



UNIVERSITY OF THE PUNJAB

B.A. / B.Sc. Part – II
Supplementary Examination - 2018

Roll No.

Subject: Botany-II
PAPER: A (Cell Biology, Genetics and Evolution)

TIME ALLOWED: 2 Hrs. & 30 Min.
MAX. MARKS: 21

Attempt this Paper on Separate Answer Sheet provided.

NOTE: Attempt any THREE questions. All questions carry equal marks. Draw neat and labeled diagrams along with captions where necessary. (03 x 07=21 Marks)

- Q.4
- a) Name three types of plastids. 3
 - b) Write general formula of an amino acid. 2
 - c) What is the difference between gene and allele? 2
- Q.5
- a) Define four levels of proteins structure 4
 - b) Give any three causes of mutations. 3
- Q.6
- a) Simply introduce methods of bacterial recombination 3
 - b) What are four types of chromosomes on the basis of centromere position 4
- Q.7
- a) Differentiate between followings: 4
 - i. Cisternae and Cristae.
 - ii. Codon and anti-Codon.
 - b) Name any three enzymes used *in vivo* DNA replication 3
- Q.8
- a) Give briefly four salient points of Darwin's theory of natural selection. 4
 - b) Differentiate between RNA and DNA. 3



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MAX. MARKS: 14

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.
This Paper will be collected back after expiry of time limit mentioned above.

Q. 1. Fill in the blanks (8 marks)

Please fill in the blanks with appropriate terms/words

- i. The study of fossils is called as _____.
- ii. _____ are building block of proteins.
- iii. The fluid part of nucleus is called _____.
- iv. A tripeptide has _____ peptide bonds in numbers.
- v. The most important function assigned to the ribosomes is the synthesis of _____.
- vi. The euploids may be Monoploid, Diploid or _____.
- vii. The bonds between the units in a carbohydrate polymer are called _____ bonds.
- viii. Linked genes can be separated by _____.
- ix. The use of antibiotics has introduced new _____ pressure within bacterial populations.
- x. The _____ bonds hold the base pairs of DNA together
- xi. The organisms in which the nuclei are not well organized are called _____.
- xii. The two most popular types of vectors are plasmids and _____.
- xiii. The inversions involve the _____ positioning of genes relative to other genes.
- xiv. An inverse of measure of interference is called _____.
- xv. There is a specific *aminoacyl synthetase* enzyme for each _____.
- xvi. There is an only one start codon but _____ stop codons.

Q. 2. True or False statements (3 marks)

Please select true or false statement by encircling 'T' or 'F' as appropriate

- | | | | |
|------|--|---|---|
| i. | The size of ribosome in Eukaryotes is 60S. | T | F |
| ii. | The prototroph microorganism can grow on minimal medium. | T | F |
| iii. | The seed bank preserves dried seed by storing them at a high temperature | T | F |
| iv. | The BT gene codes for protein toxic that specifically kills pest larvae | T | F |
| v. | ATP is required for transport of molecules by osmosis | T | F |
| vi. | In man somatic cells have 44 chromosomes | T | F |

P.T.O.

Q. 3. Multiple Choice Questions (3 marks)

Please encircle the appropriate letter (a, b, c or d) of the correct answer.

- i. **One of the functions of DNA is to**
- a. secrete vacuoles.
 - b. make copies of itself.
 - c. join amino acids to each other.
 - d. carry genetic information out of the nucleus.
- ii. **Alleles of a gene get separated from one another at the time of :**
- a. gamete formation
 - b. cell membrane formation
 - c. cell wall formation
 - d. protein formation
- iii. **Who proposed the fluid mosaic model of biological membranes?**
- a. Robert Brown
 - b. D. Robertson
 - c. Singer
 - d. Robert Hook
- iv. **Adenine forms _____ hydrogen bonds with Thymine.**
- a. 2
 - b. 3
 - c. 4
 - d. 5
- v. **Meristem culture method has the advantages to produce**
- a. Fungal free plant
 - b. Bacteria free plant
 - c. Insect free plant
 - d. Virus free plant
- vi. **Which of the following is *not* a characteristic of lipids?**
- a. They are readily soluble in water.
 - b. They are soluble in organic solvents.
 - c. They release large amounts of energy when broken down.
 - d. They form two layers when mixed with water.



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B.A. / B.Sc. Part – II
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Roll No.

Subject: Botany-II
PAPER: B (Physiology and Ecology)

TIME ALLOWED: 2 Hrs. & 30 Min.
MAX. MARKS: 21

Attempt this Paper on Separate Answer Sheet provided.

NOTE: Attempt any THREE questions. All questions carry equal marks. Draw neat and labeled diagrams along with captions where necessary. (03 x 07=21 Marks)

- Q. 4 a) What are the limiting factors for photosynthesis? Describe in detail. 4
b) Write a note on buffers and their biological significance. 3
- Q. 5 a) Describe the role of Auxins in various developmental phenomena in plants. 4
b) What is Donnan Effect? Explain the Model for it. 3
- Q. 6 a) Write a note on biological nitrogen fixation. 4
b) What is soil organic matter and its importance? 3
- Q. 7 a) What is the importance of light, water and temperature for plant growth and distribution? 4
b) Write a short note on seed dispersal. 3
- Q. 8 a) What is soil erosion? Give different methods of soil erosion by water. 4
b) Differentiate between 3
i. Electrolytes and Non-electrolytes
ii. Food chain and food web.



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Q 1. Fill in the blanks with appropriate terms/words

05 Marks

1. Water potential ensures the maintenance of normal _____ in plant cell.
2. The percentage of moisture when the drainage of a wetted soil slows down is called its _____.
3. The negative surface charges of soil particles are importance in the adsorption of _____ to the surface of particles.
4. Amylase activity is increased in the presence of _____ ions.
5. Oxygen released by plants is derived from _____ and not from CO₂.
6. The Krebs cycle takes place in the matrix of _____.
7. Apical bud contains much higher _____ contents than the lateral bud.
8. The seed coats of most seeds are composed of several layers of cells derived from _____.
9. The movement induces by some internal timing mechanisms are called _____.
10. The wind transported parent material is termed _____.

Q 2. Select true or false statement by encircling 'T' or 'F'

05 Marks

1. The colloidal particles are large enough to be seen with naked eye. T F
2. A living cell may be thought as an active transport system. T F
3. Water is the largest component of the soil. T F
4. About 70% of the total transpiration is stomatal transpiration. T F
5. Proton pumps are the main electrogenic pumps of plants. T F
6. Protein of enzymes consists of one or more polypeptide chains of ten to hundreds of lipids molecules. T F
7. A tropism is a growth movement of a plant organ in response to an external stimulus. T F
8. Evolutionary ecology is related to interaction of population dynamics, genetics, natural selection and evolution. T F

P.T.O

9. Species ecology involves study of distribution of organisms in relation to their soil. T F
10. Parasite consumes the tissue of another living host, therefore can be classified as a subgroup of predators. T F

Q 3. Encircle the appropriate letter (a, b, c or d) for the correct answer.

04 Marks

- The factor that decrease transpiration is
 - Water
 - Humidity
 - Wind
 - Light
- The light reaction is also called as
 - Z-scheme
 - Hill reaction
 - ETC
 - All of these
- Pyruvic acids enter in mitochondria after combination with
 - Enzymes
 - Acetyl CoA
 - Both a & b
 - None
- The nutrition of some plants depends on a root fungus association known as
 - Root nodules
 - Mycorrhizae
 - Root hair
 - Rot hyphae
- Plant growth depends on
 - Cell division
 - Cell enlargement
 - Hormones
 - All of the above
- The character shows the pattern of grouping of individual of a species in any community in termed as
 - Sociability
 - Dispersion
 - Frequency
 - Periodically
- Which of the following more directly related to the current biodiversity crisis?
 - Increased atmospheric CO₂
 - Ozone depletion
 - Rate of extinction
 - Introduced species
- Aquatic organisms that are weak swimmers are known as
 - Benthos
 - Nekton
 - Pelagic inhabitants
 - Planktons