

Roll No. of Candidate : \_\_\_\_\_

**BIOLOGY**

**Intermediate Part-II, Class 12<sup>th</sup> (1<sup>st</sup>A 424-IV) Paper: II Group - I**

**Time: 20 Minutes**

**OBJECTIVE ..... Code: 8467 GUP-1-24 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. Which of the following is not considered as synthesis function of liver?  
(A) fibrinogen formation (B) albumin formation (C) urea formation (D) glycogen formation
2. According to endosymbiont hypothesis, tail in present day cells was developed by ingestion of  
(A) cyanobacteria (B) spirochete (C) aerobic bacteria (D) mitochondria
3. Fertilizer and insecticides are similar because both increase :  
(A) agriculture produce (B) increase fertility of soil  
(C) increase soil pollution (D) both (A) and (C)
4. Which of the following is not true statement?  
(A) Neisseria may cause eye infection in new borns  
(B) Syphilis is caused by a spirochete  
(C) Treponema pallidum can damage the joints  
(D) Epicotyle growth is damaged by red light
5. What is not true about eutrophication?  
(A) rise in phosphorus (B) depletion of oxygen (C) rise in oxygen level (D) death of small fishes
6. Which of the following is incorrectly matched?  
(A) ichthyosis ↔ ocular albinism (B) Hypophosphatemia ↔ Hemophilia A  
(C) Fragile X-syndrome ↔ Retinitis pigmentosa (D) Ich-Nyhan syndrome ↔ hemophilia-B
7. Which one is the wrong pair among the following?  
(A) sickle cell anemia ↔ β-chain of hemoglobin (B) penicillium ↔ one chromosome  
(C) 7 methyle GTP ↔ 5' end of mRNA (D) UGA ↔ tryptophan
8. Assuming a man exhibits the phenotype of an x-linked recessive allele, which of the following is true about him, if he marries a woman whose father is normal  
(A) all of his daughters will be carriers  
(B) 50% of his daughters might pass the recessive allele to sons  
(C) all of his sons exhibit the trait  
(D) 50% of his sons might pass the recessive allele to daughters
9. About \_\_\_\_\_ % of energy is lost as heat as byproduct of respiration  
(A) 50 - 60 (B) 60 - 70 (C) 70 - 90 (D) 80 - 90
10. Which of the following is wrong statement?  
(A) adrenaline releases glucose from liver  
(B) non-adrenaline releases glucose from liver  
(C) sympathetic system is reinforced by epinephrine  
(D) pupil dilates by parasympathetic system
11. At rest, the binding sites on each action chain are covered over by  
(A) troponin (B) tropomyosin (C) cross bridges (D) myosin
12. The part of brain that controls breathing, heart beat rate and blood pressure is  
(A) midbrain (B) pons (C) medulla (D) cerebellum
13. 44-autosomes plus 2-X-Chromosomes in homo sapiens means  
(A) Down's syndrome (B) Turner's syndrome (C) Jacob syndrome (D) Normal female
14. What is benefit of using a retrovirus as a vector in gene therapy?  
(A) it is not able to enter the cells (B) it incorporates foreign genes into the host chromosome  
(C) it eliminates the unnecessary steps (D) both (B) and (C)
15. Indicate true statement :  
(A) first amino acid in α-chain of hemoglobin is methionine  
(B) at 6 position on N-terminal of β-chain of hemoglobin is valine  
(C) AGA codon specifies Arginine in mitochondria  
(D) histones are negatively charged proteins
16. Indicate the false statement :  
(A) aging is caused by negative physiological changes  
(B) inhibitory effect of apical bud is caused due to auxins  
(C) higher supply of Oxygen inhibits growth of plants  
(D) red light favors division of cells in plants
17. Skeletal muscles and cardiac muscles are different because cardiac muscles are  
(A) multinucleated (B) striated (C) branched (D) voluntary

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. Write down different methods to remove kidney stones.
- ii. What is blubber? In which type of animals, it is found?
- iii. Why some fishes retain trimethylamine oxide in their bodies?
- iv. Describe various types of sclerenchyma cells.
- v. What is the main disadvantage of exoskeleton? How insects deal with this problem?
- vi. Write down characteristics of cardiac muscles.
- vii. What are day neutral plants? Give two examples.
- viii. What is follicle? How it is related to FSH?
- ix. Describe some characteristics of profundal zone.
- x. Elaborate the layering characteristic of grassland ecosystem.
- xi. How the use of hydroelectric power is better than use of fossil fuels?
- xii. What do you mean by the term afforestation?

3. Write short answers to any EIGHT questions.

(2 x 8 = 16)

- i. How can you differentiate between reflex action and reflex arc?
- ii. What are Pacinian Corpuscles?
- iii. Draw and label sensory neuron.
- iv. Why did Mendel devise a Test Cross?
- v. Workout all possible types of gametes from the individual having genotype "AaBbCc".
- vi. Why blood group "O" is called as universal donor?
- vii. How can you get a gene of interest?
- viii. What is probe? Give its use.
- ix. Which technique is used to produce a haploid plant in tissue culture?
- x. How nitrification differs from denitrification?
- xi. What are Abiotic Components of an ecosystem?
- xii. Differentiate between Autecology and Synecology.

4. Write short answers to any SIX questions.

(2 x 6 = 12)

- i. What are intercalary meristems? Give their role.
- ii. How CO<sub>2</sub> affects the growth rate in plants?
- iii. Name the three non-sense codons.
- iv. Give four differences between DNA and RNA.
- v. What are point mutations?
- vi. What is metastasis?
- vii. Define crossing over. Give its importance.
- viii. What are vestigial organs? Give two examples.
- ix. Name any four species, declared extinct in Pakistan.

SECTION - II

5. (a) Write down a comprehensive note on excretion in plants. (4)  
(b) Define cell cycle. Discuss interphase in detail. (4)

6. (a) What are autonomic movements? Discuss their types. (4)  
(b) Explain predation and parasitism in detail. (4)

7. (a) In what way the feedback mechanism takes place to regulate the Hormonal Production? (4)  
(b) Describe the phenomena of Green House Effect, its causes and impacts. (4)

8. (a) Describe Asexual reproduction in animals. (4)  
(b) Define diabetes Mellitus? Explain its types. (4)

9. (a) How embryonic induction was proved by Hans Spemann and Hilde Mangold? (4)  
(b) Write down a note on gene sequencing. (4)

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**BIOLOGY**

**Intermediate Part-II, Class 12<sup>th</sup> (1<sup>st</sup>A 424-IV) Paper: II Group - II**

**Time: 20 Minutes**

**OBJECTIVE ..... Code: 8468 GUVJ-2-24 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. The methyl containing nitrogenous base is  
(A) uracil (B) cytosine (C) thymine (D) adenine
2. Fresh water ecosystem covers less than  
(A) 2% (B) 3% (C) 1% (D) 97%
3. Tapeworm is primary parasite of  
(A) octopus (B) pig (C) cattle (D) man
4. Rickets is caused by the deficiency of  
(A) vitamin D (B) vitamin C (C) vitamin A (D) vitamin B
5. The negative physiological changes in our body are called  
(A) regeneration (B) abnormalities (C) degeneration (D) aging
6. The inexhaustible resource of energy on earth is  
(A) coal energy (B) solar energy (C) fossil fuel (D) natural gas energy
7. Archeobacteria tolerate temperature about  
(A) 100 °C (B) 120 °C (C) 80 °C (D) 40 °C
8. The homologous chromosomes get separated during  
(A) Prophase - I (B) Anaphase - I (C) Telophase - I (D) Metaphase - I
9. MODY starts before  
(A) 50 years (B) 30 years (C) 40 years (D) 25 years
10. Sarcoplasmic Reticulum are devoid of  
(A) Lysosomes (B) chloroplast (C) peroxisomes (D) Ribosomes
11. The effective drug for Parkinson's disease is  
(A) Nicotine (B) AZT (C) L.dopa (D) GDNF
12. Apical dominance is caused by  
(A) Auxins (B) gibberellins (C) ethene (D) cytokinins
13. Which one of the given is non-sense codon?  
(A) UAA (B) UCC (C) UCG (D) UCU
14. The commonly used restriction enzyme is  
(A) EcoR1 (B) Bam H1 (C) pBR 322 (D) pSC 10
15. Excretory structures present in cockroach is  
(A) Nephridia (B) Malpighian Tubules (C) Contractile Vacuole (D) Flame Cells
16. Cystic Fibrosis patients lack gene that code for transmembrane carrier of  
(A) Chloride Ions (B) Carbonate Ions (C) Bromide Ions (D) Sulphate Ions
17. Which one is Parthenogenic fruit?  
(A) Mango (B) Pineapple (C) Peach (D) Apple

Time: 2:40 Hours

SUBJECTIVE

GVJ-2-24

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. Account one each main adaptation in plants to high and low temperatures.
- ii. Why does filtration takes place only at glomeruli part of Nephron and nowhere else?
- iii. Mention two metabolic altered states that generally (70%) cause kidney stone formation.
- iv. What are unguigrades? Give example.
- v. Name the unpaired bones of Cranium.
- vi. What is pulvinus? Write down its role in turgor movements.
- vii. Define Haploid parthenogenesis. Give example.
- viii. Name disease caused by Treponema pallidum. Also write down its two symptoms.
- ix. Define soil. Mention its one role and one problem.
- x. What are Plankton? Give their two types.
- xi. What is Limnetic zone? Mention its life.
- xii. What is meant by Hydroelectric power? Write down its advantages.

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

(2 x 8 = 16)

- i. Is it possible to eliminate biorhythms in an organism?
- ii. Describe exocrine and endocrine functions of pancreas.
- iii. What happens when dopamine production is stopped in brain?
- iv. Why AB blood group is universal recipient?
- v. What is pleiotropy? Give one example.
- vi. What is vortex mixing technique?
- vii. What is testicular feminization syndrome?
- viii. How familial hypercholesterolemia is treated using gene therapy?
- ix. Why plasmids are naturally present in bacteria?
- x. Compare ecology with autecology.
- xi. What is the role of bacteria in leguminous plants?
- xii. Describe the importance of food chain in an ecosystem.

**4. Write short answers to any SIX questions.**

(2 x 6 = 12)

- i. How is primitive streak formed?
- ii. What do you know about intercalary meristem?
- iii. Name and draw the (P-O-C) bond responsible for the stability of Nucleic Acid molecule.
- iv. What was the effect of x-rays on Neurospora spores in Beadle and Tatum experiment?
- v. What changes occur in a cell during apoptosis?
- vi. Why does DNA thread coils every 200 nucleotides around histone protein molecules?
- vii. What are functions of mitotic apparatus?
- viii. State theory of special creation.
- ix. What do you know about fixed alleles?

**SECTION – II**

5. (a) Explain through a diagram the thermostat function of hypothalamus and feedback mechanism in human thermoregulation. (4)
- (b) Explain the Necrosis and Apoptosis in development and growth. (4)
6. (a) Describe sliding filament model. What does it explain? (4)
- (b) What do you know about grazing? (4)
7. (a) Describe nervous disorders. (4)
- (b) What ideas support the inheritance of acquired characters? (4)
8. (a) Write a note on reproduction system of human female. (4)
- (b) Define and explain law of independent assortment. (4)
9. (a) What does embryonic induction mean? Write down the experiments of Spemann and Mangold to demonstrate the phenomenon. (4)
- (b) What are restrictions endonucleases? Elaborate their importance for bacteria and Recombinant DNA technology? (4)