BIOLOGY
GROUP : SECOND

12th Class 1st Annual 2024
DG Khan Board-2024-G-2

TIME: 20 MINUTES
MARKS: 17

OBJECTIVE

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 marks in that question.

QUESTION NO. 1

1	Commonly used restriction enzyme is (A) PBR 322 (B) PSC 101 (C) Plasmid (D) ECoR1 ●
2	Eukaryotes are thought to have first appeared about (A) 3.5 Billions (B) 1.5 Billions ● (C) 2.5 Billions (D) 4.5 Billions
3	The change in frequency of allele at locus that occur by chance is (A) Gene pool (B) Genome (C) Migration (D) Genetic drift ●
4	Pick the biotic component from the following (A) Animals ● (B) Soil (C) Water (D) Atmosphere
5	Stone monuments are being eroded due to stone cancer by (A) Green House effect (B) Ozone depletion (C) Acid rain ● (D) Global warming
6	Incidence of uric acid kidney stone is (A) 5 % (B) 10 % ● (C) 15 % (D) 70 %
7	Which is stimulus for thigmotropism (A) Touch ● (B) Light (C) Water (D) Chemical
8	Clavicle connects scapula with (A) Skull (B) Femur (C) Tibia (D) Sternum ●
9	Hormone which promotes bolting of some rosset plants is known as (A) Ethene (B) Auxin (C) Cytokinin (D) Gibberellin ●
10	The 2nd largest part of brain is (A) Thallamus (B) Hypothalamus (C) Cerebellum ● (D) Cerebrum
11	In honey bee , males are haploid and produce sperms by (A) Mitosis ● (B) Meiosis (C) Binary fission (D) Multiple fission
12	Cleavage results in the formation of rounded closely packed mass blastomeres (A) Gastrula (B) Blastula (C) Morulla ● (D) Neurula
13	How many different kinds of t.RNA in human cell (A) 54 (B) 45 (C) 25 ● (D) 20
14	The sequence of nucleotide that determine the amino acid sequence of a protein is (A) Gene ● (B) Allele (C) Multiple allele (D) Chromosome
15	Full cell cycle in yeast cell has length (A) 30 minutes (B) 60 minutes (C) 90 minutes ● (D) 120 minutes
16	A pure breeding tall pea plant was crossed to short plant. What will be the frequency of short plants in F1 (A) 0.25 (B) 0 ● (C) 0.5 (D) 1
17	Antibody made by soyabeen can be used as treatment for (A) Genital Herpes (B) AIDS ● (C) Hepatitis (D) Herpes simplex

SECTION-I

QUESTION NO. 2 Write short answers any Eight (8) of the following 16

i	Describe some adaptations made by plants living in extreme dry conditions
ii	How kidney helps to conserve water when body is facing dehydration ?
iii	What are heterotherms ? Give two examples
iv	Why ecdysis is necessary for most insects ?
v	Describe the role of Ca^{+2} and ATP in muscle contraction
vi	How snakes move from one place to another without legs ?
vii	Compare parthenocarpy with apomixes
viii	What is oestrous cycle ? Is it also present in humans ?
ix	What do you mean by " Taiga " ? Give its conditions
x	What are the main factors that determine productivity of an ecosystem ?
xi	How global worming may effect human life on earth ?
xii	Differentiate between renewable and non-renewable resources

QUESTION NO. 3 Write short answers any Eight (8) of the following 16

i	How are synthetic auxins applied in agriculture ?
ii	How does sodium potassium pump work in transmission of nerve impulse ?
iii	Why insight learning is considered highest form of learning ?
iv	What do you know about nullogamete ?
v	Why AB blood group is known as universal recipient ?
vi	A man is 45 years old and bald. His wife also has pattern baldness. What is the risk that their son will lose his hair ?
vii	How do we obtain gene of interest ?
viii	What is gene pharming ?
ix	What do you know about Taq polymerase ?
x	Define commensalism. Give example
xi	What do you know about Autecology ?
xii	Define Food Chain. Give an example

QUESTION NO. 4 Write short answers any Six (6) of the following 12

i	Narrate the characteristics of dividing cells in plants
ii	Give the effects of temperature on growth of plants
iii	Draw a structure showing phosphodiester linkage
iv	A human chromosome has a bulk of information. How ?
v	How euchromatin and heterochromatin are different ?
vi	What is the role of Actin and myosin in cell division ?
vii	Write the characteristics of cancer cells
viii	Give the contribution of Lamarck in evolution
ix	Define gene pool and fixed allele

SECTION-II

Note: Attempt any Three questions from this section 8 x 3 = 24

Q.5.(A)	Describe the major homeostatic functions of the liver
(B)	Define mitosis. Write its importance
Q.6.(A)	Describe vertebral column and rib cage
(B)	Explain Nitrogen cycle with the help of sketch
Q.7.(A)	Write a note on structure and function of fore brain
(B)	The fossil record and comparative embryology are strong evidence of evolution. Justify
Q.8.(A)	What is incomplete dominance ? Explain with the example of 4 O'clock plant
(B)	Elaborate various components of female reproductive system
Q.9.(A)	What is regeneration ? Why it is more common in some animals and not in others ?
(B)	What is gene therapy ? Discuss its importance with two examples

BIOLOGY
GROUP : FIRST

12th Class 1st Annual 2024

TIME: 20 MINUTES
MARKS: 17

OBJECTIVE

DG Khan Board-2024-G-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. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero marks in that question.

QUESTION NO. 1

1	Antibody used for treatment of cancer is obtained from (A) Soyabean (B) Maiz (C) Corn (D) Arabidopsis ●
2	The compound which made environment of earth from reducing to oxidizing is (A) Carbon dioxide (B) Nitrogen dioxide (C) Oxygen ● (D) Ozone
3	The profession of a species in an ecosystem is called (A) Habit (B) Habitat (C) Niche ● (D) Trophic level
4	Thar is desert ecosystem of (A) Punjab (B) Sindh ● (C) Balochistan (D) Khyber Pakhtoon Khawah
5	In sea , tides are generated due to pull of (A) Earth (B) Sun (C) Moon ● (D) Supiter
6	Large leaves are found in (A) Xerophytes (B) Mesophytes (C) Hydrophytes ● (D) Sciophytes
7	Opening of buds is due to (A) Photonasty ● (B) Epinasty (C) Hyponasty (D) Thermonasty
8	The structures help to maintain minerals in the blood (A) Bone ● (B) Muscle (C) Skin (D) Gland
9	Neurons responsible to carry nerve impulse from central nervous system to effector are (A) Sensory neuron (B) Associative neuron (C) Intermediate neuron (D) Motor neuron ●
10	Certain human male fail to develop secondary sexual characters due to absence of (A) Progesteron (B) Oxytocin (C) Testosteron ● (D) Luteonizing hormone
11	Eggs with diploid number of chromosomes are produced as a result of (A) Normal mitosis (B) Normal meiosis (C) Modified mitosis (D) Modified meiosis ●
12	Apical dominance is caused by (A) Auxin ● (B) Cytokinin (C) Gibberellin (D) Ethene
13	Complete set of chromosomes in an organism is called (A) Genome ● (B) Genotype (C) Phenotype (D) Karyotype
14	In a nucleotide , Nitrogen base is attached to carbon number ..... of pentose sugar (A) 1 ● (B) 2 (C) 3 (D) 4
15	An example of cell that enters G0 – phase permanently during cell cycle is (A) Gland cell (B) Skin cell (C) Nerve cell ● (D) Bone cell
16	Gene I for blood group is found on chromosome number (A) 6 (B) 7 (C) 8 (D) 9 ●
17	An example of restriction endonuclease is (A) Taq polymerase (B) ECoR1 ● (C) Gyrase (D) Ligase

QUESTION NO. 2 Write short answers any Eight (8) of the following 16

i	Differentiate between hypotonic and hypertonic environment
ii	Briefly write about pyrexia
iii	How does high temperature affect plant metabolism ? Write the way plants manage with high temperature.
iv	Compare epinasty and hyponasty
v	Why does human body become stiff after death ? Name that particular condition
vi	How would you justify that amount of work a muscle does is reflected in changes in the muscle itself ?
vii	How are identical twins formed ?
viii	Differentiate between long day and short day plants
ix	What are natural grass lands in the world are used for and how human activities are deteriorating these biomes ?
x	What are taiga ? What kinds of environmental conditions are found there ?
xi	Define the term Demography
xii	Differentiate between reforestation and afforestation

QUESTION NO. 3 Write short answers any Eight (8) of the following 16

i	Give names of two synthetic auxins with their effects
ii	What are mechanoreceptors ? Give their role
iii	What is role of limbic system in brain ?
iv	Does jumping genes act as source of mutation ?
v	Suggest how type A and AB parents could produce a child with blood group O
vi	Define over dominance with an example
vii	Define palindromic sequences
viii	What is PCR ? Give its function
ix	What is anther culture technique ? Give its role
x	What is biome ? Give names of two biomes
xi	Give importance of producers in ecosystem
xii	How food chain is different from food web ?

QUESTION NO. 4 Write short answers any Six (6) of the following 12

i	What is intercalary meristem ? Describe its role
ii	Enlist some symptoms of aging
iii	Describe the importance of promoter region during transcription
iv	What are chromosomal aberrations ?
v	Describe chemical composition of chromosome
vi	Compare apoptosis with necrosis
vii	How a cancerous cell differs from a normal cell ?
viii	Differentiate between endangered and extinct species with examples
ix	What is membrane invagination hypothesis ?

SECTION-II

Note: Attempt any Three questions from this section 8 x 3 = 24

Q.5.(A)	What is kidney stone ? Describe its cure
(B)	Define interphase , Explain its various sub-phases
Q.6.(A)	What is bone fracture ? Describe the mechanism of their repair
(B)	Define biogeochemical cycle. Discuss nitrogen cycle with labeled diagram
Q.7.(A)	Write a detailed note on secretions of Adrenal glands
(B)	What are endangered species ? What measures could be adopted for their preservation
Q.8.(A)	Explain the human male reproductive system in detail
(B)	Discuss genetic basis of ABO system in humans. Also give their importance in blood transfusion
Q.9.(A)	Explain the role of nucleus in development with reference to Acetabularia
(B)	What is genomic library ? How would you locate a gene of interest in the library

BIOLOGY **PAPER CODE – 8461** **TIME: 20 MINUTES**
GROUP : FIRST **12th CLASS – 12022** **MARKS: 17**

OBJECTIVE

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.

QUESTION NO: 1

1	Which of the following is not endotherm ? (A) Bird (B) Amphibians (C) Flying insects (D) Mammals
2	Brain is protected by. (A) Cranium (B) Skull (C) Orbits (D) All of the these
3	Muscle fatigue is caused by. (A) CO_2 (B) Fumaric acid (C) Ethyl alcohol (D) Accumulation of lactic acid
4	Thyroid glands produce. (A) Calcitonin (B) Tri-iodothyronine (C) T3, T4 and calcitonin (D) All A, B and C
5	Developing seeds are rich source of. (A) Auxins (B) Cytokinin (C) Gibberellins (D) All A, B and C
6	Growth rate is influenced by. (A) Hormones (B) Water (C) Vitamins (D) All A, B and C
7	Neurula is the stage in which embryo has. (A) Neural tube (B) Blastocoels (C) Archenterons (D) Germinal layers
8	tRNA is synthesized by (A) RNA polymerase-I (B) RNA polymerase-II (C) RNA polymerase-III (D) All A, B and C
9	Cell cycle is divided into. (A) Interphase (B) Mitotic phase (C) Cytokinins (D) Both A and B
10	Microtubules which form mitotic apparatus are composed of. (A) Tubulin (B) Troponin (C) Traces of RNA (D) Both A and B
11	Disputed paternity is determined now a days by. (A) Blood type (B) PCR (C) DNA finger printing (D) Palindromic sequence
12	Which of the following is not a biotechnology product ? (A) Vaccines (B) Modified enzymes (C) DNA probes (D) Hormones
13	Hot dry weather is well tolerated by. (A) C_3 plants (B) C_4 plants (C) Angiosperms (D) Gymnosperms
14	Selection acts directly on (A) Phenotype (B) Genotype (C) The entire genome (D) All A, B and C
15	The relationship of an organism to its environment is called (A) Phycology (B) Ecology (C) Mycology (D) Biology
16	Tundra ecosystem located in Pakistan. (A) Kara-Koram Mountain (B) Hindu Kush (C) Kohe-Suleman (D) Both A and B
17	Water is used in irrigation (A) 10 % (B) 20 % (C) 90 % (D) Both A and B

SECTION-I

QUESTION NO. 2 Write short answers of any Eight (8) parts of the following 16

i	How level of urea and metabolic wastes increases in human body ?
ii	How animals inhabitant of cold marine water maintain body heat ? Give examples.
iii	How temperature in fever is useful for human body ?
iv	What is cramp ? Give its two causes.
v	Define Disc-slip.
vi	Differentiate between ligament and tendon.
vii	Can we develop fruit without seed, How ?
viii	Differentiate between oviparous and viviparous animals by giving examples ?
ix	Differentiate weather from climate ?
x	Define zooplanktons and phytoplankton.
xi	What are environmental buffers ? Give their significance.
xii	Give any four adverse effects of Acid rain.

QUESTION NO. 3 Write short answers of any Eight (8) parts of the following 16

i	Differentiate between dendrites and axons.
ii	How Na^+ and K^+ ions show movement during transmission of nerve impulse.
iii	How epilepsy can be characterized and diagnosed ?
iv	State complete dominance.
v	What is over dominance ?
vi	How can blood pressure be proved as an example of multifactorial trait ?
vii	What are the requirements to produce a recombinant DNA ?
viii	What are palindromic sequences ?
ix	What is PCR ?
x	Define Niche.
xi	Interpret mycorrhiza as example of symbiosis.
xii	Define succession. Name its types.

QUESTION NO. 4 Write short answers of any Six (6) parts of the following 12

i	Appraise the effect of temperature on plant growth.
ii	Interpret apical dominance as a growth correlation.
iii	What is alkaptonuria ? Which enzyme is absent in these patients ?
iv	Give the role of RNA primer in DNA replication.
v	What is promoter ? Give the binding sites in the promoter of prokaryotes.
vi	Compare the benign and malignant tumors.
vii	What is synapses ? In which stage of prophase-I it takes place ?
viii	Briefly explain membrane invagination hypothesis.
ix	What are homologous organs ? Give example.

SECTION-II

Note: Attempt any Three questions from this section 8 x 3 = 24

Q.5.(A)	Write a note on osmoregulation in marine animals.
(B)	Define ecosystem. Explain its various components.
Q.6.(A)	Compare locomotion in amphibians with locomotion in reptiles.
(B)	Discuss how DNA encodes protein structure with reference to the central dogma of molecular biology ?
Q.7.(A)	How is adrenal cortex important in the human body ? What abnormalities may arise if too much cortical hormones are produced and even the cortex is destroyed ?
(B)	Write a note on acid rain.
Q.8.(A)	Sketch the life cycle of Angiospermic plant ?
(B)	Discuss the genetics of colour blindness ?
Q.9.(A)	Write a note on conditions of growth in plants.
(B)	Differentiate animals possess organs with similar structure but with different functions and with different structures with similar functions. How does this supports the theory of evolution ?

BIOLOGY **PAPER CODE – 8462** **TIME: 20 MINUTES**
GROUP : SECOND **12th CLASS – 12022** **MARKS: 17**

OBJECTIVE DG Khan Board-2022

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QUESTION NO. 1

1 Secretion of Antidiuretic hormone is inhibited when body fluids are.
(A) Isotonic (B) Hypertonic (C) Hypotonic (D) None of these

2 Unstriped muscles are.
(A) Smooth muscles (B) Cardiac muscles (C) Skeletal muscles (D) Brachialis

3 Thin filament is composed chiefly of.
(A) Tropomyosin (B) Troponin (C) Actin (D) All of these

4 The receptors for neurotransmitter molecules are found in.
(A) Neurolemma (B) Sarcolemma (C) Presynaptic membrane (D) Postsynaptic membrane

5 The secretion of FSH is inhibited.
(A) Estrogen (B) Progesterone (C) LH (D) ADH

6 The discoidal cap of cells above the blastocoels is called.
(A) Ectoderm (B) Endoderm (C) Mesoderm (D) Blastoderm

7 Which one of the following is the internal factor of growth in plants ?
(A) CO_2 (B) oxygen (C) Nutrition (D) Hormones

8 It is responsible for correct initiation of transcription.
(A) Initiation factor (B) Sigma factor (C) Elongation factor (D) Transcription factor

9 The contraction of spindles occur during.
(A) Anaphase (B) Anaphase-I (C) Metaphase (D) Both A and B

10 Synapsis takes place in.
(A) Leptotene (B) Pachytene (C) Zygotene (D) Diplotene

11 What is the risk of a colour blind child in a family, when father is colour blind but mother is normal?
(A) 0 % (B) 25 % (C) 50 % (D) 100 %

12 The fragments of DNA can be separated according to lengths by.
(A) PCR amplification (B) Gel electrophoresis (C) Recombinant DNA technology (D) Gene Cloning

13 Transgenic plants are produced when foreign genes are introduced into.
(A) Plant protoplast (B) Immature plant embryo (C) Roots (D) Both A and A

14 Vermiform appendix in man is.
(A) Developed organ (B) Vestigial organ (C) Rudimentary organ (D) Imperfect organ

15 Pick the biotic component from the following.
(A) Soil (B) Atmosphere (C) Water (D) Animals

16 Phytoplanktons are drifting.
(A) Plants (B) Animals (C) Protozoans (D) Insects

17 The cheapest and non – pollutant source of energy is.
(A) Hydroelectric power (B) Wind Power (C) Fossil fuels (D) Nuclear power

PAPER CODE - 8463
12th CLASS – 12021

BIOLOGY
GROUP : FIRST

TIME: 20 MINUTES
MARKS: 17

OBJECTIVE

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.

QUESTION NO. 1

1	Complete immobilization of muscle leads to muscle weakness and severe (A) Atrophy (B) Cramp (C) Tetany (D) Trauma
2	Hormone that suppresses ovulation is (A) Testosterone (B) Oestrogen (C) Progesterone (D) Gastrin
3	The yellowish glandular structure corpus luteum , starts secreting a hormone (A) LH (B) FSH (C) Oestrogen (D) Progesterone
4	Which represents the dorsal and both lateral lips of blastopore ? (A) Primitive streak (B) Henson's Node (C) Coelom (D) Neurocoel
5	Healing of fracture and repair of the skin are examples of (A) Reproduction (B) Mutation (C) Regeneration (D) Induction
6	Miescher extracted a white substance from the nuclei of human cells and fish sperm called (A) Nuclein (B) Penicillin (C) Mucin (D) Adenine
7	Each bivalent has chromatids wrap around each other (A) 02 (B) 04 (C) 06 (D) 08
8	In diplotene , homologous chromosomes remain united by their point of interchange called (A) Bivalent (B) Centromere (C) Synapse (D) Chiasmata
9	ABO blood group system was discovered by (A) Bernstein (B) Punett (C) Karl Landsteiner (D) Wiener
10	Organisms that have a foreign gene inserted into them are called (A) Genome (B) Transgenic (C) Bioreactor (D) Nutrasweets
11	Armadillos armored mammals live only in (A) Africa (B) Asia (C) America (D) Australia
12	The food relationship predator-prey creates a (A) Chain (B) Cycle (C) Stage (D) Circle
13	Phytoplankton includes cyanobacteria which serve as (A) Decomposers (B) Feeders (C) Crustaceans (D) Producers
14	The driving force behind all of natural cycles is (A) Sun (B) Air (C) Water (D) Soil
15	The uptake of sodium in the thick loop of Henle is promoted by the action of (A) ADH (B) Aldosterone (C) Oxytocin (D) Testosterone
16	Which emulsifies fats in small intestine ? (A) Bile (B) Glycogen (C) Cholesterol (D) Lipoprotein
17	Angular thickenings in the primary walls are present in (A) Parenchyma cells (B) Sclerenchyma cells (C) Collenchyma cells (D) Trachieds

SECTION-I

QUESTION NO. 2 Write short answers any Eight (8) of the following 16

1	Define lithotripsy
2	What are poikilotherms ? Give one example.
3	What is homeostasis ?
4	Differentiate between tendon and ligament
5	Briefly write hematoma formation
6	Give composition of filaments of skeletal muscle
7	How sperms travel from testes to outside ?
8	Define ovulation and menopause
9	What are Prairies and Savanna ?
10	Briefly describe the conditions of Taiga
11	What are the effects of ozone layer ?
12	Define eutrophication. What are its effects ?

QUESTION NO. 3 Write short answers any Eight (8) of the following 16

1	What are Neurotransmitters ? Give their examples
2	Define Gibberellins. Give their two commercial applications
3	Define Epilapsy. Give its treatment
4	Define multiple alleles. Give an example
5	Differentiate between homozygous and heterozygous
6	Give any two adverse effects of maternal foetal Rh-incompatibility
7	What is Recombinant DNA ?
8	Define palindromic sequences. Give one example
9	Compare molecular scissors and vectors
10	Define the term commensalism by giving an example
11	Differentiate between Ammonification and Nitrification
12	What is parasitism ?

QUESTION NO. 4 Write short answers any Six (6) of the following 12

1	Define growth correlations
2	Differentiate between inhibitory effects and compensatory effects is apical dominance
3	Differentiate between purines and pyrimidines bases
4	Name any four important enzymes involved in DNA Replication
5	What is semiconservative replication of DNA ?
6	Why interphase is called resting phase ?
7	Compare cytokinesis in animal cell with cytokinesis in plant cell
8	What is endosymbiont hypothesis ?
9	What do you mean by descent with modification ?

SECTION-II

Note: Attempt any Three questions from this section 8 x 3 = 24

Q.5.(A)	Give major homeostatic functions of liver
(B)	What is nitrogen cycle ? Discuss various steps of nitrogen cycle
Q.6.(A)	Write sliding filament model of muscle contraction in detail
(B)	Write in detail Watson and Crick's model of DNA
Q.7.(A)	Define Synapse. How nerve impulse passes from one neuron to another
(B)	Write note on deforestation and afforestation
Q.8.(A)	Discuss female reproductive system in Human female
(B)	Explain Diabetes mellitus and its genetic basis
Q.9.(A)	Write a note on neurulation in chick development
(B)	How is comparative embryology the evidence of evolution ?

PAPER CODE - 8468

12th CLASS – 12021

BIOLOGY **TIME: 20 MINUTES**

GROUP : SECOND **MARKS: 17**

OBJECTIVE

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QUESTION NO. 1

1	The most critical phase of mitosis is …….. (A) Metaphase (B) Prophase (C) Anaphase (D) Telophase
2	Pairing of homologous chromosomes starts in …… (A) Leptotene (B) Zygotene (C) Pachytene (D) Diplotene
3	The basic unit of biological information is called …… (A) Locus (B) DNA (C) Gene (D) Inheritance
4	The enzyme, which seals the forigen piece of DNA or gene into vector, is called …… (A) Restriction enzyme (B) DNA cutter (C) DNA polymerase (D) DNA ligase
5	According to endosymbiotic hypothesis , the aerobic bacteria develops into (A) Nucleus (B) Lysosomes (C) Mitochondria (D) Ribosomes
6	The relationship between insects and flowering plant is an example of …… (A) Mutualism (B) Parasitism (C) Commensalism (D) Predation
7	Limentic phytoplankton includes …….. (A) Mosses (B) Cynobacteria (C) Algae (D) Bacteria
8	The atmosphere gas behaves like glass sheet of green house is …….. (A) Oxygen (B) Hydrogen (C) Carbon dioxide (D) Nitrogen
9	Which one of the following is the most toxic nitrogenous waste in animals ? (A) Urea (B) Ammonia (C) Uric acid (D) Trimethylamine
10	The incidence of calcium oxalate type kidney stone (A) 60 % (B) 65 % (C) 70 % (D) 75 %
11	The long tubular Sclerenchyma cells found in xylem are …….. (A) Fibers (B) Sclereides (C) Vessels (D) Cork cells
12	All the following bones are associated with appendicular skeleton except (A) Femur (B) Radius (C) Ulna (D) Ribs
13	Ethene promotes flowering in …….. (A) Pine apple (B) Pears (C) Tomatoes (D) Rubber plant
14	Evolution of pollen tube is parallel to the evolution of (A) Stem (B) Thorn (C) Seed (D) Branch
15	A little distance from apex of root and shoot lies the zone of …… (A) Elongation (B) Maturation (C) Differentiation (D) Isolation
16	Accetabularia is an/a (A) Angiosperm (B) Bryophyte (C) Alga (D) Fungus
17	The particular array of chromosomes that an individual possesses is called …….. (A) Genotype (B) Karyotype (C) Genome (D) Gene pool

SECTION-I

QUESTION NO. 2 Write short answers any Eight (8) of the following 16

1	Differentiate between Hypotonic and Hypertonic solutions
2	Explain the role of contractile vacuole in Amoeba
3	What is vasodialation and vasoconstriction ?
4	What is moulting ?
5	Name the upaired bones of skull
6	Explain in detail the Hinge Joint
7	Write any two disadvantages of cloning
8	Write down the role of pollen tube in evolution
9	Explain the life in limnetic zone
10	Write Human effects in temperate deciduous forests
11	Write any two consequences of population explosion
12	Differentiate between deforestation and aforestation

QUESTION NO. 3 Write short answers any Eight (8) of the following 16

1	How gibberellins are commercially produced ? Write their commercial applications
2	Distinguish between ganglia and nerves
3	Write the symptoms of congenital deficiency and later in life deficiency of thyroxin
4	How linked genes can be separated ? Write the linkage group on human chromosome 11
5	What are autosomes ? How many autosomes are present in grass hopper ?
6	Differentiate between homozygote and heterozygote
7	Define restriction enzymes and palindromic sequences
8	What are plasmids ? Give two examples
9	Define gene frequency. What is main principle of methods used for gene sequencing
10	Differentiate between habitat and niche
11	Define mycorrhiza. Give an example
12	What do you mean by nitrogen cycle ? How nitrogen of organic material is converted into NH_3

QUESTION NO. 4 Write short answers any Six (6) of the following 12

1	Differentiate between area pellucida and area opaca
2	What is the difference between growth and embryonic development ?
3	Define point mutation with an example
4	Define one gene one polypeptide hypothesis and transformation
5	What is karyotype ? Give its significance
6	How does cytokinesis occurs in plants and animals ?
7	Differentiate between Malignant and Benign tumors
8	Define species and gene pool
9	Define Biogeography and Hydrothermal vents

SECTION-II

Note: Attempt any Three questions from this section 8 x 3 = 24

Q.5.(A)	Write a comprehensive note on dialysis
(B)	What is parasitism ? Write down its significance
Q.6.(A)	What are joints ? Describe their different types
(B)	Explain double helical structure of DNA
Q.7.(A)	Define receptors ? How they are classified ?
(B)	Discuss renewable resources in an ecosystem
Q.8.(A)	Write a note on fruit set and fruit ripening
(B)	Describe the sex chromosomes of Drosophila , man and grass hopper
Q.9.(A)	Describe Haemmerling experiment to introduce the role of nucleus in development
(B)	Explain endosymbiont hypothesis for evolution from prokaryotes to eukaryotes

PAPER CODE - 8461
12th CLASS – 12019

BIOLOGY , GROUP FIRST
NEW COURSE
ACADEMIC SESSION: 2015 - 2017 TO 2017 - 2019

TIME: 20 MINUTES
MARKS: 17

OBJECTIVE

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.

QUESTION NO. 1

1	Most cartilaginous fishes possess salt excreting organs known as the (A) Caecal gland (B) Foetal gland (C) Rectal gland (D) Sebaceous gland
2	In human beings, the homeostatic thermostat is present in a (A) Amygdala (B) Hippocampus (C) Thalamus (D) Hypothalamus
3	The collenchymatous cells are highly lignified and found in the (A) Epidermis (B) Cortex (C) Pith (D) Xylem
4	Tube feet are locomotory organs of (A) Jelly fish (B) Silver fish (C) Cuttle fish (D) Star fish
5	Flowering is induced in pineapple by growth hormone called (A) Gibberellins (B) Abscisic acid (C) Cytokinins (D) Ethene
6	Low temperature treatment given to plants stimulates the production of vernalin which is actually the (A) Auxin (B) Gibberellins (C) Cytokinins (D) Ethene
7	Most of the major organs of embryo are formed within the (A) 10 week (B) 12 week (C) 14 week (D) 16 week
8	Gray vegetal cytoplasm gives rise to (A)Larval epidermis (B) Muscle cell (C) Gut (D) Neural tube
9	Sickle cell anemia is caused due to change of glutamic acid to (A)Histidine (B) Lucine (C) Valine (D) Prolin
10	The spindle fibers are composed of traces of RNA and a protein called (A) Insulin (B) Actin (C) Myosin (D) Tubulin
11	Separation of homologous chromosomes occur during (A) Prophase (B) Metaphase (C) Anaphase (D) Telophase
12	If an offspring has its parental types 30+30 and recombinant types 20+20. What is the percentage of its recombination frequency. (A) 20 (B) 40 (C) 60 (D) 80
13	A team of Japanese scientists are attempted to introduce the C4 Cycle into the (A) Wheat (B) Rice (C) Corn (D) Cotton
14	Flagella may have arisen through ingestion of Prokaryotes like (A) Closteridium (B) Vibro (C) Spirochetes (D) Salmonella
15	Relationship between insects and flowering plants is the example of (A) Commensalism (B) Mutualism (C) Predation (D) Parasitism
16	Andropogon, Stipa and Panicum are found in ecosystem called. (A) Grass land (B) Desert (C) Tundra (D) Coniferous
17	The percentage of land under cultivation is (A) 30 % (B) 21% (C) 11% (D) 5%

SECTION-I

QUESTION NO. 2 Write short answers any Eight (8) questions of the following 16

1	Write two adaptations of xerophytes.
2	Make sketch of urea cycle.
3	Briefly describe hemodialysis.
4	What is sciatica and its causes.
5	Differentiate between active and passive flight.
6	What are synovial joints ? Write the names of its two types.
7	Write two practical uses of DNA finger printing technology.
8	What are restriction endonucleases?
9	What is limnetic zone, mention its life.
10	Write about two factors which influence life on land
11	What is population explosion, write its two causes.
12	What is algal bloom?

QUESTION NO. 3 Write short answers any Eight (8) questions of the following 16

1	Write down the functions of sympathetic nervous system.
2	What are two similarities of nervous coordination and chemical coordination?
3	Define diurnal rhythms and circannual rhythms
4	Define asexual and sexual reproduction.
5	What do you know about apomixis ?
6	Write down the function of ACTH released from fetal pituitary.
7	Define test cross.
8	What is a genic system for determination of sex ?
9	Define Pleiotropy with an example.
10	Define biogeochemical cycle.
11	How Niche is different from habitat?
12	Define food chain , draw an example of simple food chain.

QUESTION NO. 4 Write short answers any Six (6) questions of the following 12

1	Define aging. Give four signs of aging.
2	Compare determinate with indeterminate growth.
3	Differentiate between malignant and benign tumor.
4	What is the cause and symptoms of Down's syndromes.
5	Name any four animal species declared extinct in Pakistan.
6	How molecular biology provides an evidence for evolution?
7	Write down the structural formulae of cytosine and thyamine.
8	What is alkaptonuria? Give its cause.
9	Differentiate between template and coding strand.

SECTION-II

Note: Attempt any Three questions from this section 8 x 3 = 24

Q.5.(A)	Explain different stages of xerosere succession.
(B)	Describe excretion in plants.
Q.6.(A)	Describe the mechanism of repair of broken bone.
(B)	How Alfred Hershey and Martha Chase proved that DNA is hereditary material?
Q.7.(A)	Differentiate between nervous system of Hydra and Planaria.
(B)	Write a note on degradation and depletion of energy resources.
Q.8.(A)	Sketch the life cycle of an Angiosperm.
(B)	Define sex linkage. Discuss X-linked dominant inheritance in humans.
Q.9.(A)	Define Meristem , describe its various types.
(B)	Write a note on endangered species.

PAPER CODE - 8462

12th CLASS – 12019

BIOLOGY , GROUP SECOND
NEW COURSE
ACADEMIC SESSION: 2015 - 2017 TO 2017 - 2019

TIME: 20 MINUTES
MARKS: 17

OBJECTIVE

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.

QUESTION NO. 1

1	Flame cells are the part of excretory system of (A) Hydra (B) Earthworm (C) Planaria (D) Cockroach
2	End product of haemoglobin breakdown is (A) Uric acid (B) Urea (C) Ammonia (D) Bilirubin
3	The membrane that bounds vacuole is (A) Tonoplast (B) Chloroplast (C) Epiblast (D) Hypoblast
4	Action of Venus fly trap is (A) Nyctinasty (B) Photonasty (C) Haptonasty (D)Thermonasty
5	Part of brain which controls breathing, heart rate and swallowing is (A) Cerebrum (B) Medulla (C) Cerebellum (D) Mid brain
6	Reproduction is necessary for the survival of. (A) Species (B) Community (C) Individual (D) Biome
7	Luteinizing hormone induces. (A) Flowering (B) Vernalization (C) Menopause (D) Ovulation
8	Hypoblast is mainly presumptive. (A) Endoderm (B) Ectoderm (C) Mesoderm (D) Blastoderm
9	Pentose sugar in the molecule of DNA is (A) Ribose (B) Deoxyribose (C) Lactose (D) Sucrose
10	Pairing of homologous chromosomes is completed in (A) Leptotene (B) Zygotene (C) Pachytene (D) Diplotene
11	Which pair of chromosome fails to segregate in Down's syndrome. (A) 7 th (B) 15 th (C) 19 th (D) 21 th
12	Green colour blindness is called (A) Tritanopia (B) Protanopia (C) Deuteranopia (D) Protonema
13	An antibody made by soybean can be used as treatment for (A) Herpes simplex (B) Malaria (C) AIDS (D) Gonorrhea
14	Who published the essay on the "Principles of Population". (A) Darwin (B) Wallace (C) Malthus (D) Lyell
15	All the food chains and food webs begin with (A) Consumers (B) Carnivores (C) Decomposers (D) Producers
16	In Sindh, desert ecosystem is called (A) Thal (B) Thar (C) Cholistan (D) Sahara
17	Which of the following act as environmental buffers? (A) Deserts (B) Forests (C) Industry (D) Fossil fuels

12th CLASS – 12019

OLOGY , GROUP SECOND
EW COURSE
ACADEMIC SESSION: 2015 - 2017 TO 2017- 2019

SUBJECTIVE
SECTION-I

TIME: 2.40 HOURS
MARKS: 68

QUESTION NO. 2 Write short answers any Eight (8) questions of the following 16

1	Why leaves are called excretophores?
2	Differentiate between Protonephridium and Metanephridium
3	Account one each main adaptation in plants to high and low temperature.
4	Differentiate between cork cambium and vascular cambium.
5	Explain hinge joint.
6	Why moulting takes place in Arthropods?
7	How urine is a preferable vehicle for biotechnology product than milk?
8	Write the two uses of PCR amplification and analysis.
9	Write human impact on coniferous forests?
10	List four adaptations in plants and animals for terrestrial ecosystem.
11	Explain the human role for global warming.
12	How forests play a role as environmental buffers?

QUESTION NO. 3 Write short answers any Eight (8) questions of the following 16

1	What are effectors ? Give Examples.
2	Differentiate between gastrin and secretin hormone.
3	Define Chlorosis. Give its cause.
4	What are viviparous? Give an example.
5	What is genital herpes and its cause?
6	Define haploid parthenocarpy with an example.
7	Define epistasis.
8	What are polygenic traits? Give an example.
9	Define Mendel's law of segregation.
10	What is commensalism?
11	Differentiate between predation and parasitism.
12	How community differs from population?

QUESTION NO. 4 Write short answers any Six (6) questions of the following 12

1	What is one gene one polypeptide hypothesis?
2	How eukaryotic mRNA is protected from cytoplasmic nucleases?
3	What are chromosomal abberrations ? Quote examples as well.
4	What is primary organizer and primary induction?
5	Differentiate between area pellucida and area opaca.
6	Define crossing over and synapsis.
7	Differentiate between Benign and Malignant tumors.
8	Differentiate between natural selection and artificial selection.
9	Define Homology with an example.

SECTION-II

Note: Attempt any Three (3) questions from this section 8 x 3 = 24

Q.5.(A)	Discuss structure and function of nephron.
(B)	Describe the first four stages of xerosere.
Q.6.(A)	Describe the process of repair of a simple bone fracture.
(B)	Describe Meselson –Stahl experiment regarding DNA replication
Q.7.(A)	Define learning behaviour, describe its various types.
(B)	Write a detailed note on Eutrophication.
Q.8.(A)	Write a note on Birth process in human female.
(B)	Explain genetics of colourblindness in human.
Q.9.(A)	Write a note on Neo-Darwinism.
(B)	What is growth? Discuss different phases of growth?

PAPER CODE - 8461

(12th CLASS – 12018)

BIOLOGY

FIRST GROUP (NEW COURSE)

ACADEMIC SESSION: 2015-17 to 2016-18

TIME: 20 MINUTES

MARKS: 17

OBJECTIVE

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.

QUESTION NO. 1

1 Uric acid is produced from the metabolism of
(A) Nucleic acid (B) Fatty acids (C) Carbohydrates (D) Lipids

2 In each nephron inner end form a cup shaped swelling called
(A) Glomerulus (B) Henle's loop (C) Bowman's capsule (D) Pelvis

3 Euglena is able to change its direction by the active contraction of
(A) Undulating membrane (B) Myonemes (C) Flagella (D) Cilium

4 Digitigrade mammals tend to walk on their
(A) Soles (B) Digits (C) Tips of the toes (D) Tips of the fingers

5 Higher form of learning is the
(A) Conditioned reflex type-I (B) Imprinting (C) Insight learning (D) Latent learning

6 Rapid aging and low resistance to environmental stress and disease are limitations for
(A) Fragmentation (B) Budding (C) Cloning (D)Regeneration

7 Photoperiod affects flowering when shoot meristem start producing
(A)Lateral buds (B) Leaves (C) Lateral roots (D) Floral buds

8 Secondary growth leads to an increase in the diameter of the
(A)Stem (B) Root (C) Leaf (D) Stem and Root

9 A combination of three nucleotides of DNA that specifies an amino acid is called
(A) Cistron (B) Anticodon (C) Entron (D) Genetic code

10 The condensation of chromosomes reaches to its maximum during
(A) Pachytene (B) Zygotene (C) Diakinesis (D) Leptotene

11 The microtubules are composed of traces of RNA and a protein
(A) Actin (B) Myosin (C) Tubulin (D) Actinin

12 Human skin colour is a quantitative trait which is controlled by pairs of genes
(A) 5 - 8 (B) 4 - 8 (C) 3 - 6 (D) 4 - 7

13 Patients of cystic fibrosis often die due to numerous infections of the
(A) Digestive tract (B) Excretory tract (C) Respiratory tract (D) Reproductive tract

14 A respiratory protein found in all aerobic species is the
(A) Cytochrome-a (B) Cytochrome-b (C) Cytochrome-c (D) Cytochrome-d

15 Several bacteria in the soil are able to oxidize ammonia or ammonium ions, this oxidation is known as
(A) Ammonification (B) Nitrification (C) Oxidation (D) Denitrification

16 A dominant plant of the deciduous forest is the
(A) Cactus (B) Euphorbia (C) Acacia (D) Taxus baccata

17 All of the following diseases are related to nutritional deficiency except
(A) Alzheimer (B) Anemia (C) Beriberi (D) Scurvy

BIOLOGY (12th CLASS - 12018)
FIRST GROUP (NEW COURSE) SUBJECTIVE TIME: 2.40 HOURS
ACADEMIC SESSION: 2015 -17 to 2016-18 MARKS: 68

SECTION-I

QUESTION NO. 2 Write short answers any Eight (8) questions of the following 16

1	What is the evolutionary importance of ureotely and uricotely?
2	Write different methods of kidney stone removal.
3	Describe role of aldosteron and anti diuretic hormone in kidney.
4	Describe various stages of ecdysis.
5	What are ball and socket joints? Give one example.
6	Define rickets. Suggest its remedy.
7	How implantation differs from gestation?
8	What is menopause? Which factors affect reproductive cycle in female?
9	Describe role of bacteria in eutrophication.
10	What is productivity of an ecosystem? Write the names of its types..
11	What are the effects of ozone depletion?
12	How energy can be produced from solid wastes ?

QUESTION NO. 3 Write short answers any Eight (8) questions of the following 16

1	Define Biorhythm. Give its types
2	What is reflex arc?
3	Define Acromegaly. Give its causes.
4	What is one-gene one polypeptide hypothesis?
5	Define gene pool.
6	Differentiate between genotype and phenotype.
7	Define molecular scissors. How were they obtained?
8	Name the salt tolerant plants and give its role in future.
9	What is gene pharming?
10	Define mutualism. Give one example.
11	Differentiate between hydrosere and xerosere.
12	Discuss the role of decomposers in an ecosystem.

QUESTION NO. 4 Write short answers any Six (6) questions of the following 12

1	What are neoblasts ?
2	Name the phases of plants growth.
3	Define nucleosome.
4	Difference between purine and pyrimidine,
5	What is difference between area pellucida and area opaca ?
6	Define chromosomal Non-disjunction
7	What is mitotic apparatus ?
8	What is Hardy-Weinberg Theorem? Give its equation.
9	What are hydrothermal vents?

SECTION-II

Note: Attempt any Three questions from this section 8 x 3 = 24

5.(A)	Describe the excretory system of Cockroach
(B)	Write a note on nitrogen cycle
6.(A)	Explain the structure of skeletal muscle.
(B)	What is karyotype? Describe types of chromosomes on the basis of centromere.
7.(A)	Enlist the Gonadotrophic hormones and write function of each.
(B)	What are non-renewable resources and explain its two types only.
8.(A)	Describe the human female reproductive system.
(B)	Describe genetics of Hemophilia.
9.(A)	What is Differentiation? Give the five stages of differentiation in plants.
(B)	Describe the factors which effect on gene frequency.

PAPER CODE - 8462
(12th CLASS – 12018)

BIOLOGY
SECOND GROUP (NEW COURSE)
ACADEMIC SESSION: 2015 -17 to 2016-18

TIME: 20 MINUTES
MARKS: 17

OBJECTIVE

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.

QUESTION NO. 1

1 Liver acts as a store house for
(A) Bile (B) Albumin (C) R.B.Cs (D) Iron

2 Excretory structures present in cockroach are
(A) Nephridia (B) Malpighian tubules (C) Flame cells (D) Contractile vacuole

3 The earliest form of muscles to evolve is
(A) Cardiac muscles (B) Smooth muscles (C) Skeletal muscles (D)Involuntary muscles

4 Which animal shows Digitigrade mode of locomotion?
(A) Bear (B) Dear (C) Rabbit (D) Horse

5 Excess of which hormone causes Addison's disease.
(A) FSH (B) MSH (C) LTH (D) TSH

6 Corpus luteum starts secreting a hormone called
(A) Oestrogen (B) Progesterone (C) Oxytocin (D)Testosterone

7 Plant hormone Florigen is produced in
(A) Flowers (B) Roots (C) Stem (D) Leaves

8 In plants which light enhances cell division
(A) Infra red (B) Blue (C) Red (D) Ultra violet

9 Okazaki fragments are synthesized by
(A) DNA ligase (B) RNA polymerase (C) DNA polymerase (D) Primase

10 Which one is absent in animal cell
(A) Spindle (B) Centriole (C) Chromatids (D) Phragmoplast

11 Synapsis occurs during
(A) Pachytene (B) Leptotene (C) Zygotene (D) Diplotene

12 ABO blood groups were discovered by
(A) Punnet (B) Landsteiner (C) Bernstein (D) T.H. Morgan

13 Meristem is
(A) Virus free (B) Bacteria free (C) Fungus free (D) Pathogen free

14 Which one of the following believes in theory of special creation?
(A) Linnaeus (B) Darwin (C) Lyell (D) Lamarck

15 In ecosystem ,second trophic level is consisted of
(A) Producer (B) Primary consumer (C) Secondary consumer (D) Tertiary consumer

16 Coniferous forests located at high altitude are
(A) Alpine (B) Boreal (C) Taiga (D) Arctic

17 The cheapest source of energy is
(A) Fossil fuels (B) Geothermal energy (C) Hydroelectric power (D) Nuclear energy

(12th CLASS - 12018)

BIOLOGY **SUBJECTIVE**

SECOND GROUP (NEW COURSE) TIME: 2.40 HOURS

ACADEMIC SESSION: 2015 -17 to 2016-18 MARKS: 68

SECTION-I

QUESTION NO. 2 Write short answers any Eight (8) questions of the following 16

1	Differentiate between re-absorption and secretion in nephron.
2	What is counter current multiplier?
3	Differentiate between shivering and non-shivering thermogenesis
4	What is an exoskeleton? Name its two layers.
5	Differentiate between hyaline and elastic cartilage.
6	What is sliding filament model?
7	Differentiate between lactation and gestation.
8	What is Gonorrhoa and who caused it ?
9	Differentiate between hydrospheric and fresh water ecosystems.
10	What is desertification? Quote one example.
11	What are endangered species? Give examples.
12	What is acid rain? Write its any two effects.

QUESTION NO. 3 Write short answers any Eight (8) questions of the following 16

1	Define reflex arc.
2	What do you know about Gastrin?
3	Define habituation with an example.
4	Write down two methods for solving disputed paternity.
5	Differentiate between linkage and linkage group.
6	How sex is determined in plants?
7	What are palindromic sequences?
8	Define gel electrophoresis.
9	How gene therapy is carried out?
10	Define Biotic and A-biotic factors of an ecosystem.
11	Differentiate between hydrosere and xerosere.
12	Write down two remedies of nitrogen depletion from soil.

QUESTION NO. 4 Write short answers any Six (6) questions of the following 12

1	What is discoidal cleavage?
2	How area opaca differs from area pellucida?
3	What are mutagens? Give one example.
4	Differentiate between conservative and semi-conservative replication of DNA.
5	Write down the structural formulae of Adenine and Guanine.
6	What is metastasis?
7	Differentiate between necrosis and apoptosis.
8	State Hardy-Weinberg Theorem.
9	What are hydrothermal vents?

SECTION-II

Note: Attempt any Three (3) questions from this section 8 x 3 = 24

5.(A)	Explain urinary system in humans.
(B)	What is food web? How it is constructed to show various trophic level.
6.(A)	Define joints. How are they classified ? Explain
(B)	What is mutation ? Describe its types in detail.
7.(A)	Write a note on Auxins. Give its commercial application.
(B)	Discuss importance of Forest.
8.(A)	Define reproduction. Compare asexual reproduction with sexual reproduction.
(B)	Explain incomplete dominance with an example.
9.(A)	What is aging? How will you explain this process?
(B)	What are the endangered species? What measures could be adapted for their preservation?