Objective Biology Paper Group-I Faisalabad Board 2023

Roll No. _____ (To be filled in by the candidate) **Maximum Marks : 17**

Biology **223-1st Annual - (Inter Part-II)** **Time Allowed : 20 Minutes**

PAPER – II (Objective Type) **Group - I** **PAPER CODE = 8467**

Note: You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill that circle in front of that question number, Use marker or when to fill the circles. Cutting or filling or two or more circles will result in zero mark in that question.

Q.1	Questions	(A)	(B)	(C)	(D)
1.	How many kinds of tRNA are in human cell?	54	20	25	45
2.	Full cell cycle in yeast cell has length of:	90 minutes	60 minutes	30 minutes	120 minutes
3.	Form of appearance of a trait is:	Genotype	Pleiotropy	Phenotype	Metastasis
4.	Antithrombin-III is biotechnology product produced in:	Mice	Cow	Sheep	Goat
5.	Cell suspension culture of digitalis lanara produces:	Antitoxin	Quinine	Digitoxin	Penicillin
6.	Endosymbiont hypothesis was proposed by:	Lynn Margulis	Wallace	Lamarck	Linnaeus
7.	The abiotic component of an ecosystem is:	Decomposer	Producer	Consumer	Temperature
8.	Northern coniferous forests are also called:	Taiga	Prairies	Savanna	Tundra
9.	Total area of world under cultivation is:	9%	10%	11%	12%
10.	Production of sweat and sebum is related with:	Skin	Liver	Lang	Gills
11.	Which is stimulus for thigmotropism?	Light	Touch	Water	Chemicals
12.	The living cells of cartilage are called:	Chondrocyte	Blastocyte	Nematocyst	Chondrocyte
13.	Nissl's granules is the group of	Ribosome	Chromosome	Mesosome	Lysosome
14.	Insulin and glucagon are in nature:	Carbohydrate	Steroid	Protein	Polypeptide
15.	Pregnancy is maintained by	Progesteronic	Oxytocin	FSH	Testosteron
16.	The hypoblast is mainly presumptive of:	Blastoderm	Ectoderm	Mesoderm	Endoderm
17.	Which strand of DNA is transcribed:	Coding	Sense	Template	Both strand

Subjective Biology Paper Group-I Faisalabad Board 2023

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

Biology **223-1st Annual - (Inter Part-II)** **Time Allowed : 2.40 Hours**

PAPER – II (Essay Type) **Group - I** **Maximum Marks : 68**

SECTION - I

2. Write short answers to any eight (8) questions: **8×2 = 16**

(i) How do terrestrial animals overcome the problem of evaporative water loss?

(ii) Justify the statement, "Excretion of uric acid in some terrestrial animals is an adaptation to conserve water.

(iii) Compare poikilotherms and homeotherms.

(iv) Compare sapwood with heartwood.

(v) Outline the mechanism by which intervertebral disc is herniated.

(vi) Compare sarcolemma and sarcomere.

(vii) How is pollen tube significant in the life histories of spermatophytes?

(viii) Justify the role of fetus in initiating the process of birth in human females.

(ix) Compare weather and climate.

(x) What kind of soil conditions are found in grassland ecosystem?

(xi) How is ozone layer depleted by CFCS?

(xii) Write the causes of water pollution.

3. Write short answers to any eight (8) questions: **8×2 = 16**

(i) What is chlorosis? How is it caused?

(ii) What are effectors? Quote an example.

(iii) Elaborate action of nicotine on humans.

(iv) Define epistasis. How does it differ from dominance?

(v) Name four traits of garden pea studied by Gregor Mendel.

(vi) Differentiate quantitative trait with polygenic trait with examples.

(vii) What are restriction enzymes? Who first isolated them?

(viii) How taq polymerase act as a thermocycler?

(ix) What is cell suspension? Quote an example.

(x) What are lichens? How are they important?

(xi) Differentiate between biosphere and niche.

(xii) Write the significance of root nodules in plants.

4. Write short answers to any six (6) questions: **8×2 = 16**

(i) Differentiate between determinate and indeterminate growth.

(ii) Write the importance of red and blue light in growth.

(iii) Write the structural formula of a dinucleotide.

(iv) Write the factor causing alkaptonuria.

(v) Give the role of aminoacyl-tRNA synthetase.

(vi) Write the events of telophase in animal cell.

(vii) Give the importance of Meiosis.

(viii) Give the importance of sedimentary rocks regarding fossil formation.

(ix) Define Hardy-Weinberg Theorem

SECTION - II

Note: Attempt any three (3) questions: **8×3 = 24**

5. (a) Define and explain the process of dialysis.

(b) Define non-disjunction and explain Down's syndrome.

6. (a) Why bones break and also explain the repair process of a simple bone fracture?

(b) Give a detailed account of food chain and food web with its trophic levels.

7. (a) Discuss working of sensory receptors with special reference to skin.

(b) What are endangered species? What measure could be adopted for their preservation?

8. (a) Describe female reproductive cycle in detail.

(b) What are sex-chromosomes? Discuss the chromosomal patterns of sex-determination in organisms.

9. (a) Explain the mechanism of gastrulation during embryonic development in chick.

(b) Explain the techniques of micro-injection and vortex-mixing produce a transgenic animal.

Objective Biology Paper Group-II Faisalabad Board 2023

Roll No. _____ (To be filled in by the candidate) **Maximum Marks : 17**

Biology **223-1st Annual - (Inter Part-II)** **Time Allowed : 20 Minutes**

PAPER – II (Objective Type) **Group - II** **PAPER CODE = 8466**

Note: You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill that circle in front of that question number, Use marker or when to fill the circles. Cutting or filling or two or more circles will result in zero mark in that question.

Q.1	Questions	(A)	(B)	(C)	(D)
1.	Polluted air contains certain pollutants like CO, CFCs lead compounds and:	SO_2	CH_4	Chromium	Hydro Carbon
2.	Cederous deodara are located in	Grassland prairies	Temperate deciduous forests	Tropicalrain forests	Coniferous alpine and boreal forests
3.	How much of the total energy from sun is trapped by the producers in an ecosystem?	10%	01%	100%	50%
4.	The flower parts of flowering plants are:	Vestigial	Analogous	Homologous	None of these
5.	How many base pairs are present in human genome?	03 billions	05 billions	07 billions	09 billions
6.	The enzyme luciferase is produced in an insect called:	House fly	Butterfly	Tsetse fly	Fire fly
7.	Healthy and encouraging social environment promotes:	Intelligence	Height	Skin colour	Ear lobe
8.	Edward syndrome is due to excess of chromosome:	Sex chromosome	Autosome (#18)	X - chromosome	Y - chromosome
9.	Okazaki fragments in discontinuous strand are joined by:	DNA Polymerase-l	Topoisomerase	DNA ligase	DNA Helicase
10.	The genetic code for methionine is:	AUG	GGG	AGA	UAG
11.	Yellow cytoplasm gives rise to:	Epidermis	Gut	Notochord	Muscle cells
12.	Corpus Luteum secretes a hormone called:	FSH	Estrogen	Progesterone	LH
13.	All of these are neurotransmitters except:	Histamine	Acetyl choline	Serotonin	Dopamine
14.	MSH is secreted from the:	Anterior lobe of pituitary gland	Median lobe of pituitary gland	Posterior lobe of pituitary gland	Adrenal gland
15.	The growing tip of young stem moves in Zig-Zag fashion due to which mode of growth:	Hyponasty	Epinasty	Nutation	Phototropism
16.	Each dark band is called:	I-Band	A-Band	H-Band	Z-Band
17.	Plants respond to cold stress by increasing proportion of:	Proteins	Carbohydrates	Saturated fatty acids	Unsaturated fatty acids

Subjective Biology Paper Group-II Faisalabad Board 2023

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

Biology **223-1st Annual - (Inter Part-II)** **Time Allowed : 2.40 Hours**

PAPER – II (Essay Type) **Group - II** **Maximum Marks : 68**

SECTION - I

2. Write short answers to any eight (8) questions: **8×2 = 16**

(i) What is shivering thermogenesis?
(ii) Sketch urea cycle.
(iii) What are Malpighian tubules?
(iv) What is nutation?
(v) Why are lower two parts of ribs called "floating ribs"?
(vi) What are the causes of rickets disease?
(vii) Sexual reproduction in plants is called diplohaplontic life. Why
(viii) How are identical twins produced?
(ix) Differentiate prairies and savanna.
(x) What is littoral zone of lake?
(xi) What are non-renewable resources?
(xii) How does algal bloom cause oxygen depletion in aquatic ecosystem?

3. Write short answers to any eight (8) questions: **8×2 = 16**

(i) Differentiate between circannual rhythms and diurnal rhythms.
(ii) What is habituation? Give an example.
(iii) What is synapse?
(iv) How homozygous or heterozygous nature of a genotype can be checked? Give an example.
(v) Which parents have MN blood group children? Discuss it.
(vi) How the alleles of a gene pair can be separated?
(vii) How restriction enzymes cut the DNA at specific sites? Comment on it.
(viii) How you facilitate the insertion of foreign DNA into a vector? Comment on it.
(ix) Why you need taq polymerase in PCR?
(x) Differentiate between population and community by giving example.
(xi) What is predation? Give its significance.
(xii) Define the term mutualism by giving at least one example.

4. Write short answers to any six (6) questions: **6×2 = 12**

(i) Differentiate between Morulla and Blastula.
(ii) Write two causes of aging.
(iii) Why stop codon are non-sense codon? Also write its two names.
(iv) What is point mutation? Given one example.
(v) Define phosphodiester linkage. Also draw it.
(vi) Write two importance of mitosis.
(vii) What changes occur during G_1 of interphase of cell cycle?
(viii) Define biogeography. Give example.
(ix) Define Hardy - Weinberg Theorem.

SECTION - II

Note: Attempt any three (3) questions: **8×3 = 24**

5. (a) Discuss the nature of excretory products in relation to the habitat of animals.
(b) What is cancer? Describe the types and causes of cancer.

6. (a) Explain directional movements of plants due to external stimuli.
(b) Define ecosystem. Describe its components in detail.

7. (a) Explain the structure and functions of thyroid gland.
(b) Write a note on endangered species in detail.

8. (a) Explain different physiological and structural changes occurring during the process of birth in human females.
(b) Define probability. Derive 9 : 3 : 3 :1 ratio of independent assortment through product rule.

9. (a) What is the importance of the nucleus in the development? Elaborate your answer with the help of diagram.
(b) What do you know about tissue culture technology?

Objective Biology Paper Group-I Sargodha Board 2023

Roll No. _____ (To be filled in by the candidate) **Maximum Marks : 17**

Biology **223-1st Annual - (Inter Part-II)** **Time Allowed : 20 Minutes**

PAPER – II (Objective Type) **Group-I** **PAPER CODE = 4461**

Note: You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill that circle in front of that question number, Use marker or when to fill the circles. Cutting or filling or two or more circles will result in zero mark in that question.

Q.1	Questions	(A)	(B)	(C)	(D)
1.	Which is not a Poikilotherm?	Invertebrates	Reptiles	Amphibians	Birds
2.	Fibrous Tissue which connects two bones is called:	Ligament	Muscle	Tendon	Connective Tissue
3.	Posterior four vertebrae of pelvic region form:	Sacrum	Coccyx	Pelvis	Pubis
4.	Which type of Neuron have long axon?	Sensory Neuron	Motor Neuron	Associative Neuron	Intermediate Neuron
5.	All are phases of menstrual cycle except:	Menstruation	Secretory phase	Proliferative phase	Fertilization
6.	In the zone of elongation, the volume of the cells increases up to:	100 times	150 times	200 times	250 times
7.	Which neurotransmitter secreted at synapse outside the central nervous system?	Dopamine	Adrenaline	Serotonin	Acetylcholine
8.	Which of the followings is required for joining okazaki fragments during DNA Replication?	DNA polymerase-I	DNA Ligase	DNA polymerase-Ill	RNA polymerase
9.	Contraction of spindles occur during:	Prophase	Metaphase	Anaphase	Telophase
10.	Anticodons are present on =	tRNA	mRNA	rRNA	DNA
11.	Interaction between genes occupying different Loci is:	Dominance	Pleiotropy	Gene linkage	Epistasis
12.	pSC 101 has antibiotic resistant gene for:	Ampicillin	Streptomycin	Tetracycline	Penicillin
13.	Patients of cystic fibrosis die due to numerous infections of the:	Respiratory tract	Digestive tract		Reproductive trac
14.	Endosymbiont Hypothesis explains origin of:	Bacteria	Prokaryotes	Armadillo	Eukaryotes
15.	All the populations within an ecosystem are known as:	Species	Food Web	Community	Pioneers
16.	Coniferous forest located at high latitude are called:	Boreal	Alpine	Taiga	Prairies
17.	The decline in thickness of ozone layer is caused by increasing level of:	Hydrocarbons	Nitrocarbons	Chlorofluorocarbons	Nitrogen oxide

Subjective Biology Paper Group-I Sargodha Board 2023

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

Biology **223-1st Annual - (Inter Part-II)** **Time Allowed : 2.40 Hours**

PAPER – II (Essay Type) **Group-I** **Maximum Marks : 68**

SECTION - I

2. Write short answers to any eight (8) questions: **8×2 = 16**

(i) What are the adaptations of xerophytes for Osmoregulation?
(ii) Differentiate b/w Osmoconformers and osmoregulators?
(iii) What is the role of ADH and aldosteron Osmoregulation?
(iv) Differentiate b/w collenchyma and sclerenchyma.
(v) Write the name of Bones of Cranium.
(vi) What is the effect of exercise on Muscle?
(vii) How is a seed formed
(viii) What is the role of corticosteroid in birth process?
(ix) What are the adaptations in plants and animals for terrestrial ecosystem?
(x) Compare the rain fall in Temperate decidous forests and Grassland ecosystem.
(xi) What is the role of soil for plants and animals?
(xii) Ho wave can save energy?

3. Write short answers to any eight (8) questions: **8×2 = 16**

(i) Differentiate homozygous and heterozygous conditions.
(ii) Why is Pituitary anterior lobe referred to as Master gland?
(iii) Define Habituation in terms of animal behaviour.
(iv) What is Nerve system?
(v) Define Pleiotropy. Give one example.
(vi) If recombination frequency is 20% thendraw a gene map. (linkage map).
(vii) How is genomic library made?
(viii) Give an application of Transgenic bacteria.
(ix) How did scientists produce a salt-tolerant plant?
(x) Define Autecology.
(xi) How do root nodular bacteria give and take benefits during symbiotic association?
(xii) Differentiate Macronutrients and Micronutrients.

4. Write short answers to any six (6) questions: **6×2 = 12**

(i) What are teratogens? Give examples.
(ii) Lateral buds in plants can be released from the effect of Apical bud. Comment on it.
(iii) Discuss the bondings which hold together two strands of DNA in double helix.
(iv) How two strands of DNA get synthesized during DNA replication?
(v) How RNA polymerase form Transcription bubble on a gene? Discuss it.
(vi) What is Metastasis?
(vii) Distinguish Apoptosis from Necrosis.
(viii) What are vestigical organs? Give examples.
(ix) Define Endosymbiont hypothesis.

SECTION - II

Note: Attempt any three (3) questions: **8×3 = 24**

5. (a) Draw Labelled diagram of vertebrate Nephron. State the function of each part.
(b) Define mitosis, only explain its importance.

6. (a) Highlight the types of directional responses in plants which are caused due to external stimuli.
(b) Define Xerosere. Describe the stages of Xerosere,

7. (a) Explain how reflex action prevent body damage during emergency?
(b) Define endangered species. Discuss causes of extinction and conservation plan.

8. (a) What is Diabetes mellitus? Explain its genetic basis.
(b) Describe the human male reproductive system.

9. (a) Explain in detail the phenomenon of Growth Correlation with example. Write its commercial application.
(b) Explain the process of polymerase chain reaction with the help of diagram.

Objective Biology Paper Group-II Sargodha Board 2023

Roll No. _____ (To be filled in by the candidate) **Maximum Marks : 17**

Biology **223-1st Annual - (Inter Part-II)** **Time Allowed : 20 Minutes**

PAPER – II (Objective Type) **Group-II** **PAPER CODE = 4464**

Note: You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill that circle in front of that question number, Use marker or when to fill the circles. Cutting or filling or two or more circles will result in zero mark in that question.

Q.1	Questions	(A)	(B)	(C)	(D)
1.	Acetabularia is unicellular:	Alga	Fungus	Yeast	Protozoa
2.	Fever causing substance is called:	Pyrogen	Pathogen	Poison	Pyrexia
3.	Brain is protected by:	Skull	Cranium	Orbit	Maxilla
4.	Action of venus fly trap is:	Nyctinasty	Epinasty	Haptonasty	Hyponasty
5.	Hormone that supresses ovulation is:	Progestrone	Oestrogen	Gastrin	Testosterone
6.	Fruit ripening is due to production of	Auxins	Cytokinins	Ethene	Gibberelins
7.	Diploid parthenogenesis may occur in:	Bees	Aphid	Wasp	Honey bee
8.	Which of the following act as environmental buffer?	Forests	Oceans	Lakes	Deserts
9.	Initiation codes for every protein coding gene is AUG which encodes for:	Leucine	Alanine	Methionine	Serine
10.	Histone proteins combine with DNA to form a complex.	Kinetochore	Nucleosome	Chromatin	Chromatid
11.	The S-phase of cell cycle takes	10 hours	9 hours	4.5 hours	1.30 hours
12.	ABO blood group was discovered in:	1903	1901	1900	1905
13.	PCR 101 plasmid has antibiotic restriction gene for	Tetracycline	Ampiciline	Streptomycin e	Penecillin
14.	PCR technique was developed by	Sanger	Maxam	Kary B Mullis	Hamilton
15.	Who Published an essay on "The principle of population"?	Malthus	Mendle	Darwin	Lamark
16.	Lithosphere includes:	Air	Water	Earth soil	Gases
17.	In grassland ecosystem tropical climates have woody trees called.	Pampas	Savanna	Alpine	Prairies

Subjective Biology Paper Group-II Sargodha Board 2023

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

Biology **223-1st Annual - (Inter Part-II)** **Time Allowed : 2.40 Hours**

PAPER – II (Essay Type) **Group-II** **Maximum Marks : 68**

SECTION - I

2. Write short answers to any eight (8) questions: **8×2 = 16**

(i) Write the metabolic waste products of amino acids and nucleic acids.
(ii) What are heterotherms? Give two examples.
(iii) Give the role of Juxtamedullary nephrons.
(iv) Differentiate between Heartwood and Sapwood.
(v) What is nutation?
(vi) What is ligament? Give its function.
(vii) Define Climactric.
(viii) Give the effect of red light on internode growth and etiolation.
(ix) Differentiate between alpine and boreal forests.
(x) What do you know about Pampas and Prairies?
(xi) Give the distribution percentage of water in different forms on the earth.
(xii) Define bioconversion

3. Write short answers to any eight (8) questions: **8×2 = 16**

(i) What are biological Rhythms?
(ii) Write two commercial applications of Abscisic Acid.
(iii) How is reflex action helpful in our daily life?
(iv) Compare Gross and Net Primary Production.
(v) What are compound Sex chromosomes? Write an example.
(vi) What is product rule?
(vii) Why was test cross devised by Mendel?
(viii) Write the use of cell suspension culture technique.
(ix) How do genetic engineers were able to produce salt tolerant plant "Arabidopsis".
(x) What is the role of suicide gene in transgenic bacteria?
(xi) What is Predation? Give its importance.
(xii) Write the significance of root nodules in plants. Give an example.

4. Write short answers to any six (6) questions: **6×2 = 12**

(i) What role is played by gray-crescent in development?
(ii) How gerentology is helping in increasing expected ages?
(iii) Why DNA replication is semi-conservative?
(iv) What do you know about benign and malignant tumors?
(v) Why some portion of chromatin is condensed permanently and other remain condensed only during cell division?
(vi) What is genetic code and also give its properties?
(vii) Differentiate between apoptosis and necrosis.
(viii) What is the theory of special creation?
(ix) How biogeography does provide evidence for evolution?

SECTION - II

Note: Attempt any three (3) questions: **8×3 = 24**

5. (a) Describe the process of concentration of excretory products in Human Nephron.
(b) In what respect can cell death be regarded beneficial.

6. (a) Describe a Hinge Joint and explain how it is moved by antagonistic muscles?
(b) Describe flow of Energy in food chain of an ecosystem.

7. (a) Explain types and functions of hormones released from cortex of Adrenal gland.
(b) Give detailed evidences of evolution from comparative anatomy.

8. (a) Describe vernalization in plants by giving its significance.
(b) Describe the inheritance of a trait in which the phenotype of a heterozygote is intermediate between phenotypes of the two homozygotes by giving one example.

9. (a) Describe the impact of Nucleus on development by giving example of Acetabularia.
(b) How Severe Combined Immunodeficiency syndrome (SCID) children are treated?

Objective Biology Paper Group – I D.G Khan Board 2023

Roll No. _____ (To be filled in by the candidate) **Maximum Marks : 17**

Biology pakcity.org **12th CLASS-1st Annual 2023** **Time Allowed : 20 Minutes**

PAPER – II (Objective Type) **Group - I** **PAPER CODE = 8462**

Note: You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill that circle in front of that question number, use marker or when to fill the circles. Cutting or filling two or more circles will result in zero mark in that question.

1. Blood enters the Glomerulus through:
   (A) Efferent arteriole (B) Renal artery (C) Afferent arteriole (D) Renal vein
2. Pick the paratonic movement:
   (A) Nastic (B) Growth (C) Turgor (D) Tactic
3. Which disease is caused by low Ca^{++} in blood?
   (A) Tetany (B) Cramp (C) Muscle Fatigue (D) Sciatica
4. Mechanoreceptors detect stimulus of:
   (A) Smell (B) Pressure (C) Light (D) Cold or warmth
5. The part of neuron fiber which conduct nerve impulse away from the cell body is:
   (A) Peripheral branch (B) Dendron (C) Axon (D) Dendrites
6. Which one differentiates directly into mature sperm?
   (A) Primary Spermatocytes (B) Secondary Spermatocytes (C) Spermatogonia (D) Spermatid
7. Neural Plate is formed from:
   (A) Ectoderm (B) Mesoderm (C) Endoderm (D) Nolochord
8. In what direction can a DNA polymerase work when catalyzing the addition of nucleotides monomers?
   (A) From 5' to 3' (B) From 3' to 5' (C) Only toward replication fork (D) Only away from replication fork
9. In mitochondria stop codon is:
   (A) UAA (B) AGA (C) UAG (D) UGA
10. During which phase DNA content of cell is doubled?
    (A) Resting phase (B) Interphase (C) G_1 Phase (D) S-Phase
11. When single gene affects two or more traits:
    (A) Epistasis (B) Dominance (C) Pleiotropy (D) Over dominance
12. In recombinant DNA technology, plasmids and lambda phage are used as:
    (A) Genetic material (B) Vectors (C) Enzymes (D) Probe
13. Which enzymes is used to attach desired gene into plasmid during genetic engineering?
    (A) DNA helicase (B) DNA ligase (C) DNA polymerase (D) Taq Polymerase
14. Branch of biology that provides evidences through fossil record is called:
    (A) Biogeography (B) Molecular biology (C) Paleontology (D) Anatomy
15. A group of interbreeding individuals occurring together in space and time is called:
    (A) Community (B) Niche (C) Population (D) Species
16. Zoological names of Leopord cat is:
    (A) Felis domestics (B) Felis leo (C) Felis pardous (D) Felis bengalensis
17. Scum in eutrophication is formed by:
    (A) Fungi (B) Algae (C) Bacteria (D) Euglena

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

Biology (Subjective) **12th CLASS-1st Annual 2023** **Time Allowed : 2.40 Hours**

PAPER – II (Essay Type) **Group - I** **Maximum Marks : 68**

SECTION - I

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

i. In what ways cacti survive in dry conditions?
ii. How endothermy evolved in mammals and birds?
iii. How in flooding of water is prevented by aquatic plants?
iv. Differentiate between geotropism and thigmotropism
v. Give four functions of skeletal system.
vi. Give cause and treatment of rickets.
vii. How red light is important for flowering?
viii. Which role is played by auxin for fruits?
ix. Write names of four animals living in Temperate deciduous forest.
x. Why human has impact on ecosystem?
xi. What is stone cancer? Give its cause.
xii. Name any two air pollutants and their sources.

3. Write short answers of any Eight (8) parts from the following: **8×2 = 16**

i. How does nicotine interfere with particular sites of Human Nervous system?
ii. What are various parts of Limbic system?
iii. How is the blood calcium level regulated by calcitonin and parathormone?
iv. What is Punnett square?
v. Why does the blood genotype of a person remain constant throughout life?
vi. How can you calculate recombination-frequency between two linked genes?
vii. What is gel electrophoresis?
viii. Give the applications of DNA analysis technique.
ix. What is probe? Give its use.
x. Write down the significance of root nodules in plants.
xi. What is Grazing? How grazers affect the texture of Soil?
xii. How Biogeochemical cycles maintain the fertility of Soil?

4. Write short answers of any Six (6) parts from the following: **6×2 = 12**

i. How does coelom develop in chick embryo?
ii. How temperature play its role in growth of plants? iii. How a phosphodiester bond is formed?
iv. Differentiate between leading and lagging stand.
v. How initiation of translation takes place? vi. Give the importance of meiosis.
vii. vii Is interphase a resting phase? why? viii. What is membrane invagination hypothesis?
ix. Which kinds of factors affecting gene frequency?

SECTION - II

Note: Note Attempt any three questions. Each question carries equal marks: **8×3 = 24**

5. **(a)** What is Nephron? Describe Nephron structure with the help of labeled diagram.
   (b) Define meiosis. Explain different stages of prophase -1 of meiosis-1
6. **(a)** Relate the concept of turgor movements in plants with turgor pressure change by giving examples.
   (b) Define succession. Describe its different stages occurring on a dry rock.
7. **(a)** Name and explain various Hormones of anterior lobe of pituitary gland.
   (b) Define Endangered species. Write two methods to save endangered species.
8. **(a)** How do birds, reptiles and mammals protect the developing embryos in terrestrial conditions? Discuss in details.
   (b) What is Zigzag pattern of inheritance? Explain any one of the traits in human which are inherited in a zig-zag manner.
9. **(a)** Describe various external factors that influenced on plant growth.
   (b) Explain the process of polymerase chain reaction with the help of a diagram.

Objective Biology Paper Group – II D.G Khan Board 2023

Roll No. _____ (To be filled in by the candidate) **Maximum Marks : 17**

Biology **12th CLASS-1st Annual 2023** **Time Allowed : 20 Minutes**

PAPER – II (Objective Type) **Group - II** **PAPER CODE = 8465**

Note: You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill that circle in front of that question number, use marker or when to fill the circles. Cutting or filling two or more circles will result in zero mark in that question.

1. Among the vertebrates hagfishes are isotonic with surrounding:
   (A) Pond H_2O (B) Lake H_2O (C) River H_2O (D) Sea H_2O
2. Rickets is a disease in children with:
   (A) Soft bones (B) Herniation (C) Bowed legs and deformed pelvis (D) Arthritis
3. The living cells of cartilage are called:
   (A) Chondrocytes (B) Osteoblasts (C) Osteocytes (D) Osteoclasts
4. Antidiuretic hormone is also named as:
   (A) Oxytocin (B) Vasopressin (C) Androgen (D) Oestrogen
5. Neuron membrane potential in unstimulated state is:
   (A) -50 mv (B) -60 mv (C) -70 mv (D) -80 mv
6. In human females menstruation usually lasts for:
   (A) 3-7 days (B) 3-9 days (C) 1-3 days (D) 1-2 days
7. The capacity of some cells to stimulate a specific developmental response in other cells is:
   (A) Aging (B) Embryonic induction (C) Apical dominance (D) Growth
8. Which one of them is double ring Nitrogenous base:
   (A) Adenine (B) Cytosine (C) Thymine (D) Uracil
9. Sickle cell Anemia and phenylketonuria are well known:
   (A) Point mutations (B) Site mutations (C) Chromosomal aberrations (D) Dot mutations
10. The significance of mitosis:
    (A) Takes place in all parts (B) Ensures the Survival (C) Occurs under adverse conditions (D) Produces identical cells
11. Enlargement of spleen and liver occur in:
    (A) Haemophile (B) Pleiotropy (C) Erythroblastosis fetalis (D) Hypophosphataemic rickets
12. Which one of them is used to make the animal eggs transgenic?
    (A) Particle gum (B) By Agrobacterium (C) Vortex mixing (D) Micropropagation
13. For treatment of familial hypercholesterolemia learning patients, the normal gene is inserted into patients through:
    (A) Retrovirus (B) Phage virus (C) Agrobacterium (D) Any bacterium
14. Which bacteria survive at high temperature:
    (A) Archaeobacteria (B) Cyanobacteria (C) Spirochetes (D) E. Coli
15. Succession is initiated by a few hardly invaders called:
    (A) Predators (B) Pioneers (C) Parasites (D) Grazers
16. The desert ecosystem in western Punjab is known as:
    (A) Thar (B) Thal (C) Cholistan (D) Sahara
17. The population of Pakistan at the time of Independence in 1947 was:
    (A) 31.5 million (B) 32.5 million (C) 33.5 million (D) 30.5 million

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

Biology (Subjective) **12th CLASS-1st Annual 2023** **Time Allowed : 2.40 Hours**

PAPER – II (Essay Type) **Group - II** **Maximum Marks : 68**

SECTION - I

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

i. Draw the metabolic waste in urea cycle.
ii. What are Endotherm? Give one example.
iii. Compare Hypotonic environment with Hypertonic environment.
iv. Define hinge joint, Give example.
v. What is cleft palate? Write its cause.
vi. What are digitigrade? Give example.
vii. Write two advantages of cloning.
viii. What is Genital Herpes? Write its causative agent.
ix. How Coniferous alpine differ from Boreal Forest?
x. Characterize limnetic zone, mention its life.
xi. What is Hydroelectric power? Write its advantages.
xii. Write three effects of Acid Rain?

3. Write short answers of any Eight (8) parts from the following: **8×2 = 16**

i. Differentiate between tumors and galls in plants.
ii. What important functions are played by cortisol and corticosterone?
iii. Define Habituation with an example.
iv. Define Mendel's law of independent assortment of genes.
v. What is testicular feminization syndrome?
vi. What is IDDM? How is it caused?
vii. How can be transgenic plants used medicinally? State two examples.
viii. How is SCID treated by Ex-vivo gene therapy?
ix. What tissue culture technique is adopted for developing artificial seeds?
x. How did 'Grinnell' and 'Eltan' define the ecological NICHE?
xi. Compare ectoparasites and endoparasites.
xii. What is plant biomass?

4. Write short answers of any Six (6) parts from the following: **6×2 = 12**

i. Illustrate discoidal cleavage.
ii. Write down the role of temperature as an external factor in plant growth.
iii. What are Okazaki fragments? Give their length in prokaryotes and eukaryotes.
iv. Differentiate between template and coding strand.
v. What are molecular basis of sickle cell anemia?
vi. What changes occur in dividing cell during diplotene?
vii. Argue crossing over in pachytene stages.
viii. How natural selection occurs? Quote an example.
ix. Write the names of four extinct species in Pakistan.

SECTION - II

Note: Note Attempt any three questions. Each question carries equal marks: **8×3 = 24**

5. **(a)** Write events of interphase in different organisms.
   (b) Describe excretion in Cockroach.
6. **(a)** How does s secondary growth occur?
   (b) Define Succession. Discuss xerosere in detail.
7. **(a)** How can you distinguish between conditioned reflex type-l and conditioned reflex type-ll? Explain these two types by taking examples.
   (b) Explain two main points that Darwin mentioned in his book," the origin of species"
8. **(a)** Give the comparison between Asexual und Sexual reproduction.
   (b) Define Epistasis and explain it with Bombay phenotype.
9. **(a)** What is regeneration? Why it is so effective in some animals and missing in others?
   (b) For what purposes have bacteria been genetically altered?

Objective Biology Paper Bahawalpur Board 2023

Roll No. _____ (To be filled in by the candidate) **Maximum Marks : 17**

Biology **223-1st Annual - (Inter Part-II)** **Time Allowed : 20 Minutes**

PAPER – II (Objective Type) **PAPER CODE = 8465**

Note: You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill that circle in front of that question number, Use marker or when to fill the circles. Cutting or filling or two or more circles will result in zero mark in that question.

Q.1	Questions	(A)	(B)	(C)	(D)
1.	Each Lighter Band is called:	H-Zone	A-Band	I-Band	M-Line
2.	The Sclerenchyma cells found in seed coats and nut shells are:	Tracheids	Sclereids	Vessels	Trachea
3.	The Homeostatic Thermostat is present in:	Thalamus	Kidneys	Liver	Hypothalamus
4.	The Cytoplasmic Processes which carries nerve impulse towards the cell body is:	Dendrites	Axon	Axoplasm	Soma
5.	Gray Crescent is present in:	Nucleus	Cytoplasm	Cell Membrane	Ribosomes
6.	The Endosperm in Angiosperms is:	Haploid	Diploid	Monoploid	Triploid
7.	The Structure which control hunger is:	Amygdala	Hippo Campus	Hypothalamus	Thalamus
8.	Histones are positively charged due to abundance of basic Amino Acids Arginine and:	Lysine	Methionine	Glysine	Alanine
9.	The Gene for Albinism is located on Chromosome No.:	11	09	19	22
10.	S-Phase of Interphase is completed in:	9 Hours	4.5 Hours	10 Hours	30 Minutes
11.	The Methyl containing Nitrogenous base is:	Cytosine	Thymine	Uracil	Adenine
12.	F.C. Steward grew a complete Carrot Plant from a tiny piece of:	Pith	Cortex	Xylem	Phloem
13.	Which One Bacteria is responsible for the convertion of Ammonia into Nitrite:	Nitrosomonas	Nitrobacter	Clostridium	Rhizobium
14.	The Hot water or stream that comes from Earth also contain harmful substances like:	Oxides of Nitrogen	Oxides of Sulphur	Lead	CO_2
15.	Antibody used for the treatment of Genital Herpes is obtained from:	Wheat	Rice	Soyabean	Sugarcane
16.	Northern Coniferous forests are also called:	Prairies	Taiga	Savanna	Temperate Deciduous Forests
17.	Which of the following Scientist has studied the Order in the diversity of Life:	Cuvier	Lyell	Malthus	Linnaeus

Subjective Biology Paper Bahawalpur Board 2023

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

Biology **223-1st Annual - (Inter Part-II)** **Time Allowed : 2.40 Hours**

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

SECTION - I

2. Write short answers to any eight (8) questions: **8×2 = 16**

(i) What will happen if an animal cell is placed into a Hypertonic Solution?

(ii) Mention two desert adaptations of Xerophytes. (iii) What are Pyrogens?

(iv) Why does water enter into the vacuole and hence create turgidity to the plant cell?

(v) How does Epinasty lead to opening of Floral Buds?

(vi) How are Muscles arranged at hinge joint?

(vii) How is seed dormancy important for plant survival?

(viii) Give the method to produce Test Tube Babies.

(ix) Differentiate between Climate and Weather.

(x) What is Tundra Ecosystem?

(xi) How Kinetic Energy of water is used to produce electricity?

(xii) How Oxides of Nitrogen and Sulphur can cause Acid Rain?

3. Write short answers to any eight (8) questions: **8×2 = 16**

(i) Differentiate between Reflex Arc and Reflex Action.

(ii) What are Effectors? (iii) Define Epilepsy.

(iv) A Single gene affects two or more traits. Give examples.

(v) The blood group phenotype of a person can be changed. Comment on it.

(vi) The first Rh-Incompatible pregnancy may not face much problems. Discuss it.

(vii) How genetic library for a certain gene can be traced? Comment on it.

(viii) How gene of interest is inserted into a vector? Discuss it.

(ix) How health of plants can be promoted? Give examples.

(x) What is Niche? Give its elements.

(xi) Differentiate Autecology from Syneocology by giving examples.

(xii) What is Predation? Give its significance.

4. Write short answers to any six (6) questions: **6×2 = 12**

(i) Define Regeneration. Write its two examples.

(ii) How Inhibitory effect is differed from compensatory effect during growth correlation?

(iii) What are Chromosomes? Also write number of Chromosome in Mouse and Sugarcane.

(iv) Differentiate between Leading and Lagging Strand.

(v) What are Purine? Give example.

(vi) What is Mitotic Apparatus? Write its function.

(vii) Define the term Synapsis and Crossing Over.

(viii) What are Hydrothermal Vents? How did they support life?

(ix) Write down any two points of Darwin Theory.

SECTION - II

Note: Attempt any three (3) questions: **8×3 = 24**

5. (a) Describe the structure of Nephron with a labelled diagram.

(b) What is Interphase? Describe the details of Sub phases of Interphase.

6. (a) How does Secondary Growth occurs? Give its significance.

(b) Define Succession. Discuss Xerosere in detail.

7. (a) Explain the factors affecting Gene Frequency.

(b) Describe the Feedback Mechanism. Also draw the diagram.

8. (a) Define and explain the process of Vernalization.

(b) Explain Erythroblastosis Foetalis and how it can be prevented?

9. (a) How External and Internal Factors play their role in Plant Growth Rate?

(b) Write a detailed note on Gene Sequencing.

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

Biology **H.S.S.C (12th)1st Annual 2023** Time : 20 Minutes

Paper : II Objective – (i) Marks : 17

Paper Code	8	4	6	1

Note: - You have four choices for each objective type question as A, B, C and D. The choice which you think is correct; fill that circle in front of that question number in your answer book. Use marker or pen to fill the circles. Cutting or filling up two or more circles will result no mark.

SECTION-A

Q.1	Questions	A	B	C	D
1.	How much water is needed to eliminate 1g of ammonia nitrogen?	1 ml	50 ml	100 ml	500 ml
2.	Which bones are part of pelvic girdle?	Ilium and scapula	Ischium and pubis	Pubis and suprascapula	Ischium and clavicle
3.	What happens during muscle contraction?	I-band shortens, H-zone disappears	I-band shortens, Z-lines brought away	Z-lines brought closer, H-zone maximizes	I-band elongates, H-zone disappears
4.	Which are the growth promoter hormones?	Cytokinins and abscisic acid	Auxins and ethene	Auxins and cytokinins	Auxins and abscisic acid
5.	Which of the given share a common hypothalamic releasing factor?	LH and FSH	LH and Prolactin	TSH and FSH	FSH and Prolactin
6.	The most effective temperature for vernalisation is :	5°C	10°C	7°C	4°C
7.	Yellow cytoplasm of ascidian egg produces:	Epidermis	Gut	Muscle cells	Neural tube
8.	Which are not present in RNA?	Adenine and thymine	Thymine and deoxyribose	Uracil and deoxyribose	Uracil and ribose
9.	In prokaryotes, the promoter binding sequence TTGACA is also called _____ sequence.	-35	-10	-75	-25
10.	Persons affected from Turner's syndrome have _____ chromosomes.	44 Autosomes -X	44 Autosomes +X	44 Autosomes +Y	44 Autosomes -Y
11.	Two normal parents have an albino child. What is the probability that their next child will also be an albino?	50 %	75 %	25 %	100 %
12.	Thermus aquaticus is a:	RNA polymerase	DNA ligase	RNA primase	DNA polymerase
13.	Organic chemical needed to make aspartame is :	phenylalanine	Alanine	Proline	Valine
14.	In terrestrial vertebrates, gill pouches develop into _____.	Gills	Middle ear	Eustachian tube	Auditory tube
15.	The biotic components that obtain their energy from dead decaying materials are:	Producers	Primary consumers	Secondary consumers	Decomposers
16.	Which biome has very fertile and rich organic matter soil?	Deciduous forests	Grass land	Deserts	Tundra
17.	Which component of CFCs destroys ozone?	Carbon	Fluorine	Chlorine	All of these

313-423-1A-14000 ★

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

Biology

H.S.S.C (12th)1st Annual 2023

Time : 2:40 Hours

Paper : II — Subjective — Marks : 68

Note:- Section B is compulsory. Attempt any 3 questions from Section C.

SECTION-B

2. Write short answers to any Eight parts. **(8 x 2 = 16)**

i. What is a flame cell?
ii. Define heat shock proteins.
iii. How do terrestrial animals dispose of excess heat from the body? Discuss it.
iv. How does a plant cell maintain turgor pressure by tonoplast? Comment on it.
v. How does secondary xylem produce growth rings during secondary growth?
vi. How is callus formed on damaged surfaces of stem and root? Give its significance.
vii. Ovulation in human female is due to hormonal control. Comment on it.
viii. What are fraternal twins?
ix. What is Eutrophication?
x. Distinguish Littoral zone from Limnetic zone.
xi. What is a nutrient cycle?
xii. What are industrial effluents? Give their any two effects.

3. Write short answers to any Eight parts. **(8 x 2 = 16)**

i. Write two physiological roles of gibberellins.
ii. What is Parkinson's disease? Write its treatment.
iii. Define effectors. Give examples.
iv. Compare protanopia with deuteranopia.
v. Differentiate between homozygote and heterozygote.
vi. Justify, why AB blood group is a universal recipient?
vii. What is a probe? Give its importance.
viii. What is Taq polymerase? Give its significance.
ix. Why urine is preferable than milk for biotechnology?
x. Differentiate between primary and secondary succession.
xi. Define biome and biosphere.
xii. How nitrogen is depleted and what are its remedies?

4. Write short answers to any Six parts. **(6 x 2 = 12)**

i. How is coelom formed in chick embryo?
ii. Compare teratology with gerontology.
iii. What is phosphodiester bond? Sketch it.
iv. Differentiate between sense strand and antisense strand of DNA.
v. What is phenylketonuria? What kind of disorder is it?
vi. What is equatorial plate? When is it formed in meiosis?
vii. How does cytokinesis occur in animal cells?
viii. What is endosymbiotic hypothesis? Give an example.
ix. How does genetic drift affect the gene frequency?

SECTION-C

(EACH QUESTION CARRIES EIGHT MARKS) (4+4=8) **(8 x 3 = 24)**

5. (a) Discuss kidney stone formation and its treatment.
(b) Write a note on cancer (Uncontrolled cell division).

6. (a) Describe the structure of axial skeleton.
(b) Explain the components of ecosystem.

7. (a) How is nervous system of planaria better developed than that of Hydra?
(b) How does comparative anatomy support evolution?

8. (a) How sexual reproduction is different from asexual reproduction? Give a detailed answer.
(b) State Mendel's law of segregation. Explain this law with the help of an example.

9. (a) What is aging? Describe its causes and symptoms.
(b) What are restriction endonucleases? Give their role in recombinant DNA technology.

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Objective Biology Paper Group-I Gujranwala Board 2023

Roll No. _____ (To be filled in by the candidate) **Maximum Marks : 17**

Biology **223-1st Annual - (Inter Part-II)** **Time Allowed : 20 Minutes**

PAPER – II (Objective Type) **Group-I** **PAPER CODE = 8461**

Note: **You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill that circle in front of that question number, Use marker or when to fill the circles.**

Q.1	Questions	(A)	(B)	(C)	(D)
1.	Aldosterone is secreted from:	renal cortex	adrenal cortex	renal medulla	adrenal medulla
2.	Which of these move first during rapid plant movements leading to exosmosis of water"?	K^{+1} ions	Cl^{-1} ions	Na^{+1} ions	NH_4^{+1} ions
3.	Number of bones in the human skull is:	22,6 paired, 10 unpaired	22.4 paired, 14 unpaired	22,8 paired, 6 unpaired	22, 10 paired. 2 unpaired
4.	Which of these hormones is used commercially in brewing industry to promote malting.	GA	GA3	NAA	2,4-D
5.	Which of these pituitary hormones control pancreas?	STII and TSH	ACTII and TSH	ACTH and STH	ACTH and ADH
6.	Zygote is implanted in:	oviduct	vagina	oviduer	uterus
7.	Apical dominance in plants.	suppresses the growth of apical bud	causes dense growth of plants	suppresses the growth of lower axillary buds	promotes the sprouting of lateral axillary buds
8.	The enzyme DNA ligase:	constructs RNA primer	initiates the replication of DNA	catalyzes the replication of DNA	attaches the fragments to the lagging strand
9.	In sickle cell anemia, the oxygen carrying capacity of haemoglobin is reduced because:	tertiary structure of haemoglobin is altered	primary structure of haemoglobin is altered	secondary structure of haemoglobin is altered	haemoglobin is completely destroyed
10.	Phragmoplast during cytokinesis in plant cells is formed by the fusion of golgi vesicles which originate during.	prophase	metaphase	anaphase	telophuse
11.	Which of these indicates the phenotypic ratio of dihybrid cross?	1:1:1:1	9:3:3:1	1:2:1	3:1
12.	The enzyme involved in the maturation of T and B cells in children is:	α - galactosidase	β - galactosidase	adenosine hydrolase	adenosine deaminase
13.	Protoplast culture yields:	virus free plants	Many identical seedlings in a limited space	artificial seeds	quinine and digitoxin
14.	Hardy-Weinberg's theorem describes the:	lamarckism	descent with modification	natural selection and adaptation	genotype frequency of non-evolving populations
15.	Primary succession on a dry soil is called:	derosere	xerosere	halosere	hydrosere
16.	The most fragile biome is:	tundra	desert	deciduous	grassland
17.	Which one is a hormonal disorder?	arteriosclerosis	haemophilia	alzheimer	goiter

Subjective Biology Paper Group-I Gujranwala Board 2023

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

Biology **223-1st Annual - (Inter Part-II)** **Time Allowed : 2.40 Hours**

PAPER – II (Essay Type) **Group-I** **Maximum Marks : 68**

SECTION - I

2. Write short answers to any eight (8) questions: **8×2 = 16**

(i) For what purpose leaves have large surface area.
(ii) Why dehydration is the major problem for terrestrial animal?
(iii) How can you avoid making of kidney stones?
(iv) Which tissues arise from visulac cambium?
(v) Differentiate between hyaline and elastic cartilage.
(vi) Define callus and describe its importance.
(vii) In which way sertoli cells support reproduction.
(viii) Why testosterone is important for reproduction.
(ix) Differentiate between limnetic and profundal zone.
(x) Name four major ecosystems in Pakistan.
(xi) What is ozone? Give its importance.
(xii) Define soil and give its basic constituents.

3. Write short answers to any eight (8) questions: **8×2 = 16**

(i) Define diumal rhythms How they are different form circanmal rhythms?
(ii) Compare sympathetic with parasympathetic nervous system.
(iii) How etiolation differs from chlorosis?
(iv) Workout all possible types of gametes from the individual having genotype "AaBbCc".
(v) What do you know about the dominance relations among multiple alleles of ABO blood group system?
(vi) What are the limitations of Mendelian law of independent assortinet?
(vii) Describe the term "Gene Pharming".
(viii) Why biotechnology is important for humans
(ix) How to get the gene of interest?
(x) Differentiate between Autecology and Synecology.
(xi) Define mutualism. Give example.
(xii) What do you know about the biotic components of an ecosystem.

4. Write short answers to any six (6) questions: **6×2 = 12**

(i) Differentiate between morulla and blastula.
(ii) Define regeneration, also write down two examples.
(iii) What is point mutation? Give one example.
(iv) Define phosphodiester hond, also draw it.
(v) What are chromosomes? Also write down number in man and mouse.
(vi) What is mitotic apparatus? Write down its function.
(vii) Compare kinetochore microtubule with polar microtubule.
(viii) What is hydrothermal vent? How did they support life?
(ix) Define homologous organ, give one example.

SECTION - II

Note: Attempt any three (3) questions: **8×3 = 24**

5. (a) Describe the adaptation in plants to low and high temperature.
(b) Describe the stages of karyokinesis of mitotic cell division.

6. (a) Write down different types of plant movements due to external causes and also describe their importance.
(b) Define succession. Write down different stages of xerosere in detail.

7. (a) Why is anterior of pituitary gland referred as Master Gland? Explain how does anterior lobe control thyroids, adrenals and gonads?
(b) Write down a note on endangered species. How they can be protected?

8. (a) Explain the male reproductive system in human.
(b) Describe the mechanism of incomplete dominance with an example.

9. (a) Define meristem. Discuss its various types.
(b) What is polymerase chain reaction (PCR)? How it is carried out to produce multiple copies of DNA segment?

Roll No. of Candidate : .....

BIOLOGY **Intermediate Part-II , Class 12th (1stA 423- II)** **Paper: II** **Group – II**

Time: 20 Minutes **OBJECTIVE ..... Code: 8464** **Marks: 17**

Note: You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill that circle in front of that question number. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero mark in that question.

1.

1. A localized group of species belonging to the same species is called as
(A) community (B) population (C) ecosystem (D) biosphere

2. In which of the following neurons, length of dendrites is greater than axon
(A) relay neuron (B) sensory neuron (C) motor neuron (D) associative neuron

3. Protein found within spindles is
(A) collagen (B) myosin (C) actin (D) tubulin

4. Which one of the following observations does not match with Darwin's idea of natural selection?
(A) over production (B) survival of the fittest
(C) variations (D) inheritance of acquired characters

5. The tRNA anticodon "GAC" is complementary to the mRNA codon with the sequence
(A) CUG (B) CAG (C) CTG (D) GAC

6. The process of moulting is controlled by the nervous system and a hormone called
(A) aldosterone (B) androgen (C) ecdysone (D) oxytocin

7. Transgenic animals are prepared through
(A) genetic engineering (B) cloning (C) mutation (D) PCR

8. Type of muscle having regular striations and many nuclei per cell
(A) smooth muscle (B) skeletal muscle (C) cardiac muscle (D) all of these

9. It is not a function of kidney
(A) excretion (B) osmoregulation (C) formation of urine (D) formation of urea

10. Which of the following is a renewable resource?
(A) coal (B) oil (C) land (D) natural gas

11. The head can be regenerated in
(A) frog (B) leech (C) earthworm (D) grasshopper

12. Felis bengalensis has the zoologist name of
(A) leopard cat (B) leopard (C) cat (D) tiger

13. RNA polymerase consists of
(A) sigma factor (B) sigma factor and core enzyme
(C) core enzyme (D) sigma factor and full enzyme

14. Mature sperms are formed from spermatids through
(A) mitosis (B) meiosis–I (C) meiosis–II (D) differentiation

15. Cell bodies of sensory neurons constitute
(A) dorsal root ganglion (B) dorsal root
(C) ventral root ganglion (D) posterior root ganglion

16. Haemophilia "A" is
(A) x–linked recessive (B) factor viii abnormality
(C) both (A) and (B) (D) factor ix abnormality

17. Which of the following describes aspartame?
(A) anticlotting agent (B) biodegradable plastic
(C) artificial sweetener (D) transgenic bacteria

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BIOLOGY **Intermediate Part-II , Class 12th (1stA 423)** **Paper: II** **Group – II**

Time: 2:40 Hours **SUBJECTIVE** **Marks: 68**

Note: Section I is compulsory. Attempt any THREE (3) questions from Section II.

SECTION – I

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

i. What are the causes of renal failure?
ii. Differentiate between endotherm and ectotherm.
iii. What is feedback mechanism?
iv. What is hydrostatic skeleton? Give one example.
v. Compare osteomalcia and osteoporosis.
vi. What are the causes of muscle fatigue?
vii. What is the role of phytochromes in plants?
viii. How diploid parthenogenesis takes place in aphids?
ix. Which kind of life is present in profundal zone of lake ecosystem?
x. What is the impact of humans on temperate decidous forests?
xi. What are the causes and effects of greenhouse effects?
xii. What are the consequences of population increase?

3. Write short answers to any EIGHT questions. **(2 x 8 = 16)**

i. What is parasympathetic nerve system?
ii. How is parkinson's disease caused?
iii. What is latent learning?
iv. Differentiate autosomes and sex chromosomes.
v. What do you mean by multifactorial trait?
vi. What are the causes of type-I diabetes?
vii. What is a probe?
viii. Give an application of transgenic plants?
ix. What are the goals of human genome project?
x. Define synecology.
xi. How do fungi give and take benefits in mycorrhizal association?
xii. Differentiate gross primary production and net primary production.

4. Write short answers to any SIX questions. **(2 x 6 = 12)**

i. Differentiate primary growth from secondary growth in plants.
ii. Flatworms develop lost body parts. Discuss it.
iii. One gene – one enzyme hypothesis has been changed to one gene – one polypeptide hypothesis. Comment on it.
iv. How all organisms use same basic mechanism of reading and expressing the genes?
v. A point mutation causes the production of a defective enzyme. Comment on it by referring phenylkitonuria.
vi. Give at least two differences of mitosis and meiosis.
vii. Just give names of substages of prophase – I of meiosis.
viii. Differentiate Theory of Special Creation from Theory of Natural Selection.
ix. Distinguish homologous organs from analogous organs by giving examples.

SECTION - II

5. **(a)** Draw and explain urinary system of man. **(4)**
(b) Discuss meiotic error (non-disjunction) with two syndromes. **(4)**

6. **(a)** Illustrate the ultrastructure of myofilaments of human skeletal muscle fiber. **(4)**
(b) Describe the flow of energy in the food chain of an ecosystem. **(4)**

7. **(a)** How is nervous system of Planaria better developed than that of Hydra? Discuss. **(4)**
(b) How does comparative anatomy support evolution? **(4)**

8. **(a)** What is epistasis? Explain with reference to Bombay phenotype. **(4)**
(b) Describe vernalization. Give its importance. **(4)**

9. **(a)** Why did Spemann designated the dorsal lip area as primary organizer? Explain with his experiment. **(4)**
(b) What is genomic library? How would you locate a gene of interest in the library? **(4)**

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Objective Biology Paper Group-I Lahore Board 2023

Roll No. _____ (To be filled in by the candidate) **Maximum Marks : 17**

Biology **223-1st Annual - (Inter Part-II)** **Time Allowed : 20 Minutes**

PAPER – II (Objective Type) **Group-I** **PAPER CODE = 8463**

Note: You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill that circle in front of that question number, use marker or when to fill the circles. Cutting or filling or two or more circles will result in zero mark in that question.

Q.1	Questions	(A)	(B)	(C)	(D)
1.	Abscisic acid can be sprayed on tree crops to regulate:	Leaf drop	Shoot drop	Flower drop	Fruit drop
2.	DNA polymerase III:	Recognizes primer	Constructs primer	Initiates DNA replication	Unwinds DNA helix
3.	The ultimate source of all changes is:	Genetic drift	Migration	Mutation	Selection
4.	Which of these diseases is caused due to nutritional deficiency:	Diphtheria	Arteriosclerosis	Scurvy	Osteoarthritis
5.	In urea cycle, arginine splits into urea and ornithine by an enzyme :	Arginase	Omithase	Citrulase A	Dehydrogenase
6.	Primer for PCR contains about:	05-07 bases	10-20 bases	25-30 bases	30-40 bases
7.	At the place of attachment of leaf with the shoot, a swollen part is called:	Pith	Pit	Pulvinus	Cortex
8.	Bombay phenotype is an example of:	Pleiotropy	Epistasis	Probability	Dominance
9.	Scum in eutrophication is formed by:	Algae	Fungi	Bacteria	Virus
10.	Cell wall becomes thicker and pitted during cell:	Maturation	Elongation	Differentiation	Division
11.	Which vertebra in reptiles is modified for the rotational movement:	Atlas	Thoracic	Axis	Sacral
12.	Copying of mRNA from DNA is called:	Transduction	Transudation	Transformation	Transcription
13.	Vehicles for transport of male gamete in land plant is:	Pollen tube	Pollen grain	Vacuole	Anther
14.	Down syndrome is:	Trisomy 19	Trisomy 18	Trisomy 21	Trisomy 23
15.	Resting membrane potential of a neuron is:	-50 mV	70 mV	-60 mV	-80 mV
16.	One common type of vector is:	Plasmid	Chromosome	Lysosome	Mitochondria
17.	Overgrazing may lead to:	Tundra	Grassland	Desert	Taiga

Subjective Biology Paper Group-I Lahore Board 2023

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

Biology **223-1st Annual - (Inter Part-II)** **Time Allowed : 2.40 Hours**

PAPER – II (Essay Type) **Group-I** **Maximum Marks : 68**

SECTION - I

2. Write short answers to any eight (8) questions: **8×2 = 16**

(i) What is counter current multiplier mechanism?
(ii) Define excretophores. Give their functions.
(iii) Give the role of pyrogens.
(iv) What is negative geotropism? Give at least one example.
(v) Write the composition of procuticle.
(vi) Give the structure of sarcoplasmic reticulum.
(vii) What is ovoviviparity? Give an example.
(viii) Draw and label the diagram of C.S. of seminiferous tubule.
(ix) What is difference between climate and weather?
(x) What is grassland ecosystem? Give at least one example.
(xi) Define soil.
(xii) Draw the flow chart showing the formation of ASH and CO_2 from dead plants.

3. Write short answers to any eight (8) questions: **8×2 = 16**

(i) Define nerve impulse. (ii) Define nociceptors.
(iii) What do you know about cretinism?
(iv) How can you protect the baby against Rh incompatibility?
(v) What is MODY? (vi) In birds the female is heterogametic. How?
(vii) Write down two practical uses of DNA finger printing.
(viii) Discuss any two benefits of transgenic bacteria to promote health in plants.
(ix) Define and give examples of ex-vivo and in-vivo gene therapy.
(x) What are biogeochemical cycles? (xi) Discuss role of decomposers in ecosystem.
(xii) Define food chain. Write an example.

4. Write short answers to any six (6) questions: **8×2 = 16**

(i) How light plays important role in plant growth?
(ii) Into how many layers mesoderm splits and also define
(iii) In what way mutation causes sickle cell disease?
(iv) Why replication always take place in $5' \rightarrow 3'$ direction?
(v) What do you know about Okazaki fragments?
(vi) Compare mitosis with meiosis.
(vii) Write symptoms of Down's syndrome.
(viii) Differentiate between homologous and analogous organs.
(ix) What are vestigial organs? Give one example.

SECTION - II

Note: Attempt any three (3) questions: **8×3 = 24**

5. (a) What is Renal failure? Describe its cure.
(b) What is cancer? Give its causes and effects.

6. (a) Define joints How are they classified? Explain.
(b) Define succession. Explain xerosere in detail.

7. (a) What is active membrane potential? Explain its major causing factors. Also draw a graph that shows changes in meinbrane potential from resting to active membrane potential.
(b) Define Hardy Weinberg theorem. Also explain the Hardy-Weinberg equations for calculating the frequencies of alleles and genotypes in populations at equilibrium.

8. (a) Explain the birth of twins us human beings.
(b) Describe the assortment of alleles of two contrasting pairs of traits when followed in the same cross by giving one example.

9. (a) What is growth? Discuss different conditions for growth.
(b) Define gone therapy, explain in which diseases ex-vivo gene therapy are needed?

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

Biology

(Academic Sessions 2019 – 2021 to 2021 – 2023)

223-1st Annual-(INTER PART – II)

Q.PAPER – II (Objective Type) GROUP – II

Time Allowed : 20 Minutes
Maximum Marks : 17

PAPER CODE = 8464

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	Hair end organs : (A) Receive deep pressure stimulus (B) Receive touch stimulus (C) Are located in the limbs (D) Are sensitive for vibration sense
2	During the replication process of DNA, the lagging strand : (A) Replicates towards replication fork (B) Is synthesized by DNA ligase (C) Replicates away from replication fork (D) Replicates continuously
3	Lamarckism means : (A) To calculate the gene frequency (B) Inheritance of acquired traits (C) Descent with modification (D) Natural selection and adaptation
4	Which one is a degenerative disease : (A) Scurvy (B) Kwashiorkor (C) Beriberi (D) Arteriosclerosis
5	The central cavity of the kidney where urine is collected is called : (A) Bowman's capsule (B) Vasa recta (C) Pelvis (D) Renal medulla
6	EcoR1 is : (A) Used in PCR (B) Used in reverse transcription (C) A viral enzyme (D) A restriction enzyme
7	Most of the increase in the thickness of stem is caused by : (A) Secondary xylem (B) Secondary phloem (C) Cork (D) Bark
8	Which of these dominance relations is characterized by the intermediate phenotype of heterozygote between the phenotypes of two homozygotes : (A) Complete dominance (B) Over dominance (C) Partial dominance (D) Co-dominance
9	A grassland present in temperate climate is called : (A) Prairies (B) Taiga (C) Savanna (D) Alpine grassland
10	Intercalary meristems in plants get separated from apical meristems by : (A) Permanent tissue (B) Cork tissue (C) Vascular cambium (D) Cork cambium
11	Which of these exist in xylem as solid bundles : (A) Collenchyma (B) Fibers (C) Sclereides (D) Vessels
12	According to Erwin Chargaff : (A) A + T = C + G (B) A + G = C + T (C) A + C = G + T (D) C + T = A + T
13	Alternating diploid sporophyte with haploid gametophyte generation in plants is called : (A) Diplontic life cycle (B) Haplontic life cycle (C) Diplohaplontic life cycle (D) Haplodiplontic life cycle
14	G-2 of interphase : (A) Lasts for 90 minutes (B) Is post mitotic phase (C) Is pre mitotic phase (D) Is characterized by DNA synthesis
15	Which of these plant hormones inhibits the growth of root and stem during physiological stress : (A) Auxin (B) Cytokinin (C) Gibberellins (D) Abscisic acid
16	A probe is used : (A) As restriction enzyme (B) In gene therapy (C) To search genomic library (D) For the treatment of cystic fibrosis
17	Succession starting in pond is called : (A) Halosere (B) Hydrosere (C) Xerosere (D) Derosere

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

(Academic Sessions 2019 – 2021 to 2021 – 2023)

BIOLOGY 223-1st Annual-(INTER PART – II) Time Allowed : 2.40 hours

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

SECTION – I

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

(i) What are heat shock proteins? Give their role.
(ii) How are animals able to do osmoregulation in hypotonic environment?
(iii) Define homeostasis. Give components of homeostatic control system.
(iv) Write name of regions of vertebral column with number of vertebrae.
(v) Define remolding.
(vi) How does digitigrade differ from unguligrade?
(vii) Write cause and symptoms of syphilis.
(viii) What do you mean by fruit set and fruit ripening?
(ix) Name two common animals and two plants of temperate deciduous forests.
(x) Differentiate between coniferous alpine and boreal forests.
(xi) Define non-renewable resources. Give one example.
(xii) How environment is a source essential to maintain life?

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

(i) Define coordination. Give its types in animals.
(ii) Give only two commercial uses of Gibberellins.
(iii) Write the distribution of pain and cold receptors on animal body.
(iv) Give the relationship between the terms gene and locus.
(v) What do you understand by over-dominance?
(vi) Write the pattern of inheritance of sex influenced traits.
(vii) What are restriction endonucleases? Give their functions.
(viii) Give the biotechnological uses of bacteria in mining.
(ix) What is gene therapy? Write at least one example.
(x) Write difference between habitat and niche.
(xi) Define climax community with one example.
(xii) Give the significance of predation.

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

(i) What is grey crescent? Give its role.
(ii) How can aging be slowed down?
(iii) How do histone and DNA interact with each other in chromosome?
(iv) What is transforming principle?
(v) How is initiation complex formed in translation?
(vi) In what respect mitosis in plants differ from that of animal cell?
(vii) Differentiate between benign and malignant tumor.
(viii) State endosymbiont hypothesis with example.
(ix) What is meant by " Modern Synthesis"?

SECTION – II

Note : Attempt any THREE questions.

5. (a) Discuss osmoregulation in plants for their survival. 4
   (b) Define cell cycle and also give a detailed account of phases of interphase. 4

6. (a) Highlight the main points of that model which explains the muscle contraction. 4
   (b) Discuss important steps of nitrogen cycle. 4

7. (a) Describe the location, secretion and roles of thyroid gland. 4
   (b) State and explain Hardy-Weinberg theorem. 4

8. (a) Give details of menstrual cycle in human females. 4
   (b) Define law of independent assortment. Explain it with an example. 4

9. (a) What are growth correlations? Explain Apical Dominance, its removal and its applications. 4
   (b) Explain the methodology to carried out DNA finger-printing. 4

Objective Biology Paper Group-I Multan Board 2023

Roll No. _____ (To be filled in by the candidate) **Maximum Marks : 17**

Biology **223-1st Annual - (Inter Part-II)** **Time Allowed : 20 Minutes**

PAPER – II (Objective Type) **Group-I** **PAPER CODE = 4465**

Note: You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill that circle in front of that question number, Use marker or when to fill the circles. Cutting or filling or two or more circles will result in zero mark in that question.

Q.1	Questions	(A)	(B)	(C)	(D)
1.	Which portion of nephron is control ADH?	Bowman's capsule	Ascending limb	Distalerd and collecting duct	Descending limb
2.	How many bones are involved in formation of each half pelvic girdle?	3 bones	2 bones	4 bones	5 bones
3.	What do we call the cell surface membrane of a muscle fiber?	Sarcomere	Twitch liber	Sarcolemma	Capsule
4.	Effectors in human body which respond to stimulus are?	Glands only	Bones only	Muscles only	Glands and muscles
5.	B-cells of Pancreas secrete hormone:	Insulin	ADH	Glucagon	Gastrin
6.	Which disease in sexually transmitted?	Tuberculosis	AIDS	Dengue fever	Cholera
7.	Primary growth is due to the activity of:	Apical meristem	Intercalary meristems	Lateral meristem	Cork cambium
8.	mRNA in eukaryotes is synthesis by:	DNA ligase	RNA polymerase II	RNA polymerase III	RNA polymerase I
9.	Start codon AUG represents the amino acid:	Serine	Proline	Methionine	Valine
10.	During cell division, nuclear division is called:	Cyokinesis	Karyokinesis	Karyotype	Plasmolysis
11.	The gene of blue opsins is present on:	Autosome 9	Autosome 1	Autosome 7	Autosome 3
12.	In cystic fibrous transmission of which is faulty resulting in disease?	Magnesium	Calcium	Fluoride	Chloride
13.	During PCR how DNA doubled helix is separated:	By heat treatment	By use of DNA polymerase	Bye use of DNA helicase	By use of DNA ligase
14.	Organs which are functionally similar but have different structures:	Hypologous	Homologous	Unilogous	Analogous
15.	Bacteria and fungi are examples of:	Predators	Consumers	Decomposers	Detritivores
16.	Zoological same of the monkey is:	Felis leo	Macaca mulatto	Solenorotos tibitanus	Felis bengalensis
17.	The decline in thickness of one layer is caused by increasing level of:	Chlorofluoro carbon	Nitrogen	Chlorine	CO_2

Subjective Biology Paper Group-I Multan Board 2023

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

Biology **223-1st Annual - (Inter Part-II)** **Time Allowed : 2.40 Hours**

PAPER – II (Essay Type) **Group-I** **Maximum Marks : 68**

SECTION - I

2. Write short answers to any eight (8) questions: **8×2 = 16**

(i) Why leaves are called excretophores?
(ii) How most plants have adapted to survive in heat stress?
(iii) Why does body temperature increase in fever?
(iv) Differentiate between themonasty and photonasty.
(v) Name unpaired facial bones.
(vi) What is muscle fatigue? Give its cause.
(vii) In which way does germinating pollen tube help the plant?
(viii) How can you say that water is compulsory for external fertilization?
(ix) Give four examples of desert ecosystems in Pakistan.
(x) What do you know about plant and animal life in tundra?
(xi) Give four ways by which we can save energy.
(xii) Why forests are important for us?

3. Write short answers to any eight (8) questions: **8×2 = 16**

(i) Differentiate between Habituation and Imprinting.
(ii) Name the synthetic auxins and describe their commercial applications.
(iii) Why anterior lobe of pituitary gland is called master gland?
(iv) What is sex limited trait? Give an example.
(v) How Epistasis differ from dominance?
(vi) What do you know about protanopia and deuteranopia?
(vii) How recombinant DNA is formed?
(viii) What are the two primary goals of human genome project?
(ix) Which type of technique is used to replace faulty genes in the body?
(x) How nitrogen depletion from soil is being overcome in nature?
(xi) Sketch food chain to show various trophic levels?
(xii) How moderate grazing is helpful for ecosystem?

4. Write short answers to any six (6) questions: **6×2 = 12**

(i) What is Meristem? Names its types.
(ii) Differentiate between Area Pellucida and Area Opaca.
(iii) What are the properties of Genetic code?
(iv) How transcription bubble is formed?
(v) What is the chemical composition of chromosome?
(vi) What is Down's syndrome? Give their symptoms.
(vii) Can you differentiate between cancerous and normal cells?
(viii) What are vestigial organs? Give example.
(ix) What was the peculiar features of Finches of Galapagos?

SECTION - II

Note: Attempt any three (3) questions: **8×3 = 24**

5. **(a)** What is dialysis? Explain procedures of hemodialysis and peritoneal dialysis.
(b) What is mitosis? How does mitosis take place in animal cell?

6. **(a)** How does a fractured bone recover to its normal position after physical trauma?
(b) What is Grazing? Give its significance.

7. **(a)** Define Nerve impulse. Explain the mechanism involved by labeled diagram.
(b) How did evolution proceed from Prokaryotes to Eukaryotes?

8. **(a)** State the techniques of raising genetically identical plants and animals.
(b) How does an allele affect its partner in a gene pair completely and incompletely?

9. **(a)** Write down the process of development of nervous system from ectoderm in chick.
(b) What is recombinant DNA? Explain the process of expression of Recombinant DNA.

Objective Biology Paper Group-II Multan Board 2023

Roll No. _____ (To be filled in by the candidate) **Maximum Marks : 17**

Biology pakcity.org **223-1st Annual - (Inter Part-II)** **Time Allowed : 20 Minutes**

PAPER – II (Objective Type) **Group-II** **PAPER CODE = 4466**

Note: You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill that circle in front of that question number, Use marker or when to fill the circles. Cutting or filling or two or more circles will result in zero mark in that question.

Q.1	Questions	(A)	(B)	(C)	(D)
1.	The plan of new cell wall formation in a dividing cell is determined by:	Endoplasmic reticulum	Ribosomes	Golgi bodies	Microtubules
2.	Which one of the following genotypic ratio is observed for cross between heterozygous round and homozygous wrinkled seed in pea?	3 : 1	1 : 1	2 : 1	1 : 3
3.	Which one is used to make the animal eggs transgenic?	By agro bacterium	Particle gun	Micro propagation	Vortex mixing
4.	Which of the following organisms are used to prevent airborne chemical pollutants?	Transgenic bacteria	Transgenic Pants	Transgenic Animals	Transgenic Fungi
5.	The prokaryotes may have arisen more than _____ billion years ago.	6.5	5.5	4.5	3.5
6.	Succession is initiated by a few hardy invaders called:	Predators	Pioneer	Parasites	Grazers
7.	The desert ecosystem of Southern Punjabis:	Thal	Thar	Cholistan	Sahara
8.	A good example of environmental buffer is:	Forest	River	Lake	Desert
9.	Fresh water flat worms excrete very dilute _____.	Plasma	Tissue fluid	Urine	Uric acid
10.	Mature bone cels are called:	Osteoblast	Osteoclast	Chondrocytes	Osteocytes
11.	Each myosin filaments are surrounded by _____ actin filaments on each end:	03	06	09	12
12.	The number of spinal nerves in Man is:	31 pairs	12 pairs	24 pairs	62 pairs
13.	The selective weed killer is:	NAA	IPA	2, 4 D	Ethene
14.	Menstruation usually lasts for:	3 - 7 days	3 - 9 days	1 - 3 days	4 - 8 days
15.	Meristems are growing tissues or group of cells that retain the potential to:	Regeneration	Penetration	Survive	Divide
16.	In E. Coli, the true replicating enzyme is:	DNA polymerase I	DNA polymerase II	DNA polymerase III	RNA polymerase I
17.	Which does one bear greater molecular mass among following nitrogenous bases of nucleic acid?	Guanine	Cytosine	Thymine	Uracil

Subjective Biology Paper Group-II Multan Board 2023

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

Biology **223-1st Annual - (Inter Part-II)** **Time Allowed : 2.40 Hours**

PAPER – II (Essay Type) **Group-II** **Maximum Marks : 68**

SECTION - I

2. Write short answers to any eight (8) questions: **8×2 = 16**

(i) What will happen if an animal cell is placed into an isotonic solation?

(ii) How do some marine mammals inhabit much colder water than their body temperature?

(iii) What are heterotherms?

(iv) Differentiate Sapwood and Heartwood.

(v) Define Ecdysis or Moulting

(vi) Rigor Mortis is caused due to fall in ATP. Why?

(vii) What are Ovoviviparous animals?

(viii) What is Climacteric?

(ix) What is profundal zone of lake?

(x) Where are Thal and Thar deserts located?

(xi) Differentiate Deforestation and Afforestation.

(xii) What is Eutrophication of Aquatic ecosystem?

3. Write short answers to any eight (8) questions: **8×2 = 16**

(i) Differentiate between Etiolation and Chlorosis.

(ii) Distinguish Sensory Neuron from Motor Neuron.

(iii) What are Neurotransmitters? Give their at least two examples.

(iv) How a gene or a gene pair at one locus can interferes the effect of another gene at another locus? Comment on it.

(v) How maternal-foetal Ra-incompatibility arise? Discuss it.

(vi) How genes can be mapped on a chromosome?

(vii) Many copies of a gene can be obtained in a short time. Comment on it.

(viii) How a rapist can be traced by a forensic scientist?

(ix) Transgenic bacteria can be used to prevent airborne chemical pollutants. Comment on it.

(x) Differentiate primary succession from secondary succession.

(xi) Distinguish Micronutrients from Macronutrients by giving examples.

(xii) What is Ammonification?

4. Write short answers to any six (6) questions: **6×2 = 12**

(i) What changes occur during zone of clongation in plant growth?

(ii) Write practical application of apical dominance.

(iii) What are Okazaki fragment, where they are formed?

(iv) Define nucleosome and Karyotype.

(v) How transcription differ from translation?

(vi) Compare anaphase of mitosis with anaphase I of meiosis I.

(vii) Write the significance of apoptosis and also define apoptosis.

(viii) What are analogous organs, give example.

(ix) Define theory of special creation, who believed in this theory?

SECTION - II

Note: Attempt any three (3) questions: **8×3 = 24**

5. (a) Describe the mechanism of osmoregulation in the animals found in marine environment.

(b) What is non-disjunction? Discuss Down's syndrome and Turner's syndrome as the consequences of non-disjunction.

6. (a) Explain in detail the adaptations in birds for flight.

(b) Write a detailed note on Nitrogen cycle with its sketch.

7. (a) Explain two main points of Darwinism.

(b) Describe Hypothalamus as an endocrine gland.

8. (a) Discuss various steps in human female reproductive cycle.

(b) Define Haemophilia. Explain its transmission from male parent to off-springs.

9. (a) Define regeneration. Why regeneration is important for animals?

(b) What is the methodology for producing recombinant DNA to be used in gene cloning?

Objective Biology Paper Group-I Rawalpindi Board 2023

Roll No. _____ (To be filled in by the candidate) **Maximum Marks : 17**

Biology **223-1st Annual - (Inter Part-II)** **Time Allowed : 20 Minutes**

PAPER – II (Objective Type) **Group-I** **PAPER CODE = 8463**

Note: You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill that circle in front of that question number, Use marker or when to fill the circles. Cutting or filling or two or more circles will result in zero mark in that question.

Q.1	Questions	(A)	(B)	(C)	(D)
1.	Which is not abiotic component.	Water	Plant	Light	Air
2.	The zone in lake where light is insufficient to support photosynthesis is called:	Profundal	Littoral	Limnetic	Shallow
3.	Stone monuments like "Taj Mahal" are being eroded due to stone cancer by:	Eutrophication	Radiation	Acid rain	Air
4.	The only excretory structures in animal kingdom that are associated with digestive tract are called:	Kidneys	Flame cells	Malpighian Tubules	Metnephridia
5.	The number of lumbes vertebrae in human is:	Five	Nine	Two	Seven
6.	Bone forming cells are called:	Osteocytes	Osteoclasts	Chondroblasts	Osteoblasts
7.	Sensation of pain is produced by	Photoreceptors	Nociceptors	Thermo receptors	Chemo-receptors
8.	Which of the following do not help in coordination:	Receptors	Effectors	Neuroglia	Neurons
9.	Pasthenocarpy is the development of fruit without:	Fertilization	Pollination	Germination	Hormones
10.	The loss of memory and white hairs comes under:	Merntology	Teratology	Regeneration	Gerontology
11.	Which of the following is not non-sense codon:	UGA	AUG	UAG	UAA
12.	Centeal dogma is used for in all organisms.	Behavioral expression	Gene depression	Necrosis	Gene expression
13.	Short stature, webbed neck and without ovaries are related to:	44 autosomes +X	2n+1	44 autosomes + XXY	23+XY
14.	Which of the following is not hereditary disease:	Diabetes mellitus	Hemophilia	Malaria	Color blindness
15.	In tissue culture enzymes are used to digest the:	Chloroplast	Cell wall	Vacuole	Cell membrane
16.	For the entry of DNA, high voltage electric pulses are applied for making pores in:	Plasma membrane	DNA	Cytoplasm	Cell wall
17.	In certain areas, such as Ecuador forests coverage has reduced by:	100%	50%	30%	95%

Subjective Biology Paper Group-I Rawalpindi Board 2023

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

Biology **223-1st Annual - (Inter Part-II)** **Time Allowed : 2.40 Hours**

PAPER – II (Essay Type) **Group-I** **Maximum Marks : 68**

SECTION - I

2. Write short answers to any eight (8) questions: **8×2 = 16**

(i) Name plasma proteins synthesized by liver Also write their functions.
(ii) Differentiate between peritoneal and hemodialysis.
(iii) Why leaves are said to be excretophores?
(iv) What are the skeletal deformities because of genetic causes?
(v) Draw the labeled diagram of a sarcomere.
(vi) How can you differentiate between tetany and tetanus?
(vii) How vernalization is beneficial for plants?
(viii) Compare oviparous with viviparous.
(ix) What type of organisms are present in Limenitic zone of a lake ecosystem?
(x) How many deserts are in Pakistan? Write their names and location.
(xi) Why the tress are called environmental buffers?
(xii) How is ozone layer being depleted?

3. Write short answers to any eight (8) questions: **8×2 = 16**

(i) Why AB Blood group is universal recipient?
(ii) What is the role of recombination frequency?
(iii) Why Heaemophilia A is more common in males than females?
(iv) What is the role of thyroxine?
(v) Differentiate between Meissner's corpuscles and Pacinian corpuscles.
(vi) What are the Similantes between nervous and chemical coordmation?
(vii) What are the advantages of transgenic Bacteria?
(viii) How many possible ways to get the gene of interest?
(ix) Differentiate between ex-vivo and in-vivo gene therapy.
(x) Why is a biosphere absent on moon?
(xi) What is the importance of food web?
(xii) How succession act as community relay?

4. Write short answers to any six (6) questions: **6×2 = 12**

(i) Why is growth pattern in plants called "open growth?
(ii) Why is cleavage pattern in chick called "Discoidal Cleavage"?
(iii) Mention the types of chromosomes depending upon the location of centromere.
(iv) Define semi-conservative hypothesis of DNA replication.
(v) What is the critical change in gene that leads to sickle cell disease?
(vi) What is mitotic apparatus?
(vii) Write any two importances of meiosis.
(viii) What is theory of special creation?
(ix) Define gene pool.

SECTION - II

Note: Attempt any three (3) questions: **8×3 = 24**

5. (a) Describe major homeostatic functions of liver.
(b) What is cell cycle? Diagrammatically mention its different stages.

6. (a) Write some major functions of skeletal system.
(b) Define Xerosere, describe its various stages.

7. (a) How is resting membrane potential replaced by action membrane potential across neurolema? Explain factors in this replacement.
(b) Discuss the evidences of evolution from comparative embryology and molecular biology.

8. (a) Explain different physiological and structural changes occurring during the process of birth in human.
(b) Define probability. Derve 93.3:1 ratio of independent assortment through product rule,

9. (a) Describe the phases of growth in plants.
(b) Explain the importance of transgenic plants all the being females.

Objective Biology Paper Group – II Rawalpindi Board 2023

Roll No. _____ (To be filled in by the candidate) **Maximum Marks : 17**

Biology **223-1st Annual - (Inter Part-II)** **Time Allowed : 20 Minutes**

PAPER – II (Objective Type) **Group - II** **PAPER CODE = 8462**

Note: You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill that circle in front of that question number, use marker or when to fill the circles. Cutting or filling two or more circles will result in zero mark in that question.

1. Which of the following is not a heterotherm?
   (A) Bat (B) Humming bird (C) Duckbilled Platypus (D) Flying bird
2. The inactive, non-conducting wood is called:
   (A) heartwood (B) Sapwood (C) Secondary Phloem (D) Primary Xylem
3. Total number of facial bones is:
   (A) 22 (B) 14 (C) 12 (D) 16
4. Which of the following is wrong statement?
   (A) Adrer aline releases glucose from liver glycogen (B) Non-adrenaline releases glucose from liver glycogen (C) Sympathetic system is reinforced by epinephrine and nor-epinephrine (D) Pupil dilates by parasympathetic system
5. Etiolated plar is possess:
   (A) No chlorophyll (B) Chlorosis (C) Insufficient chlorophyll (D) Higher chlorophyII
6. Fruit set means:
   (A) Retention of seed (B) Retention of fruit (C) Retention of ovary (D) Pregnancy
7. Which of the following is responsible for secondary growth in plants?
   (A) Lateral meristem (B) Vascular cambium (C) Cork cambium (D) All A, B & C
8. Helix of DNA has diameter:
   (A) 2 nm (B) 2 μm (C) 2.3 nm (D) 3.4 nm
9. The semi conservative replication model predicted by Watson and Crick was confirmed by:
   (A) Meselson & Stahl (B) Hersha & Chase (C) Vernon Ingram (D) Fredrick Sanger
10. Crossing over take place during:
    (A) Zygotene (B) Pachytene (C) Diplotene (D) Diakinesis
11. Which chromosome carries gene for leukemia?
    (A) Chromosome 9 (B) X-chromosome (C) Chromosome 19 (D) Chromosome 11
12. Which of the following bio-technology product has been produced in mammalian milk?
    (A) Hemophilia factor VIII (B) Insulin (C) Anti-Thrombin III (D) Human growth hormone
13. The gene for Retinitis pigmentosa is present on:
    (A) X-chromosome (B) Y-chromosome (C) Chromosome 7 (D) Chromosome 11
14. Alzheimer is a/an:
    (A) Nutritional disease (B) Hormonal disease (C) Mental disorder (D) Physical disease
15. The first photosynthetic organism probably used ..... for reducing CO_2 to sugars.
    (A) Pentose sugars (B) Hydrogen sulfide (C) Hydrogen carbide (D) Both A & B
16. Solar energy used for evaporation of water and heating up soil is about:
    (A) 90% (B) 1% (C) 99% (D) 95%
17. Which of the following statement is false:
    (A) 11% of the total area of the world is under cultivation (B) 2% of water is in the form of frozen ice (C) An area having less than 10 to 20 inches rains is called desert (D) Early man was first a secondary consumer

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

Biology (Subjective) **223-1st Annual - (Inter Part-II)** **Time Allowed : 2.40 Hours**

PAPER – II (Essay Type) **Group - II** **Maximum Marks : 68**

SECTION - I

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

i Skin does not come within the definition of excretory organ, comment.
ii Differentiate between Endotherms and ectotherms.
iii How is Osmoregulation done in Hypotonic and Hypertonic environment?
iv What is difference between tetanus and muscle tetany?
v What is the role of ATP in muscle fatigue?
vi How is Turgor pressure generated?
vii Define diplohaplontic life cycle.
viii What is the role of non-disjunction in diploid parthenogenesis?
ix Write the names of four major ecosystems on land in Pakistan.
x Differentiate between phytoplanktons and zooplanktons.
xi What do you know about hydroelectric power?
xii Mention any four ways in which we can save energy.

3. Write short answers of any eight parts from the following: **8×2 = 16**

i Why birth control pills contain progesterone?
ii How pancreas help humans as an endocrine gland?
iii Why iodine is added into the table salt?
iv How protanopia, deuteranopia and tritanopia area differentiated?
v What is pleiotropy? Give two examples.
vi Define epistasis and how it is confused with dominance?
vii How genetic engineers produce a salt tolerant plant Arabidopsis?
viii What are transgenic plants?
ix How cancer is treated through gene therapy?
x How certain fungi area crucial for higher plants in acidic soils?
xi Describe the role played by bacteria in nitrogen cycle.
xii How food web is more stable than food chain?

4. Write short answers of any six parts from the following: **6×2 = 12**

i Highlight the role of morphogenetic determinant during development of an individual.
ii What is discoidal cleavage?
iii Differentiate between sense strand and antisense strand of DNA
iv How mRNA in eukaryotic cell remain protected from nucleases and phosphatases?
v Where codon and anticodon are situated?
vi Differentiate between necrosis and apoptosis.
vii How cytokinesis occurs in plants?
viii What are endangered species? Give two examples from Pakistan.
ix What are Hydrothermal vents?

SECTION - II

Note: Note Attempt any three questions. Each question carries equal marks: **8×3 = 24**

5. **(a)** Describe thermal regulatory strategies in mammals including humans in cold temperature.
   (b) Define Meiosis? Explain Meiotic - 1st, with diagram.
6. **(a)** Explain appendicular skeleton of mammals.
   (b) Describe nitrogen cycle.
7. **(a)** Describe how a controlling mechanism is itself controlled by products of a reaction by giving an example?
   (b) Describe different factors which effect the gene frequency of a population.
8. **(a)** What are placenta, write the functions of placenta during pregnancy.
   (b) Define Mendel's law of segregation. Explain it with an example.
9. **(a)** Highlight the role of external environmental factors in controlling the growth in plants
   (b) What are restrictions endonucleases?