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

(Academic Sessions 2015 – 2017 to 2017 – 2019)

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

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

PAPER CODE = 8467

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 change in frequency of alleles at a locus that occurs by chance is called : (A) Genepool (B) Genetic (C) Genetic drift (D) Mutation
2	Clear cytoplasm, in an ascidian zygote produces : (A) Muscle cells (B) Larval epidermis (C) Gut (D) Notochord
3	The simplest form of learning is : (A) Habituation (B) Imprinting (C) Insight learning (D) Latent learning
4	The pairing of homologous chromosomes is completed in phase of meiosis : (A) Leptotene (B) Zygotene (C) Pachytene (D) Diplotene
5	The particular array of chromosomes that an individual possesses is called : (A) Genome (B) Genepool (C) Karyotype (D) DNA-Duplex
6	Bats and humming birds are called : (A) Ectoderm (B) Endotherms (C) Ecotherms (D) Heterotherms
7	Upper layer of earth's crust is : (A) Dust (B) Sand (C) Land (D) Soil
8	Corpus luteum secretes a hormone called : (A) Progesterone (B) Oestrogen (C) Oxytocin (D) Testosterone
9	The enzyme luciferase is produced in an insect called : (A) Housefly (B) Firefly (C) Butterfly (D) Tsetsefly
10	The malpighian tubules remove nitrogenous wastes from the : (A) Lymph (B) Haemolymph (C) Coelomic fluid (D) Hind gut
11	Cell death due to tissue damage is called : (A) Apoptosis (B) Necrosis (C) Metastasis (D) Suicide
12	The disease which causes immobility and fusion of vertebral joints is called : (A) Arthritis (B) Rickets (C) Sciatica (D) Spondylosis
13	Primary succession, which starts in a pond ecosystem is termed as : (A) Derosere (B) Hydrosere (C) Ecosere (D) Xerosere
14	Hypophosphatemic rickets is an X-linked : (A) Dominant trait (B) Co-dominant trait (C) Over-dominant trait (D) Recessive trait
15	Which of the following biome is most fragile : (A) Tundra (B) Desert (C) Grassland (D) Forest
16	Discharge of egg from ovary is called : (A) Gametogenesis (B) Oogenesis (C) Ovulation (D) Menstrual cycle
17	The sclerenchyma cells found in seed coats and nutshells are called : (A) Fibers (B) Sclereides (C) Tracheids (D) Vessels

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BIOLOGY 219-(INTER PART – II) Time Aliowed : 2.40 hours

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

SECTION – I

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

(i) Differentiate between osmoconfermers and osmoregulators.
(ii) Define counter current multiplier.
(iii) Skin does not come within the definition of excretory organ. Comments.
(iv) What is jet propulsion? Explain with an example.
(v) Differentiate between effective stroke and recovery stroke.
(vi) What is sleep movement? Also write an example.
(vii) Give any two requirements to produce recombinant DNA.
(viii) Give the role of restriction endonucleases.
(ix) List the name of eight cities of Pakistan where desert ecosystem occurs.
(x) Differentiate between alpine and boreal coniferous forests.
(xi) How man is responsible to increase the number of endangered species?
(xii) Differentiate between deforestation and afforestation.

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

(i) How do plants respond to environmental stresses?
(ii) List the four types of hormones with examples.
(iii) Differentiate between CNS and PNS.
(iv) Define vernalisation. Which parts of plants received its effects?
(v) Differentiate between oviparous and viviparous.
(vi) Explain the role of gonadotropins in human female.
(vii) Write formula to calculate recombination frequency.
(viii) Define codominance with an example.
(ix) In grasshoppers male has 23 chromosomes, while female has 24 chromosomes. Work out.
(x) Differentiate between food chain and food web.
(xi) Differentiate between autecology and synecology.
(xii) What roles are played by links of food chain.

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

(i) Write any four causes of aging.
(ii) What are neoblasts and what is their role in development?
(iii) Write any two differences between normal cells and cancer cells.
(iv) How meiosis plays its role in producing genetic variations?
(v) Why cap and tail is added to eukaryotic RNA, when it leaves from nucleus to cytoplasm?
(vi) Write two characteristics of DNA polymerase III.
(vii) Define promoter and what is its role?
(viii) What is membrane invagination hypothesis?
(ix) Describe briefly, how molecular biology supports evolution.

SECTION – II

Note : Attempt any THREE questions.

5. (a) Describe the excretion in cockroach. Also draw labelled diagram. 3,1
   (b) How the flow of energy in food chain of an ecosystem takes place? 4
6. (a) Explain sliding filament model. How the bridges are controlled? 2,2
   (b) Explain work of Beadle and Tatum on Neurospora with help of a figure. 2,2
7. (a) Explain the role of hormones produced by posterior lobe of pituitary gland. 4
   (b) Describe importance of forests. 4
8. (a) Describe male reproductive system in man. 4
   (b) Explain the phenomenon of sex determination in humans. 4
9. (a) Explain Darwin theory of natural selection. 4
   (b) Write a note on regeneration.

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

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

PAPER CODE = 8466

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 phase of meiosis during which nuclei disappear in the cell is called :			
	(A) Leptotene	(B) Pachytene	(C) Diplotene	(D) Diakinesis
2	Photoperiod affects flowering when shoot meristem start producing :			
	(A) Floral buds	(B) Leaves	(C) Lateral buds	(D) Both B and C
3	Patients of cystic fibrosis often die due to numerous infection of the :			
	(A) Digestive tract	(B) Respiratory tract		
	(C) Reproductive tract	(D) Excretory tract		
4	The absorption of sodium in the ascending limb of the loop of Henle is controlled by a hormone known as :			
	(A) Antidiuretic	(B) Aldosterone	(C) Progesterone	(D) Testosterone
5	Agriculture was started some years ago :			
	(A) 40,000	(B) 30,000	(C) 20,000	(D) 10,000
6	A blue light sensitive protein pigment found in plants is :			
	(A) Cytochrome	(B) Phytochrome	(C) Photochrome	(D) Florigen
7	The internal hydrostatic pressure in plants is :			
	(A) Osmotic	(B) Root	(C) Turgor	(D) Solute
8	Among vertebrates uric acid is the chief nitrogenous waste in birds and :			
	(A) Fishes	(B) Amphibians	(C) Reptiles	(D) Mammals
9	The most critical phase of mitosis is :			
	(A) Prophase	(B) Metaphase	(C) Anaphase	(D) Telophase
10	In root nodules, the organisms present are :			
	(A) Bacteria	(B) Cyanobacteria	(C) Algae	(D) Fungi
11	Walther Fleming first observed chromosomes in the dividing cells in the Larvae of :			
	(A) Frog	(B) Insect	(C) Sea Urchin	(D) Salamander
12	The disease caused due to destruction of adrenal cortex is :			
	(A) Cushing	(B) Diabetes	(C) Alzheimer	(D) Addison
13	Grassland ecosystem in Pakistan is found in :			
	(A) Chilas	(B) Chitral	(C) Dir	(D) Swat
14	The hormone which suppress ovulation is :			
	(A) Testosterone	(B) Estrogen	(C) Progesterone	(D) Gastrin
15	The stabbing pain in leg is :			
	(A) Arthritis	(B) Herniation	(C) Sciatica	(D) Spondylosis
16	If there is 40% recombination frequency between two genes, then distance between them in unit map is :			
	(A) 30	(B) 40	(C) 50	(D) 60
17	Principles of geology was published by :			
	(A) Darwin	(B) Lyell	(C) Linnaeus	(D) Lamarck

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

SECTION – I

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

(i) Differentiate between ectotherms and endotherms.
(ii) Why the leaves are said to be excretophore?
(iii) Differentiate between protonephridia and metanephridia.
(iv) Write two characteristics of collenchyma tissue.
(v) Define phototactic movements with example.
(vi) How callus is formed?
(vii) What are palindromic sequences?
(viii) Compare ex-vivo and in-vivo gene therapy.
(ix) Write two adaptations for terrestrial ecosystem.
(x) Differentiate between alpine and boreal forests.
(xi) What is the importance of ozone layer?
(xii) Differentiate between deforestation and reforestation.

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

(i) Write down two uses of auxins.
(ii) How communication across the synapse occurs?
(iii) Define habituation. Give one example.
(iv) Write down the mechanism of pollen tube evolution in spermatophytes.
(v) What do you know about diploid parthenogenesis?
(vi) What is oestrous cycle?
(vii) Define gene and allele.
(viii) Differentiate between autosomes and sex-chromosomes.
(ix) What is a multifactorial trait? Give an example.
(x) Define the term ecosystem.
(xi) What is the difference between ectoparasite and endoparasite?
(xii) Define grazing. What is the result of over grazing?

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

(i) What is the difference between primary and secondary growth?
(ii) What is discoidal cleavage?
(iii) What is mitotic apparatus?
(iv) Differentiate between necrosis and apoptosis.
(v) Define Hardy-Weinberg theorem.
(vi) What are analogous organs? Give an example.
(vii) What is the difference between template strand and sense strand?
(viii) What is point mutation? Give an example.
(ix) What is membrane invagination hypothesis?

SECTION – II

Note : Attempt any THREE questions.

5. (a) Describe adaptations for thermoregulation in plants. 4
   (b) Describe nitrogen cycle in detail. 4

6. (a) Describe sliding filament model of muscle contraction. 4
   (b) Describe the process of translation in prokaryotes. 4

7. (a) Differentiate between instinctive and learning behaviour. 4
   (b) Write a note on ozone layer depletion. 4

8. (a) Write a note on vernalisation. 4
   (b) Define and explain test cross. 4

9. (a) Write a comprehensive note on aging. 4
   (b) Give evidences in support of evolution from comparative embryology and molecular biology. 2,2