

BOARD OF INTERMEDIATE AND SECONDARY EDUCATION, MULTAN
OBJECTIVE KEY FOR INTERMEDIATE ANNUAL EXAMINATION, 2022

Name of Subject: BIOLOGY

Session: A/2021

Group: 1st

Group: 2nd

Q. Nos	Paper Code 4461	Paper Code 4463	Paper Code 4465	Paper Code 4467
1	D	D	B	A
2	A	B	A	C
3	C	A	C	D
4	D	C	B	B
5	B	D	D	A
6	A	D	A	C
7	C	A	B	B
8	B	C	A, C	D
9	D	D	D	A
10	A	B	B	B
11	B	A	A	A, C
12	A, C	C	C	D
13	D	B	D	B
14	B	D	D	A
15	A	A	A	C
16	C	B	C	D
17	D	A, C	D	D
18				
19				
20				

Q. Nos	Paper Code 4462	Paper Code 4464	Paper Code 4466	Paper Code 4468
1	B	A	C	B
2	D	D	A	C
3	C/D	B	D	A
4	A	C	B	B
5	C, D	C	C	D
6	B	A	A	C/D
7	C	D	B	A
8	A	B	D	C, D
9	D	C	C/D	B
10	B	A	A	C
11	C	B	C, D	A
12	C	D	B	D
13	A	C/D	C	B
14	D	A	A	C
15	B	C, D	D	C
16	C	B	B	A
17	A	C	C	D
18				
19				
20				

ہم نے مضمون بیالوجی پرچہ سائنس گروپ فرسٹ + سیکنڈ سیکشن انٹرمیڈیٹ سالانہ امتحان 2022 کا سوالیہ پرچہ (Subjective & Objective) کو بنظر عین چیک کر لیا ہے یہ پرچہ Syllabus کے عین مطابق Set کیا گیا ہے۔ اس سوالیہ پرچہ میں کسی قسم کی کوئی غلطی نہ ہے۔ ہم نے سوالیہ پرچہ کا اردو اور انگریزی Version بھی چیک کر لیا ہے۔ یہ Version آپس میں مطابقت رکھتے ہیں۔ نیز اس پرچہ کی معروضی (MCQs) Key کی بابت تصدیق کی جاتی ہے کہ اس میں بھی کسی قسم کی کوئی غلطی نہ ہے۔ مزید یہ کہ ہم نے Key بنانے سے متعلق دفتر کی جانب سے تیار کردہ ہدایات وصول کر کے ان کا بغور مطالعہ کر لیا ہے اور ان کی روشنی میں Key بنائی ہے۔ نیز سب ایگزامینرز کیلئے تفصیلی مارکنگ ہدایات / مارکنگ سکیم / Rubrics بھی تیار کر دی گئی ہیں۔

Prepared & Checked By:

Dated: 01-07-2022

S.#	Name	Designation	Institution	Mobile No	Signature
1	Shabbir Ahmad Rana	Assistant Professor	Govt. College of Science	03077307537	Shabbir
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Re-Checked By: ہم نے درج بالا سوالیہ پرچہ (انشائیہ + معروضی) معروضی "Key" اور ہدایات کے حوالہ سے مکمل طور پر تلی کر لی ہے۔ کسی قسم کی کوئی غلطی نہ ہے۔

1	JAFAR HUSSAIN	Associate Prof.	Govt. WHIC Multan	0300-6342663	Jafar Hussain
2	Dr. Nazir Ahmad	Asst. Prof.	Govt. Associate College Civil Lines	0307-745828	Dr. Nazir
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2022 (A)

Roll No:

286/22

287

INTERMEDIATE PART-II (12th CLASS)**BIOLOGY PAPER-II GROUP-I**

TIME ALLOWED: 2.40 Hours

MAXIMUM MARKS: 68

SUBJECTIVE

NOTE: Write same question number and its part number on answer book,
as given in the question paper.

SECTION-I**2. Attempt any eight parts.****8 × 2 = 16**

- (i) Give osmoregulation in fresh water protozoa and fresh water fish.
- (ii) Give role of protonephridium and flame cells in Planaria.
- (iii) Can we consider skin as an excretory organ?
- (iv) What are tactic movements? Give an example.
- (v) How locomotion takes place in cockroach?
- (vi) Differentiate between plantigrade and digitigrade locomotions in mammals.
- (vii) What is parthenocary? How it can be induced artificially?
- (viii) State ovulation. How it is induced?
- (ix) Where desert ecosystems are found in Pakistan?
- (x) How productivity of an aquatic ecosystem can be determined?
- (xi) Enlist some main types of pollution (At least 4).
- (xii) What do you know about Hydro electric power?

3. Attempt any eight parts.**8 × 2 = 16**

- (i) What is neuron coordination important?
- (ii) What characteristics do the brain and spinal cord have in common?
- (iii) Why Hormones are called chemical messengers?
- (iv) Investigate the reason for O-ve (Negative) individuals as the universal donar.
- (v) Write the differences between dominance and epistasis.
- (vi) What is probability? How probability does relate the genetics?
- (vii) Write the role of restriction endonucleases in gene cloning.
- (viii) What are the applications of DNA analysis?
- (ix) What is Taq polymerase?
- (x) During succession, how might the early species facilitate the arrival of other species?
- (xi) What is the concept of trophic levels?
- (xii) Differentiate between consumers and decomposers.

4. Attempt any six parts.**6 × 2 = 12**

- (i) How embryonic induction occurs? Who reported it?
- (ii) Compare cleavage and gastrulation.
- (iii) State chromosome theory of inheritance? Who had proposed this theory?
- (iv) Enlist names of chromosomes on the bases of location of centromere.
- (v) Differentiate between a nucleotide and a nucleoside.
- (vi) Discuss diakinesis phase of meiosis.
- (vii) Differentiate between necrosis and apoptosis.
- (viii) Differentiate between species and population.
- (ix) What are endangered species? Give example.

SECTION-II

NOTE: Attempt any three questions.

3 × 8 = 24

- 5.(a) Discuss the nature of excretory products in relation to the habitat of animals. 4
- (b) Describe the events of nitrogen cycle in detail. 4
- 6.(a) How does the process of Ecdysis take place? Give its various steps and its significance. 4
- (b) Describe various types of Mutations. 4
- 7.(a) How is nervous system of planaria better developed than that of Hydra? 4
- (b) Write a note on wild life. Explain its importance in stability of ecosystem. 4
- 8.(a) Discuss role of phytochromes in photoperiodism. 4
- (b) Write a note on incomplete dominance. 4
- 9.(a) Discuss role of nucleus in development. How it controls the developmental process. 4
- (b) Give endosymbiont and membrane invagination hypothesis in detail. 4

BIOLOGY PAPER-II GROUP-I

TIME ALLOWED: 20 Minutes

OBJECTIVE

MAXIMUM 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 bubble in front of that question number, on bubble sheet. Use marker or pen to fill the bubbles. Cutting or filling two or more bubbles will result in zero mark in that question. No credit will be awarded in case BUBBLES are not filled. Do not solve question on this sheet of OBJECTIVE PAPER.

Q.No.1

- (1) Flame cells are the parts of excretory system of:

(A) Cockroach	(B) Earthworm	(C) Hydra	(D) Planaria
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- (2) Muscle fatigue is caused by:

(A) Lactic acid	(B) Fumaric acid	(C) CO ₂	(D) Ethyl alcohol
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- (3) The active conducting portion of wood in older trees is:

(A) Bark	(B) Heart wood	(C) Sap wood	(D) Callus
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- (4) Resting membrane potential of a neuron is:

(A) + 50 mV	(B) - 60 mV	(C) + 80 mV	(D) - 70 mV
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- (5) The human embryo is referred to as the fetus from beginning of:

(A) 3 rd week	(B) 3 rd month	(C) 6 th month	(D) 6 th week
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- (6) Intercalary meristems are situated at:

(A) Base of internode	(B) Shoot apex	(C) Root apex	(D) Top of internode
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- (7) Optimum temperature for growth of plants is:

(A) 5 - 10°C	(B) 10 - 20°C	(C) 25 - 30°C	(D) 30 - 40°C
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- (8) The Okazaki fragments in eukaryotes have number of nucleotides?

(A) 1000 - 2000	(B) 100 - 200	(C) 100 - 1000	(D) 10 - 100
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- (9) With the use of histological stains for DNA, a network of very fine threads can be visualized which is called:

(A) Chromosomes	(B) Spindle fibre	(C) Mitotic apparatus	(D) Chromatin
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- (10) Chiasmata formation takes place during:

(A) Pachytene	(B) Leptotene	(C) Diplotene	(D) Zygotene
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- (11) ABO blood group system is encoded by a single polymorphic gene I on chromosome:

(A) 19	(B) 9	(C) 3	(D) 29
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- (12) An Ex-vivo method of gene therapy is being tried for the treatment of:

(A) Familial hypercholesterolemia	(B) Cancer	(C) SCID	(D) Cystic fibrosis
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- (13) An enzymes, α - galactosidase can be used to treat human:

(A) Genetic diseases	(B) Metabolic diseases	(C) Nutritional disease	(D) Lysosome storage diseases
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- (14) Endosymbiont hypothesis was proposed by:

(A) Cuvier	(B) Lynn Margulis	(C) Lyell	(D) Malthus
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- (15) The organisms which inhabit the root nodules of legume plants are:

(A) Bacteria	(B) Fungi	(C) Algae	(D) Cyanobacteria
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- (16) Desert ecosystem of Mianwali and Bhakkar is called:

(A) Cholistan	(B) Thar	(C) Thal	(D) Sahara
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- (17) Treasure of all types of resources is:

(A) Climate	(B) Water	(C) Weather	(D) Environment
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INTERMEDIATE PART-II (12th CLASS)

BIOLOGY PAPER-II GROUP-I

TIME ALLOWED: 20 Minutes

OBJECTIVE

MAXIMUM MARKS: 17

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Q.No.1

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- (2) Endosymbiont hypothesis was proposed by:
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- (7) Muscle fatigue is caused by:
 (A) Lactic acid ✓ (B) Fumaric acid (C) CO_2 (D) Ethyl alcohol
- (8) The active conducting portion of wood in older trees is:
 (A) Bark (B) Heart wood (C) Sap wood ✓ (D) Callus
- (9) Resting membrane potential of a neuron is:
 (A) + 50 mV (B) - 60 mV ✓ (C) + 80 mV (D) - 70 mV
- (10) The human embryo is referred to as the fetus from beginning of:
 (A) 3rd week (B) 3rd month ✓ (C) 6th month (D) 6th week
- (11) Intercalary meristems are situated at:
 (A) Base of internode ✓ (B) Shoot apex (C) Root apex (D) Top of internode
- (12) Optimum temperature for growth of plants is:
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- (13) The Okazaki fragments in eukaryotes have number of nucleotides?
 (A) 1000 - 2000 (B) 100 - 200 ✓ (C) 100 - 1000 (D) 10 - 100
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 (A) Chromosomes (B) Spindle fibre (C) Mitotic apparatus (D) Chromatin ✓
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INTERMEDIATE PART-II (12th CLASS)

BIOLOGY PAPER-II GROUP-I

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- (17) Resting membrane potential of a neuron is:
 (A) + 50 mV (B) – 60 mV (C) + 80 mV ✓ (D) – 70 mV

INTERMEDIATE PART-II (12th CLASS)

BIOLOGY PAPER-II GROUP-I

TIME ALLOWED: 20 Minutes

OBJECTIVE

MAXIMUM MARKS: 17

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 (A) 5 - 10°C (B) 10 - 20°C ☒ (C) 25 - 30°C (D) 30 - 40°C
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INTERMEDIATE PART-II (12th CLASS)**BIOLOGY PAPER-II GROUP-II**

TIME ALLOWED: 2.40 Hours

SUBJECTIVE

MAXIMUM MARKS: 68

NOTE: Write same question number and its part number on answer book, as given in the question paper.

SECTION-I**2. Attempt any eight parts.****8 × 2 = 16**

- (i) What is pyrexia? Give the role of pyrogens.
- (ii) What are heterotherms? Give examples.
- (iii) Differentiate between hemodialysis and peritoneal dialysis.
- (iv) Differentiate between epinasty and hyponasty.
- (v) Write names of paired and unpaired bones of cranium.
- (vi) Write about two skeletal deformities having genetic causes.
- (vii) Differentiate between short day and long day plants.
- (viii) Compare oviparous and viviparous conditions.
- (ix) What are coniferous alpine and coniferous boreal forests?
- (x) Interpret layering as a characteristic of Grassland.
- (xi) What are effects of ozone layer depletion?
- (xii) Why forests are considered as environmental buffers?

3. Attempt any eight parts.**8 × 2 = 16**

- (i) What will happen if the receptor sites on postsynaptic membrane are blocked?
- (ii) Which fundamental parts of human are involved in Reflex Arc?
- (iii) How coordination in plants is different from animals?
- (iv) Which type of genes do not obey law of independent assortment?
- (v) How can you protect the baby against Rh – incompatibility?
- (vi) Compare codominance with incomplete dominance.
- (vii) How Hypercholesterolemia can be cured by gene therapy?
- (viii) What are Molecular carriers?
- (ix) How transgenic animals are developed?
- (x) Why nutrient cycles are called biogeochemical cycles?
- (xi) Name different stages of Xerosere.
- (xii) How root nodules help in the growth of plants?

4. Attempt any six parts.**6 × 2 = 12**

- (i) How blastoderm is formed and what is zone of junction?
- (ii) Interpret apical dominance as a growth relation.
- (iii) Briefly discuss how DNA encodes protein structure.
- (iv) Give the conclusions of Erwin Chargaff.
- (v) Interpret the molecular bases of sickle cell anemia.
- (vi) What are two significant happenings of meiosis?
- (vii) Briefly discuss Turner's syndrome, with example.
- (viii) Differentiate between divergent and convergent evolutions?
- (ix) Define Hardy-Weinberg theorem.

SECTION-II

NOTE: Attempt any three questions.

3 × 8 = 24

- 5.(a) How is concentration of excretory products maintained? Explain. 4
- (b) Describe the energy flow in the food chain of an ecosystem. 4
- 6.(a) How the skeletal system play a central role among the different function of a body? 4
- (b) Explain the semi conservative replication of DNA by Meselson & Stahl Experiment. 4
- 7.(a) Describe co-relation between G.H. ACTH and Thyroxine hormones regarding growth of an individual. 4
- (b) Write a note on green house effect. 4
- 8.(a) Discuss causes, control and effects of sexually transmitted diseases. 4
- (b) Define and explain Mendel's Law of segregation of genes. 4
- 9.(a) What is Regeneration? Discuss at least four examples. 4
- (b) What is Lamarckism? Differentiate it from Neo-Darwinism. 4

INTERMEDIATE PART-II (12th CLASS)

BIOLOGY PAPER-II GROUP-II

TIME ALLOWED: 20 Minutes
MAXIMUM MARKS: 17OBJECTIVE

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 bubble in front of that question number, on bubble sheet. Use marker or pen to fill the bubbles. Cutting or filling two or more bubbles will result in zero mark in that question. No credit will be awarded in case BUBBLES are not filled. Do not solve question on this sheet of OBJECTIVE PAPER.

Q.No.1

- (1) The incidence of calcium oxalate type stone is:
(A) 10% (B) 70% (C) 25% (D) 15%
- (2) The bone dissolving cells are called:
(A) Stem cells (B) Osteoblast (C) Osteocytes (D) Osteoclast
- (3) The structures which lack secondary wall are:
(A) Sclerenchyma (B) Fibers (C) Collenchyma (D) Parenchyma
- (4) Abscissic acid can be sprayed on tree crops to regulate:
(A) Fruit drop (B) Leaf drop (C) Shoot drop (D) Flower drop
- (5) Reproduction is very important for the survival of:
(A) Individual (B) Community (C) Population (D) Species
- (6) The developmental stage in which germ layers are formed is called:
(A) Morulla (B) Gastrulation (C) Blastulation (D) Germination
- (7) Which colour cytoplasm of an ascidian fertilized egg gives rise to gut?
(A) Yellow cytoplasm (B) Grey equatorial cytoplasm
(C) Grey vegetal cytoplasm (D) Yellow cytoplasm
- (8) The base pairs are planar and stacked 0.34nm apart as a result of:
(A) Hyperphobic interactions (B) Hydrophobic interactions
(C) Hyperphilic interactions (D) Hydrophilic interaction
- (9) To develop cancer, the number of mutations in genes that regulates cell division is from three to as many as:
(A) Ten (B) Thirty (C) Twenty five (D) Twenty
- (10) The chromosomes may decondense during:
(A) Metaphase (B) Telophase (C) Anaphase (D) Diplotene
- (11) When both the alleles express independently in heterozygote and form their respective products X and Y. Such type of dominance is called.
(A) Partial dominance (B) Incomplete dominance (C) Codominance (D) Complete dominance
- (12) The process by which fragments of DNA can be separated according to their lengths (molecular weight or size) is called:
(A) Blotting (B) Radiography (C) Gel electrophoresis (D) Restriction digest
- (13) During surgery, blood clotting can be prevented by genetically produced:
(A) Antithrombin III (B) Growth hormone (C) Insulin (D) Antibodies
- (14) Flagella may have arisen through the ingestion of prokaryotes similar to spiral shaped bacteria called:
(A) Rhizobium (B) Streptococcus (C) E. Coli (D) Spirochete
- (15) Over grazing may lead to the transformation of grassland into a:
(A) Savanna (B) Desert (C) Taiga (D) Tundra
- (16) Limnetic phytoplanktons include:
(A) Bacteria (B) Yeast (C) Cyanobacteria (D) Mosses
- (17) Establishment of new forests where no forest existed is known as:
(A) Afforestation (B) Reforestation (C) Forestation (D) Deforestation

INTERMEDIATE PART-II (12th CLASS)

BIOLOGY PAPER-II GROUP-II

OBJECTIVE

TIME ALLOWED: 20 Minutes

MAXIMUM 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 bubble in front of that question number, on bubble sheet. Use marker or pen to fill the bubbles. Cutting or filling two or more bubbles will result in zero mark in that question. No credit will be awarded in case BUBBLES are not filled. Do not solve question on this sheet of OBJECTIVE PAPER.

Q.No.1

- (1) The base pairs are planar and stacked 0.34nm apart as a result of:
 (A) Hyperphobic interactions (B) Hydrophobic interactions
 (C) Hyperphilic interactions (D) Hydrophilic interaction
- (2) To develop cancer, the number of mutations in genes that regulates cell division is from three to as many as:
 (A) Ten (B) Thirty (C) Twenty five (D) Twenty
- (3) The chromosomes may decondense during:
 (A) Metaphase (B) Telophase (C) Anaphase (D) Diplotene
- (4) When both the alleles express independently in heterozygote and form their respective products X and Y . Such type of dominance is called.
 (A) Partial dominance (B) Incomplete dominance (C) Codominance (D) Complete dominance
- (5) The process by which fragments of DNA can be separated according to their lengths (molecular weight or size) is called:
 (A) Blotting (B) Radiography (C) Gel electrophoresis (D) Restriction digest
- (6) During surgery, blood clotting can be prevented by genetically produced:
 (A) Antithrombin III (B) Growth hormone (C) Insulin (D) Antibodies
- (7) Flagella may have arisen through the ingestion of prokaryotes similar to spiral shaped bacteria called:
 (A) Rhizobium (B) Streptococcus (C) E. Coli (D) Spirochete
- (8) Over grazing may lead to the transformation of grassland into a:
 (A) Savanna (B) Desert (C) Taiga (D) Tundra
- (9) Limnetic phytoplanktons include:
 (A) Bacteria (B) Yeast (C) Cyanobacteria (D) Mosses
- (10) Establishment of new forests where no forest existed is known as:
 (A) Afforestation (B) Reforestation (C) Forestation (D) Deforestation
- (11) The incidence of calcium oxalate type stone is:
 (A) 10% (B) 70% (C) 25% (D) 15%
- (12) The bone dissolving cells are called:
 (A) Stem cells (B) Osteoblast (C) Osteocytes (D) Osteoclast
- (13) The structures which lack secondary wall are:
 (A) Sclerenchyma (B) Fibers (C) Collenchyma (D) Parenchyma
- (14) Abscissic acid can be sprayed on tree crops to regulate:
 (A) Fruit drop (B) Leaf drop (C) Shoot drop (D) Flower drop
- (15) Reproduction is very important for the survival of:
 (A) Individual (B) Community (C) Population (D) Species
- (16) The developmental stage in which germ layers are formed is called:
 (A) Morulla (B) Gastrulation (C) Blastulation (D) Germination
- (17) Which colour cytoplasm of an ascidian fertilized egg gives rise to gut?
 (A) Yellow cytoplasm (B) Grey equatorial cytoplasm
 (C) Grey vegetal cytoplasm (D) Yellow cytoplasm

INTERMEDIATE PART-II (12th CLASS)

BIOLOGY PAPER-II GROUP-II

TIME ALLOWED: 20 Minutes

MAXIMUM 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 bubble in front of that question number, on bubble sheet. Use marker or pen to fill the bubbles. Cutting or filling two or more bubbles will result in zero mark in that question. No credit will be awarded in case BUBBLES are not filled. Do not solve question on this sheet of OBJECTIVE PAPER.

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- (17) When both the alleles express independently in heterozygote and form their respective products X and Y. Such type of dominance is called.
 (A) Partial dominance (B) Incomplete dominance (C) Codominance (D) Complete dominance

INTERMEDIATE PART-II (12th CLASS)

BIOLOGY PAPER-II GROUP-II

TIME ALLOWED: 20 Minutes

MAXIMUM MARKS: 17

OBJECTIVE

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