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 LHR-91-21

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

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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 LHR-G1-21

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

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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 LHR-42-24

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

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

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

SECTION – I LHR-42-21

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

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