

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

(Academic Sessions 2018 – 2020 to 2020 – 2022)

BIOLOGY

222-(INTER PART – II)

Time Allowed : 20 Minutes

Q.PAPER – II (Objective Type)

GROUP – I

Maximum Marks : 17

PAPER CODE = 8463 **LHR-91-22**

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	Parthenocary is artificially induced by : (A) Cytokinins (B) Auxin (C) Ethene (D) Abscisic acid
2	Pairing of homologous chromosomes is called : (A) Bivalent (B) Tetrad (C) Synapsis (D) Crossing over
3	According to --- hypothesis, aerobic bacteria developed into mitochondria : (A) Symbiotic (B) Endosymbiont (C) Mutualistic (D) Both A and B
4	What is our principle source of energy : (A) Nuclear energy (B) Geothermal energy (C) Solar energy (D) Tidal energy
5	Bats use ---- for evaporative cooling : (A) Saliva (B) Urine (C) Shivering (D) Both A and B
6	pBR 322 would enable separating out colonies of bacteria in a medium containing : (A) Tetracycline (B) Ampicillin (C) Gel (D) Both A and B
7	Sarcoplasmic reticulum surround each : (A) Myofilament (B) Myofibril (C) Sarcomere (D) Both A and B
8	The position of a gene on the chromosome is called its : (A) Locus (B) Genotype (C) Phenotype (D) All of these
9	Fresh water ecosystem covers less than : (A) 10% (B) 05% (C) 02% (D) 01%
10	The epiblast is presumptive : (A) Ectoderm (B) Mesoderm (C) Endoderm (D) Both A and B
11	The membrane that bounds vacuole is called : (A) Tonoplast (B) Symplast (C) Apoplast (D) All of these
12	Chromosomal part which uncoils during interphase is called : (A) Euchromatin (B) Heterochromatin (C) Chromatin (D) Both A and B
13	A plant has a growth pattern called : (A) Closed growth (B) Open growth (C) Primary growth (D) Secondary growth
14	Autosomal non-disjunction may occur in other than : (A) 20 th chromosome (B) 21 st chromosome (C) 23 rd chromosome (D) None of these
15	The normal speed of nerve impulse in human is --- per second : (A) 100 m / sec (B) 120 m / sec (C) 150 m / sec (D) None of these
16	During PCR thermostable enzyme is used named as : (A) DNA polymerase (B) Taq polymerase (C) Both A and B (D) None of these
17	The actual location of place where an organism lives is called : (A) Biosphere (B) Lithosphere (C) Atmosphere (D) Habitat

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222-(INTER PART – II)

Time Allowed : 2.40 hours

PAPER – II (Essay Type)

GROUP – I

Maximum Marks : 68

SECTION – I

LHR 21-22

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

- (i) How animals of hypotonic environment osmoregulate? Give examples.
- (ii) Animals excrete nitrogenous wastes with digestive feces. Give example and significance of this adaptation.
- (iii) How land animals trap a thick layer of air around the body? Give its significance.
- (iv) What is Ecdysis?
- (v) Differentiate Hinge Joint and Ball and Socket joint by giving example.
- (vi) What is arthritis?
- (vii) Define seed dormancy. Give its significance.
- (viii) Can we find a fruit without seeds? Give example.
- (ix) What is eutrophication?
- (x) Differentiate between prairies and savanna.
- (xi) Define soil. Give its basic constituents.
- (xii) What are industrial effluents? Give their two effects.

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

- (i) What happens when an impulse reaches a synaptic knob?
- (ii) Elaborate habituation as simplest form of learning.
- (iii) Give negative effects of nicotine.
- (iv) What is a sex limited trait?
- (v) State sexual dimorphism in drosophila.
- (vi) Define linkage group.
- (vii) How gene therapy helps cancer patients?
- (viii) What are molecular scissors? How were they obtained?
- (ix) Write down the role of lambda phages as a vector.
- (x) Interpret the role of decomposers in recycling.
- (xi) Compare hydrosere with that of xerosere.
- (xii) What is parasitism? Write down its importance.

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

- (i) Compare gastrulation and organogenesis.
- (ii) How inhibitory effect and compensatory effect are caused?
- (iii) What is Karyotype? Give its application in species recognition.
- (iv) Give the composition of chromosomes.
- (v) Differentiate between heterochromatin and euchromatin.
- (vi) What is mitotic apparatus?
- (vii) How cancer cells can be distinguished from normal cells?
- (viii) What is modern synthesis or Neo-Darwinism?
- (ix) What are analogous organs? Give example.

SECTION – II

Note : Attempt any THREE questions.

5. (a) Discuss the temperature classification of animals. 4
- (b) Discuss nitrogen depletion and its remedies. 4
6. (a) Compare sclerenchyma cells with collenchyma cells. 4
- (b) What is transcription? How it is carried out in cell? 4
7. (a) Explain the steps of that mechanism which maintains the concentration of secretions in the body. 4
- (b) Write a note on ozone depletion. 4
8. (a) Describe the phenomena of fruit set and fruit ripening. 4
- (b) Explain the process of crossing over with the help of diagram. 4
9. (a) Define and explain embryonic induction. 4
- (b) $p + q = 1$ 4
- Argue that this balance shown in theorem may not vary for a non-evolving population? 4

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BIOLOGY

222-(INTER PART – II)

Time Allowed : 20 Minutes

Q.PAPER – II (Objective Type)

GROUP – II

Maximum Marks : 17

PAPER CODE = 8468

LHR-42-22

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	Among the scientists who believed in divine creation was : (A) Charles Darwin (B) Alford Wallace (C) Carolus Linnaeus (D) Jean Lamarck
2	Particular array of chromosomes that an individual possesses is called : (A) Holotype (B) Karyotype (C) Neotype (D) Paratype
3	The total gestation period (pregnancy) is usually about : (A) 250 days (B) 260 days (C) 270 days (D) 280 days
4	Number of linkage groups in man is : (A) 20 (B) 22 (C) 21 (D) 23
5	The most critical phase of mitosis is : (A) Prophase (B) Metaphase (C) Anaphase (D) Telophase
6	The structures that lack secondary wall are : (A) Fibers (B) Sclerenchyma (C) Parenchyma (D) Collenchyma
7	Treasure of all type of resources is : (A) Weather (B) Climate (C) Environment (D) Water
8	In microcephaly, the individuals are born with small : (A) Eyes (B) Legs (C) Hands (D) Skull
9	A powerful tool of forensic science is a test : (A) RNA (B) DNA (C) mRNA (D) tRNA
10	The most concentrated environment is termed as : (A) Hypertonic (B) Isotonic (C) Hypotonic (D) Peritonic
11	Bivalents or tetrads are formed in : (A) Zygotene (B) Leptotene (C) Pachytene (D) Diakinesis
12	The dissolving cells are called : (A) Stem cells (B) Osteoclast (C) Osteoblast (D) Osteocytes
13	The study of single population's relationship to environment is called : (A) Autecology (B) Synecology (C) Ecology (D) Gerantology
14	Viral infections can be diagnosed by : (A) PCR (B) Cloning (C) Translation (D) Transformation
15	In Sindh, the desert ecosystem is called : (A) Thal (B) Sahara (C) Thar (D) Ghobi
16	Acetabularia is unicellular : (A) Fungus (B) Alga (C) Yeast (D) Protozoa
17	Hormone that suppresses ovulation is : (A) Testosterone (B) Oestrogen (C) Progesterone (D) Gastrin

Roll No 2 (To be filled in by the candidate)

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BIOLOGY

222-(INTER PART – II)

Time Allowed : 2.40 hours

PAPER – II (Essay Type)

GROUP – II

Maximum Marks : 68

SECTION – I

LHR-G2-22

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

16

- (i) What components of internal environment are affected by external fluctuations? How are these corrected?
- (ii) What may happen to a cell when placed in a hypotonic environment and then in a hypertonic environment?
- (iii) Justify the statement, " Excretion of uric acid in some terrestrial animals is an adaptation to conserve water".
- (iv) Compare sapwood and heartwood.
- (v) Write the name of unpaired bones of human cranium and face.
- (vi) What is osteoporosis? How is it treated?
- (vii) How do plants detect light or dark period?
- (viii) What is vernalin? How is it produced in plants?
- (ix) What do you mean by the productivity of an ecosystem? How is it determined?
- (x) What kind of soil conditions are found in grassland ecosystem?
- (xi) What is nutrient cycle? How is this cycle disturbed?
- (xii) Write the sources and harmful effects of CFCs and SO₂.

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

16

- (i) How plants respond to stimuli?
- (ii) In what way nerve impulse triggers the action potential?
- (iii) How different modalities of sensation work?
- (iv) What are multiple alleles? Mention their presence in diploid and haploid organisms.
- (v) What is test cross? Write down its uses.
- (vi) Differentiate between gene linkage and linkage group.
- (vii) Write two possible ways to get genes.
- (viii) What are plasmids? Give their two examples.
- (ix) Write down the two uses of PCR amplification.
- (x) Differentiate between autecology and synecology.
- (xi) How the trophic levels are involved in the flow of energy?
- (xii) What is prey and predator interaction? Write its significance.

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

12

- (i) How are area pellucida and area opaca developed?
- (ii) The number of older individuals are expected to rise in humans, discuss.
- (iii) Why does every genetic code consists of three nucleotides?
- (iv) What do you know about the minimal medium used by Beadle and Tatum?
- (v) Describe promoter area in transcription.
- (vi) Describe mitotic apparatus.
- (vii) Describe Turner's syndrome.
- (viii) Differentiate between homologous and analogous structures.
- (ix) Define Hardy Weinberg Theorem.

SECTION – II

Note : Attempt any THREE questions.

5. (a) Explain in detail the adaptations in plants to high and low temperature. 4
- (b) What is food web? Give its significance. Draw a food web. 4
6. (a) Explain some major functions of skeletal system in maintenance of human life. 4
- (b) Discuss chemical nature of DNA with reference to nucleoside and nucleotide composition. 4
7. (a) Describe major factors which restore resting membrane potential in a neuron after passage of a nerve impulse. 4
- (b) Discuss the importance of forests for human. 4
8. (a) Discuss sexually transmitted diseases. How can these be controlled? 4
- (b) Write an essay on crossing over. 4
9. (a) Discuss abnormal development due to environmental factors and metabolic defects. 4
- (b) Explain natural selection and artificial selection as evidence of evolution. 4