any eight parts from the following:** (8x2=16)

i. What are terpenoids, give example?
ii. In what way enzyme concentration affects the rate of enzyme action?
iii. What are inhibitors? Give example.
iv. Define co-factor, give example.
v. Differentiate Ascomycetes with Basidiomycetes and give example.
vi. Compare spores with conidia.
vii. Define polymorphism, give example.
viii. Compare parazoa with metazoa.
ix. Differentiate acoelomate with coelomate.
x. Justify earth worm as natural plough.
xi. What are accessory pigments? Give their role.
xii. Differentiate between chlorophyll "a" and "b".

3. **Write short answers of any eight parts from the following:** (8x2=16)

i. Differentiate between deductive and inductive reasoning.
ii. Define biome. How it is named?
iii. Why mitochondria are called power house of cell?
iv. How ribosomes of prokaryotes differ from eukaryotes?
v. What are diatoms?
vi. Give importance of dinoflagellates.
vii. What are Kelps?
viii. Discuss role of both nuclei in ciliates.
ix. Write down names of living and extinct members of psilopsida.
x. Define circinate vernation. in which class of pteropsida it is important character?
xi. What is incipient plasmolysis?
xii. What do you know about hypertension?

4. **Write short answers of any six parts from the following:** (6x2=12)

i. What are symptoms of AIDS?
ii. How chemosynthetic bacteria are autotrophic in nature?
iii. What is filter feeding nutrition? Give example.
iv. Which plant nutrients cause chlorosis?
v. Differentiate between cutaneous respiration and pulmonary respiration.
vi. Give names of hormones secreted by human digestive system.
vii. What are Alveoli? Give their function.
viii. What changes occur in diving mammals during diving reflex?
ix. What is photorespiration? Give its consequences.

SECTION-II

Note **Attempt any three questions. Each question carries equal marks:** (8x3=24)

5. (a) Relate cloning with sexual reproduction?
(b) Explain circulatory system of cockroach?
6. (a) Describe at least four comparisons between DNA and RNA.
(b) Write down methods of nutrition in fungi.
7. (a) Write down characteristics of cyanobacteria.
(b) Describe evolution of leaves.
8. (a) Give the biological classification of corn, Zea mays.
(b) Describe the Calvin cycle with reference to carbon fixation and reduction.
9. (a) Write a note on structure and function of Golgi apparatus.
(b) Explain the mechanism of absorption of food in small intestine.

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Inter (Part-I)-A-2021

Roll No._____ (To be filled in by candidate)

(For all sessions)

Paper Code	6	4	6	1

Biology (Objective Type)

Time: 20 Minutes

Marks: 17

NOTE: Write answers to the questions on the objective answer sheet provided. Four possible answers A,B,C and D to each question are given. Which answer you consider correct, fill the corresponding circle A,B,C or D given in front of each question with Marker or pen ink on the answer sheet provided.

1.1. Plants having foreign DNA incorporated into their cells are known as:
(A) Transformation (B) Transgenic (C) Transgender (D) Translation

2. Heterogenous group of compounds related to fatty acids are:
(A) Nucleic acids (B) Protein (C) Lipids (D) Carbohydrates

3. ~~Which inhibitors have structural resemblance with substances?~~
(A) Irreversible (B) Competitive (C) non competitive (D) Co-enzyme

4. Infoldings of inner membrane of mitochondria are called:
(A) Cristae (B) Cisternae (C) F_1 particals (D) SER

5. Enzyme released from the tail of bacteriophage which dissolves cell wall:
(A) Lipase (B) Pepsin (C) amylase (D) Lysozyme

6. Reserve food material in cynobacteria is:
(A) Glycogen (B) Starch (C) Lipids (D) Protein

7. Feeding stage of slime molds is called:
(A) Plasmodesmata (B) Plasmodium (C) Plasmolysis (D) Plasma

8. Asexual reproduction in penicillium takes place by:
(A) Spores (B) Budding (C) Conidia (D) Fragmentation

9. Integumented,indehiscent megasporangium is called:
(A) Ovary (B) Ovule (C) Megaspore (D) microspore

10. Larva produced during the life cycle of annelids, is:
(A) Trochophore (B) Bipinaria (C) Tad pole (D) Brachiolaria

11. A blue coloured respiratory pigment present in molluscus is:
(A) Haemoglobin (B) Haemocyanin (C) Myoglobin (D) Phycoerthrin

12. Second phase of calvin cycle is:
(A) Carbon fixation (B) Reduction
(C) Regeneration of CO_2 acceptor (D) Glycolysis

13. Chemical formula of chlorophyll 'b' is:
(A) $C_{54}H_{72}O_5N_4Mg$ (B) $C_{54}H_{70}O_4N_5Mg$ (C) $C_{55}H_{72}O_5N_4Mg$ (D) $C_{55}H_{70}O_6N_4Mg$

14. Botulism is caused by:
(A) Salmonella (B) Campylobacter
(C) Pseudomonas (D) Clostridium botulinum

15. A sheet of muscles which act as floor of chest cavity is called:
(A) Pleura (B) diaphragm (C) Intercostal muscles (D) Lungs

16. Starch Sugar hypothesis was proposed by:
(A) H.Van Mohl (B) Ernst Munch (C) Ernst Hackel (D) Loius Pasture

17. Attraction among water molecules,which holds the water molecules together, is:
(A) Tension (B) Cohesion (C) Adhesion (D) Transpiration

Roll No._____(to be filled in by the candidate)

(For all sessions)

Biology (Essay Type)

Time: 2:40 Hours

Total Marks:68

Section - I

2. Write short answers of any eight parts from the following. **2x8=16**

i. What are enzymes?give one example.
ii. Differentiate between Anabolic and catabolic reactions.
iii. Define irreversible inhibitors.
iv. Give two properties of Enzymes.
v. Define lichens and give one example.
vi. What is parasexuality?
vii. Define kingdom Animalia.
vi How asexual reproduction takes place in poriferans?
ix. What are prototheria?Give one example.
x. Which types of Muscles are found in the body wall of Annelids?
xi. What is Bioenergetics?
xii. Write complete equation of Lactic acid fermentation.

3. Write short answers of any eight parts from the following. **2x8=16**

i. Differentiate between deductive and inductive reasoning with examples.
ii. Give three basic components of human circulatory system.
iii. Give importance of mitochondria.
iv. Define Parasitology.
v. Write a note on euglenoids.
vi. What do you know about water molds?
vii. How brown algae differ from red algae?
viii. Write down two functions of Golgi complex.
ix. Write a note on parasitic flagellates.
x. Why tracheophytes are successful group of land plants?
xi. Give four functions of blood.
xii. Differentiate between microphyll and megaphyll leaves.

4. Write short answers of any six parts from the following. **2x6=12**

i. Which changes cause inspiration?
ii. What are Bacilli?Give their types.
iii. How Venus flytrap cathes insect?
iv. Give structure and position of lungs in chest cavity.
v. How oral cavity helps in selection of food?
vi. Mention three ways of gaseous exchange in plants.
vii. Write roles of ventilation and capillary network in respiratory surface.
viii. Draw labelled diagram of human immunodeficiency virus(HIV).
ix. What is meant by absorption and assimilation of food?

Section - II

NOTE: Answer any three questions from the following. **8x3=24**

5. **(a)** Discuss how the science of Biology is helping mankind in different ways. **4**
   (b) Discuss the composition of blood Plasma. **4**
6. **(a)** What are proteins?Describe primary structure of proteins. **4**
   (b) Describe different methods of asexual reproduction in fungi. **4**
7. **(a)** Write a note on nutrition in bacteria. **(b)** Write in detail the life cycle of Angiospermic plant. **4+4**
8. **(a)** Describe any four viral diseases. **(b)** Write a note on noncyclic phosphorylation with diagram. **4+4**
9. **(a)** Describe the structure and function of Golgi apparatus. **4**
   (b) Give an account of nutrition in insectivores plants. **4**

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Roll No. _____ (To be filled in by candidate)

(For all sessions)

Paper Code	6	4	6	1

Biology (Objective Type)

Time: 20 Minutes **Marks: 17**

NOTE: Write answers to the questions on the objective answer sheet provided. Four possible answers A,B,C and D to each question are given. Which answer you consider correct, fill the corresponding circle A,B,C or D given in front of each question with Marker or pen ink on the answer sheet provided.

1.1. The most recent era is:
(A) Proterozoic (B) Paleozoic (C) Cenozoic (D) Mesozoic

2. The specific heat of vaporization of water in Kcal/kg is:
(A) 580 (B) 574 (C) 597 (D) 602

3. Optimum pH for Arginase enzyme is:
(A) 4.50 (B) 5.50 (C) 9.70 (D) 7.60

4. Cisternae are associated with:
(A) ER (B) Mitochondria (C) Nucleus (D) Chloroplast

5. Madcow infection is caused by:
(A) Bacteria (B) Prions (C) Virions (D) Protozoans

6. Reserve food material in cyanobacteria is:
(A) Starch (B) Glucose (C) Glycogen (D) Cellulose

7. Pelomyxa palustris is an example of:
(A) Bacterium (B) Ciliate (C) Algae (D) Amoeba

8. Aspergillus belongs to Phylum:
(A) Zygomycota (B) Deuteromycota (C) Ascomycota (D) Basidiomycota

9. Fern Prothallus is:
(A) Sporophyte (B) Saprophyte (C) Gametophyte (D) Seed

10. kangaroo belongs to sub-class
(A) Eutheria (B) Metatheria (C) Prototheria (D) Megatheria

11. Sea urhin belongs to phylum:
(A) Arthropoda (B) Echinodermata (C) Annelida (D) Protozoa

12. The number of chloroplast in each mesophyll cell is about
(A) 10-100 (B) 10-200 (C) 20-100 (D) 20-200

13. The breaking of terminal bond of ATP releases enefgy of about:
(A) 4.5Kcal (B) 3.7Kcal (C) 6.8Kcal (D) 7.3Kcal

14. Casparian strips are present in cells of root:
(A) Cortex (B) Epidermis (C) Endodermis (D) Xylem

15. The valves present in the veins are called:
(A) Bicuspid (B) Semi-lunar (C) Tricuspid (D) Aortic

16. Excess gastric secretions is an important factor of:
(A) Peptic ulcer (B) Obesity (C) piles (D) Food poisoning

17. Respiratory system is most efficient in:
(A) Fish (B) Man (C) Snake (D) Bird

Roll No. _____ (to be filled in by the candidate) (For all sessions)

Biology (Essay Type)

Time: 2:40 Hours Marks: 68

Section - I

2x22=44

2. Write short answers of any eight parts from the following. 2x8=16

i. What are Dikaryotic hyphae?
ii. Differentiate between radiotherapy and gene therapy
iii. Draw labelled diagram of HIV.
iv. Diffferentiate between pepsin and pepsinogen.
v. How pH affects the rate of enzyme action?
vi. How temperature affects the rate of enzyme action?
vii. Give two important characteristics of mammals.
viii. Give some affinities of Echinoderms with hemichordates.
ix. What is the agricultural importance of Earthworms.
x. Differentiate between infestation and disinfestation.
xi. Define Biodiversity? Give its percentage of different groups of organisms discovered so for.
xii. Differentiate between septate and non-septate hyphae?

3. Write short answers of any eight parts from the following. 2x8=16

i. Write down main physical methods to control bacteria.
ii. Write down two important characteristics of diatoms.
iii. How algae differ from plants?
iv. What is Trypanosoma? What disease does it cause?
v. Give two examples each of Red algae and Green algae.
vi. Name the classes of division bryophyte.
vii. Differentiate between homospory and heterospory.
viii. What is biological oxidation?
ix. Differentiate between absorption and assimilation.
x. Differentiate between aerobic and anaerobic respiration
xi. What is botulism?
xii. Differentiate between carnivores and omnivores.

4. Write short answers of any six parts from the following. 2x6=12

i. What is glycogenosis type-II disease?
ii. What is differentially permiable membrane?
iii. Differentiate between amylose and amylopectin starches.
iv. What do you know about blue babies?
v. Compare guttation with transpiration.
vi. Write four properties of respiratory surface in animals
vii. What is respiratory distress syndrome?
viii. Define photorespiration.
ix. Differentiate between breathing and cellular respiration.

Section - II

NOTE: Answer any three questions from the following. 8x3=24

5. **(a)** What is Biological Method? Describe its various steps. 4
   (b) Give four differences between arteries and veins. 4
6. **(a)** Describe polysaccharides in detail. 4
   (b) Fungi are well adapted to live on land. Give reasons. 4
7. **(a)** What are plastids? Describe structure and function of chloroplast. 4
   (b) Explain the process of digestion in cockroach. 4
8. **(a)** Give characteristics of viruses. 4
   (b) Draw glycolysis. Give its energy balance. 4
9. **(a)** Discuss bacteria under the given headings: (i) Ecological importance (ii) Economic importance 4
   (b) Define alternative of generation. Explain significance of Alternation of generation. 4

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Roll No._____ (To be filled in by candidate)

Paper Code	2	4	6	1

Sessions;2015-2017,2016-2018 & 2017-2019

Biology (Objective Type)

Time: 20 Minutes **Marks: 17**

NOTE: Write answers to the questions on the objective answer sheet provided. Four possible answers A,B,C and D to each question are given. Which answer you consider correct, fill the corresponding circle A,B,C or D given in front of each question with Marker or pen ink on the answer sheet provided.

1.1. Which one is a trace element?
(A) Calcium **(B)** Chlorine **(C)** Zinc **(D)** Phosphorus

2. Keratin is an example of Fibrous protein present in:
(A) Blood **(B)** Muscle **(C)** Bones **(D)** Nail and Hair

3. The detachable co-factor of an enzyme is known as:
(A) Activator **(B)** Prosthetic group **(C)** Co-enzyme **(D)** Apo-enzyme

4. Tay-sach's disease results due to accumulation of:
(A) Proteins **(B)** Lipids **(C)** Glucose **(D)** DNA

5. The infectious proteins are:
(A) Viruses **(B)** Virions **(C)** Prions **(D)** Peptones

6. Reserve food material in cyanobacteria is:
(A) Starch **(B)** Glycogen **(C)** Fats **(D)** Glycerol

7. The feeding stage of slime mold is called:
(A) Plasmodium **(B)** Pseudopodium **(C)** Endocytosis **(D)** Seizing

8. The most common rust fungi are:
(A) Ustilago **(B)** Puccinia **(C)** Yeast **(D)** Penicillium

9. Living genus of psilopsida is:
(A) Cooksonia **(B)** Psilophyton **(C)** Horneophyton **(D)** Psilotum

10. Portugues man of war is the name used for:
(A) Physalia **(B)** Obelia **(C)** Hydra **(D)** Aurelia

11. The largest invertebrate animal is:
(A) Dogfish **(B)** Cuttle fish **(C)** Giant Squid **(D)** Octopus

12. The first step in Krebs cycle is the union of acetyle COA with oxaloacetate to form:
(A) Isocitrate **(B)** α -Ketoglutarate **(C)** Citrate **(D)** Malate

13. Plastocyanin protein contains:
(A) Iron **(B)** Copper **(C)** Magnessium **(D)** Potassium

14. Hepatic and pancreatic secretions are stimulated by a harmone called:
(A) Secretin **(B)** Gastrin **(C)** Zymogen **(D)** Parietal

15. The number of air sacs in most birds are:
(A) 06 **(B)** 07 **(C)** 08 **(D)** 09

16. Guttation occurs in plants through:
(A) Cuticle **(B)** Hydathodes **(C)** Lenticels **(D)** Stomata

17. Discharge of Blood from blood vessel is called as:
(A) Stroke **(B)** Heart attack **(C)** Thromobosis **(D)** Haemorrhage