

Roll No. of Candidate : 123461

**BIOLOGY**

**Intermediate Part-II , Class 12<sup>th</sup> (1<sup>st</sup>A 423-I)**

**Paper: II Group – I**

**Time: 20 Minutes**

**OBJECTIVE ..... Code: 8461** 0705-12-1-23 **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. Aldosterone is secreted from  
(A) renal cortex (B) adrenal cortex (C) renal medulla (D) adrenal medulla
2. Which of these move first during rapid plant movements leading to exosmosis of water?  
(A)  $K^{+1}$  ions (B)  $Cl^{-1}$  ions (C)  $Na^{+1}$  ions (D)  $NH_4^{+1}$  ions
3. Number of bones in the human skull is  
(A) 22 , 6 paired, 10 unpaired (B) 22 , 4 paired, 14 unpaired  
(C) 22 , 8 paired, 6 unpaired (D) 22 , 10 paired, 2 unpaired
4. Which of these hormones is used commercially in brewing industry to promote malting  
(A) GA (B) GA3 (C) NAA (D) 2,4-D
5. Which of these pituitary hormones control pancreas?  
(A) STH and TSH (B) ACTH and TSH (C) ACTH and STH (D) ACTH and ADH
6. Zygote is implanted in  
(A) ovary (B) vagina (C) oviduct (D) uterus
7. Apical dominance in plants  
(A) suppresses the growth of apical bud (B) causes dense growth of plants  
(C) suppresses the growth of lower axillary buds (D) promotes the sprouting of lateral axillary buds
8. The enzyme DNA ligase  
(A) constructs RNA primer (B) initiates the replication of DNA  
(C) catalyzes the replication of DNA (D) attaches the fragments to the lagging strand
9. In sickle cell anemia, the oxygen carrying capacity of haemoglobin is reduced because  
(A) tertiary structure of haemoglobin is altered (B) primary structure of haemoglobin is altered  
(C) secondary structure of haemoglobin is altered (D) haemoglobin is completely destroyed
10. Phragmoplast during cytokinesis in plant cells is formed by the fusion of golgi vesicles which originate during  
(A) prophase (B) metaphase (C) anaphase (D) telophase
11. Which of these indicates the phenotypic ratio of dihybrid cross?  
(A) 1:1:1:1 (B) 9:3:3:1 (C) 1:2:1 (D) 3:1
12. The enzyme involved in the maturation of T and B cells in children is  
(A)  $\alpha$  - galactosidase (B)  $\beta$  - galactosidase  
(C) adenosine hydrolase (D) adenosine deaminase
13. Protoplast culture yields  
(A) virus free plants (B) many identical seedlings in a limited space  
(C) artificial seeds (D) quinine and digitoxin
14. Hardy-Weinberg's theorem describes the  
(A) lamarckism (B) descent with modification  
(C) natural selection and adaptation (D) genotype frequency of non-evolving populations
15. Primary succession on a dry soil is called  
(A) derosere (B) xerosere (C) halosere (D) hydrosere
16. The most fragile biome is  
(A) tundra (B) desert (C) deciduous (D) grassland
17. Which one is a hormonal disorder?  
(A) arteriosclerosis (B) haemophilia (C) alzheimer (D) goiter

**318-(I)-1<sup>st</sup>A 423-20000**

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Time: 2:40 Hours

SUBJECTIVE

Marks: 68

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

SECTION - I

Gej-12-1-23

**2. Write short answers to any EIGHT questions.**

(2 x 8 = 16)

- i. For what purpose, leaves have large surface area?
- ii. Why dehydration is the major problem for terrestrial animals?
- iii. How can you avoid making of kidney stones?
- iv. Which tissues arise from vascular 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 questions.**

(2 x 8 = 16)

- i. Define diurnal rhythms. How they are different from circannual 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 assortment?
- 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 questions.**

(2 x 6 = 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 bond, 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 are hydrothermal vent? How did they support life?
- ix. Define homologous organ, give one example.

SECTION - II

5. (a) Describe the adaptation in plants to low and high temperature. (4)
- (b) Describe the stages of karyokinesis of mitotic cell division. (4)
6. (a) Write down different types of plant movements due to external causes and also describe their importance. (4)
- (b) Define succession. Write down different stages of xerosere in detail. (4)
7. (a) Why is anterior lobe of pituitary gland referred as Master Gland? Explain how does anterior lobe control thyroids, adrenals and gonads? (4)
- (b) Write down a note on endangered species. How they can be protected? (4)
8. (a) Explain the male reproductive system in human. (4)
- (b) Describe the mechanism of incomplete dominance with an example. (4)
9. (a) Define meristem. Discuss its various types. (4)
- (b) What is polymerase chain reaction (PCR)? How it is carried out to produce multiple copies of DNA segment? (4)

Roll No. of Candidate : 020104

**BIOLOGY**

**Intermediate Part-II , Class 12<sup>th</sup> (1<sup>st</sup>A 423- II)**

**Paper: II Group – II**

**Time: 20 Minutes**

**OBJECTIVE ..... Code: 8464 070-12-2-23 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

**319-(II)- 1<sup>st</sup>A 423-20000**

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

Guj-12-2-23

**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 osteomalacia 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 deciduous 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 phenylketonuria.
- 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)