

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 is lithotripsy?
- ii. Define panting with one example.
- iii. Define dialysis. Give its types.
- iv. Distinguish between origin and insertion of muscles.
- v. What is hematoma formation?
- vi. What are floating ribs?
- vii. What is follicle atresia?
- viii. Define parthenocarpy with examples.
- ix. Give the name of some major ecosystems in Pakistan.
- x. Compare littoral zone with limnetic zone.
- xi. What is acid rain?
- xii. What are two main sources of water pollution?

3. Write short answers to any EIGHT questions.

(2 x 8 = 16)

- i. What are diurnal rhythms and circannual rhythms?
- ii. Write down any two functions of ethene.
- iii. What are neurotransmitters? Give one example.
- iv. Differentiate between genotype and phenotype.
- v. What is over dominance?
- vi. What are secretors?
- vii. Write down a note on restriction endonuclease and give its one function.
- viii. What is probe? Write down its role.
- ix. Write down a note on Taq Polymerase.
- x. What is niche?
- xi. Write down biotic components.
- xii. Write down a note on root nodules.

4. Write short answers to any SIX questions.

(2 x 6 = 12)

- i. Write down the role of auxins and cytokinins in apical dominance.
- ii. How development is affected by ionizing radiations and nutritional deficiency?
- iii. Define promoter region. Which binding sites are present in this region?
- iv. Which is true DNA replicating enzyme in E.Coli? Also write its structural features.
- v. How eukaryotic m RNA is modified? What is the significance of this modification?
- vi. What is the cause of Klinefelter's syndrome? Write down the symptoms of this disease.
- vii. Differentiate between G₀ and G₁ phases of cell cycle.
- viii. Define population and population's gene pool.
- ix. What is endosymbiont hypothesis? Who proposed this hypothesis?

(SECTION – II)

5. (a) Give a detailed account of nitrogen cycle. 4
- (b) Define nephron. Discuss its structure and function in detail. 4
6. (a) Write down a note on sclerenchyma cells and collenchyma cells. 4
- (b) Explain Watson and Crick's model of DNA. 4
7. (a) Describe in detail the role of adrenal glands. 4
- (b) Describe the causes and effects of acid rain. 4
8. (a) Discuss the process of birth in human female. 4
- (b) Explain codominance with the help of MN blood group system in man. 4
9. (a) Define regeneration. Describe the mechanism of regeneration in planaria and salamander. 4
- (b) Explain the evolution of eukaryotes by endosymbiotic hypothesis and membrane invagination hypothesis. 4

Roll No. of Candidate : _____

BIOLOGY

(INTERMEDIATE PART-II) 421 - (III) Paper II (Group – II)

Time: 20 Minutes

OBJECTIVE Code: 8466

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. Attempt as many questions as given in objective type question paper and leave others blank.

1. In mitochondria, the codon UGA signals for
(A) stop (B) start (C) tryptophan (D) methionine
2. Synapsis takes place in
(A) leptotene (B) zygotene (C) pachytene (D) diplotene
3. Establishing new forests where no forests existed before
(A) desertification (B) deforestation (C) reforestation (D) afforestation
4. The change in frequency of alleles at a locus that occurs by chance is
(A) gene pool (B) mutations (C) genetic drift (D) migration
5. Haemophilia 'C'
(A) affects both sexes equally (B) affects men more than women
(C) affects women more than men (D) is non-allelic sex linked recessive
6. The beginning of bone formation, starts after injury
(A) 3 – 4 weeks (B) 2 – 3 months (C) 8 weeks (D) 8 – 12 weeks
7. Northern coniferous forests are called as
(A) alpine (B) boreal (C) taiga (D) prairies
8. The nature of shivering thermogenesis adaptation is
(A) structural (B) physiological (C) psychological (D) behavioral
9. Genomic fragments can be separated according to their lengths during
(A) PCR (B) gene cloning (C) gel electrophoresis (D) chemical cleavage
10. Increased plasma level of urea is an indication of
(A) renal failure (B) urinary tract infection
(C) kidney stones (D) sexually transmitted disease
11. Multicellular alga, Acetabularia is attached to the ground by
(A) roots (B) hold fast (C) rhizoid (D) base
12. Chromosomes appear inside the nucleus at the time of
(A) cell elongation (B) cell maturation (C) cell differentiation (D) cell division
13. Who defined "Niche" as species occupation?
(A) Grinnell (B) Charles Elton (C) Cuvier (D) Haeckel
14. The most prominent structure found in 18 hrs chick embryo is
(A) primitive streak (B) notochord (C) hensen's node (D) neurocoel
15. The most common chronic arthritis which is a degenerative joint disease, also caused by
(A) hormonal defects (B) genetic defects (C) nutritional defects (D) neural defects
16. Fruit ripening is often accompanied by a burst of respiratory activity called as
(A) photoperiod (B) fertilization (C) climacteric (D) reproduction
17. If a person has 44 autosomes and xyy, he will suffer from
(A) klinefelter's syndrome (B) turner's syndrome
(C) down's syndrome (D) mongolism

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. Differentiate between hypotonic and hypertonic environments.
- ii. Which nitrogenous wastes are produced by the metabolism of purine and pyrimidine?
- iii. Differentiate between ureter and urethra.
- iv. What are collenchyma cells?
- v. Write down any two major functions of the skeletal system.
- vi. Write down a note on hematoma formation.
- vii. Differentiate between oviparous and viviparous.
- viii. Define gonorrhoea in detail.
- ix. How temperate deciduous forests were affected by human impact?
- x. Write down a note on productivity.
- xi. How forests play their role on climate?
- xii. What are two main sources of water pollution?

3. Write short answers to any EIGHT questions.

(2 x 8 = 16)

- i. Give the commercial applications of gibberellins.
- ii. What are effectors? Give their types.
- iii. What is Parkinson's disease?
- iv. Compare Allele with multiple alleles.
- v. What is product rule?
- vi. Differentiate between sex chromosomes and autosomes.
- vii. What are transgenic plants?
- viii. What is cystic fibrosis?
- ix. What is gene sequencing?
- x. Differentiate between Biomes and Biosphere.
- xi. What are producers and consumers?
- xii. What is commensalism?

4. Write short answers to any SIX questions.

(2 x 6 = 12)

- i. Differentiate between maturation and differentiation.
- ii. Define growth correlations.
- iii. Differentiate between heterochromatin and euchromatin.
- iv. What are okazaki fragments?
- v. Differentiate between nucleotides and nucleosides.
- vi. Explain briefly prophase in mitosis.
- vii. How malignant tumor or cancer is caused?
- viii. Differentiate between homologous organs and analogous organs.
- ix. What is theory of special creation?

(SECTION - II)

5. (a) Describe osmoregulation in the animals of marine environment.
- (b) Describe the biotic components of an ecosystem.
6. (a) Describe major functions of human skeletal system.
- (b) Explain Meselson – Stahl experiment for DNA replication.
7. (a) Describe the functions of abscisic acid as growth hormone in plants.
- (b) Write down a note on ozone layer and ozone layer depletion.
8. (a) Write down a note on identical twins and fraternal twins.
- (b) Discuss diabetes mellitus and its genetic basis.
9. (a) What are growth correlations?
- (b) Write down the contributions of Darwin in evolution.

4
4
4
4
4
4
4
4
4
4