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

(Academic Sessions 2020 – 2022 to 2022 – 2024)

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

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

PAPER CODE = 8463 LHR-1-24

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	Nervous system of hydra lacks : (A) Tentacle receptors (B) Superficial nerve net (C) Ganglia (D) Motor neurons
2	A set of three nucleotides on tRNA specifying a particular amino acid, is called : (A) Code (B) Genetic code (C) Codon (D) Anticodon
3	The oldest homologous structures are : (A) Gills (B) Lungs (C) Human ear muscles (D) Eyes
4	Which one of the following is not a nutritional disorder : (A) Kwashiorkor (B) Goitre (C) Scurvy (D) Osteoarthritis
5	The removal of salts and water by sweating is meant for : (A) Excretion (B) Osmoregulation (C) Thermoregulation (D) Both A and C
6	Ex-vivo gene therapy is used to treat children having : (A) SCID (B) AIDS (C) Cystic fibrosis (D) Both A and B
7	What is not true about sclerenchyma : (A) Lignin (B) Branched pits (C) Non-living (D) Elastic

(Turn Over)

1-8	A normal man whose father is albino, has married an albino woman. Which disorder other than albinism can occur in his children : (A) Protanopia (B) Leukemia (C) Deuteranopia (D) Both B and C
9	Grassland in tropical climate is called : (A) Prairies (B) Savanna (C) Pampas (D) Taiga
10	Root primordium develops root cambium, also called as : (A) Pericycle (B) Pith (C) Cortex (D) Both A and C
11	What is involved in ecdysis : (A) Nervous system (B) Ecdysone (C) Enzyme (D) All of these
12	In a nucleotide, Uracil is attached to pentose sugar at carbon No : (A) 3 (B) 2 (C) 1 (D) 5
13	Climacteric is associated with production of : (A) Ethene (B) Auxins (C) Cytokinin (D) Both A and C
14	Number of chromosomes in Turner's syndrome individual's cell is : (A) 45 + X (B) 44 + Y (C) 44 + X (D) 46 + X
15	Indicate the incorrect matching among the following : (A) Amygdala ↔ rage (B) Pons ↔ hunger (C) NAA ↔ fruit set (D) Auxins ↔ geotropism
16	A patient that lacks a gene coding for trans-membrane carrier of chloride ions, suffers from : (A) SCID (B) Cystic fibrosis (C) Cancer (D) Hodgkin's lymphoma
17	Which of the following is a macronutrient : (A) Iron (B) Iodine (C) Molybdenum (D) Phosphorus

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

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

LHR-1-24

SECTION – I

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

(i) " Nature of excretory products is related to habitats". Justify the statement.
(ii) How are plants adapted to low temperature?
(iii) Why the trees are called environmental buffers?
(iv) Elaborate the role of corpus luteum in menstrual cycle.
(v) What do you know about " Rigor Mortis"?
(vi) What are the affects of antidiuretic hormone?
(vii) Differentiate tetany and tetanus.
(viii) Draw the labelled diagram of a sarcomere.
(ix) Where Thal and Thar are situated?
(x) Enlist ecosystems in Pakistan.
(xi) How can we save energy?
(xii) What is menopause? At what age it starts?

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

(i) What are Meissners corpuscles?
(ii) Define Neurotransmitters? Also give examples.
(iii) Write down importance of midbrain.
(iv) Distinguish between homozygote and heterozygote.
(v) Why sex influenced traits are common in one sex?
(vi) Why urine is preferable vehicle for biotechnology product?
(vii) Define pleiotropy with examples.
(viii) Write down goals of human genome project.
(ix) What problem is related to Denitrification?
(x) Distinguish between Habitat and Niche?
(xi) Give sketch of a food web.
(xii) List the different ways to get gene of interest.

(Turn Over)

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

(i) How temperature affects growth of plant?
(ii) Differentiate apical dominance and compensatory effect.
(iii) How does DNA fibre coil tightly?
(iv) What are the genetic basis of sickle cell anaemia?
(v) How recombination of genes arise during meiosis?
(vi) Define genetic code. Give an example.
(vii) What is apoptosis?
(viii) Biogeography is an evidence of evolution. How?
(ix) What are hydrothermal vents?

SECTION – II

Note : Attempt any THREE questions.

5. (a) Write down the classification scheme of animals on the basis of thermal characteristics of their environment. 4
   (b) What is non-disjunction? Write its genetic consequence with the example of Down's Syndrome. 4
6. (a) What are joints? Discuss different types of joints. 4
   (b) Write a detailed note on nitrogen cycle. 4
7. (a) Give detail of major factors which are involved in resting membrane potential. 4
   (b) Explain endosymbiont hypothesis for origin of eukaryotes. 4
8. (a) Describe human menstrual cycle. 4
   (b) State law of independent assortment, prove it with one example. 4
9. (a) What is growth? Describe different phases of growth in plants. 4
   (b) Write a comprehensive note on gene sequencing. 4

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

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

PAPER CODE = 8464 LHR-2-24

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	The hormone that keeps the flower fresh :			
	(A) Auxins	(B) Ethene	(C) Gibberellins	(D) Cytokinins
2	The strand which leads towards the replication fork is :			
	(A) Lagging	(B) Leading	(C) Master	(D) Plandromic
3	How many base pairs are present in human genome :			
	(A) 05 billions	(B) 03 billions	(C) 07 billions	(D) 09 billions
4	Coal, oil and natural gas are examples of which resource :			
	(A) Renewable	(B) Non-renewable	(C) Exhaustible	(D) Both B and C
5	Liver helps to synthesize :			
	(A) Bile	(B) Citric acid	(C) Lactic acid	(D) Pesticide
6	Genes for albinism are located on :			
	(A) X chromosome	(B) Y chromosome	(C) 11 chromosome	(D) 9 chromosome
7	The muscles which have intercalated discs :			
	(A) Smooth	(B) Cardiac	(C) Skeletal	(D) Striped

(Turn Over)

1-8	Principle of population was published by :			
	(A) Cuvier	(B) Darwin	(C) Wallace	(D) Malthus
9	The grass-land having no woody plants known as :			
	(A) Alpine	(B) Savanna	(C) Coniferous	(D) Prairies
10	Gray crescent is present in :			
	(A) Nucleus	(B) Cytoplasm	(C) Ribosomes	(D) Cell membrane
11	In plants which are involved in testa formation :			
	(A) Trachea	(B) Tracheids	(C) Sclereids	(D) Collenchyma
12	The genetic code for methionine is :			
	(A) UAA	(B) GGC	(C) UAC	(D) AUG
13	The endosperm of angiosperm is :			
	(A) Triploid	(B) Haploid	(C) Diploid	(D) Polyploid
14	The chromosomes become visible, short and thick during :			
	(A) Diakinesis	(B) Diplotene	(C) Leptotene	(D) Anaphase
15	MSH is secreted from the :			
	(A) Median lobe of pituitary gland		(B) Posterior lobe of pituitary gland	
	(C) Adrenal gland		(D) Anterior lobe of pituitary gland	
16	The enzyme luciferase is produced in an insect called :			
	(A) Firefly	(B) Housefly	(C) Butterfly	(D) Tsetse fly
17	In Sindh the desert ecosystem is called :			
	(A) Thar	(B) Thal	(C) Rohi	(D) Cholistan

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

SECTION – I LHR-2-24

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

(i) What do hypotonic and hypertonic environment mean for a cell?
(ii) How cartilaginous fishes show osmoregulatory activity to maintain internal osmotic state with two ways?
(iii) What are xerophytes, write its one adaptation and one example.
(iv) Distinguish between the origin and insertion of muscle.
(v) List the main parts of axial skeleton.
(vi) Why ecdysis is necessary in arthropods? Justify.
(vii) Name the causative agent of gonorrhea, also write its two symptoms.
(viii) Write the role of oxytocin during birth process.
(ix) Define desertification, give its one reason and one effect.
(x) Give location and rain fall of temperate deciduous forest in Pakistan.
(xi) Name one pathogenic and one nutritional deficiency disease.
(xii) Write the source and harmful effects of chlorofluorocarbon.

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

(i) Justify, calcitonin is antagonistic to parathormone.
(ii) Why nitrogen and magnesium deficiency leads to chlorosis?
(iii) Describe two main functions of spinal cord.
(iv) What are true breeding traits?
(v) Is SRY gene important in females?
(vi) How epistasis is different from dominance?
(vii) Define anther culture. Write down its one significance.
(viii) How plants are made salt tolerant?
(ix) Enlist some possible ways to get a gene.
(x) Give name of phases of primary succession.
(xi) Why over grazing is harmful for a grassland?
(xii) Define ecological niche, who proposed this term?

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

(i) How can aging be slowed down?
(ii) How does temperature affect plant growth?
(iii) What is the reason behind the development of sickle cell anemia?
(iv) Define point mutation. Give an example.
(v) Briefly describe the semi-conservative hypothesis of DNA replication.
(vi) What is metastasis?
(vii) How does cytokinesis occur in plant cell?
(viii) How are evolutionary relationships among species reflected regarding DNA and proteins?
(ix) What is endosymbiont hypothesis? Give an example.

SECTION – II

Note : Attempt any THREE questions.

5. (a) Explain the excretory products of different animals. 4
   (b) What are meiotic errors? Explain Mongolism and Klinefelter's Syndrome. 4
6. (a) Define joints. How are they classified? Explain different types of joints. 4
   (b) Describe predation and parasitism and their significance. 4
7. (a) Briefly explain synapse. 4
   (b) Discuss endangered species in detail. 4
8. (a) Define photoperiodism. Explain types of plants on its bases. 4
   (b) Briefly explain the problem erythroblastosis foetalis faced by certain parents. 4
9. (a) What are meristems? Explain their types highlighting their location in plant body and their roles. 4
   (b) Write down the steps of DNA finger printing. (Analyzing DNA) 4