



**FIJI NATIONAL UNIVERSITY**  
**College of Agriculture, Fisheries & Forestry**  
**School of Agriculture Sciences & Forestry**  
**Department of Crop Science**  
**Bachelor of Science in Agriculture– Year 2**  
**Supplementary Examination**  
**Trimester 3 - 2019**  
**PBC601-Plant Biochemistry**

**Writing Time: 3:00 hours**

**Reading Time: extra 10 minutes allowed at the beginning of the exam**

**Total Marks: 100**

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**INSTRUCTIONS:**

1. This paper consists of THREE pages.
2. Please check to see that all your paper is complete.
3. Answer all questions in the Answer Booklet only.
4. No written or printed material and mobile phones are allowed in the examination hall.
5. Marks allocated for each section appears at the side of each question so allocate your time accordingly.
6. This paper is divided into Three Section

**Section A: Objective questions**

**(20 Marks)**

**Section B: Short answer**

**(30 Marks)**

**Section C: Essay**

**(50 Marks)**

**Section A Objective questions****(20 Marks)****Section A 1: Fill in the blanks****(10 x 1 = 10 Marks)**

1. \_\_\_\_\_ is the chemistry of living things.
2. \_\_\_\_\_ are the basic structural unit of living organisms.
3. \_\_\_\_\_ is a selectively permeable membrane.
4. Amino acids are the building blocks of \_\_\_\_\_.
5. \_\_\_\_\_ contain excess of H<sup>+</sup> ions.
6. \_\_\_\_\_ is the most important simple sugar in plant and animal metabolism.
7. Sterols of plants are called \_\_\_\_\_.
8. Glucose is degraded in a series of enzyme-catalyzed reactions is called \_\_\_\_\_.
9. All enzymes are \_\_\_\_\_ but all proteins are not \_\_\_\_\_.
10. \_\_\_\_\_ enzyme unwind the DNA into a Y shape.

**Section A 2: Choose the best answer****(10 x 1 = 10 Marks)**

11. The \_\_\_\_\_ is the basic unit of matter.
  - a. Enzyme
  - b. Atom
  - c. Isotopes
  - d. None of the above
12. Plant cell wall is made up of \_\_\_\_\_ and \_\_\_\_\_.
  - a. Cellulose and Glucose
  - b. Cellulose and DNA
  - c. Cellulose and Lignin
  - d. DNA and Glucose
13. Adenine and guanine are \_\_\_\_\_.
  - a. Pyrimidine
  - b. Purine
  - c. Both pyrimidine and purine
  - d. none of the above
14. \_\_\_\_\_ is negatively charged and acidic.
  - a. RNA
  - b. DNA
  - c. Protein
  - d. Enzymes
15. \_\_\_\_\_ joins Okazaki fragments together forming a single DNA strand.
  - a. Endonuclease
  - b. Exonuclease
  - c. Helicase
  - d. Ligase
16. \_\_\_\_\_ is the synthesis of RNA using DNA as template.
  - a. Transcription
  - b. Translation
  - c. Replication
  - d. Decoding
17. The transcription and translation takes place in \_\_\_\_\_.
  - a. Nucleus and cytoplasm
  - b. Cellulose and Lignin
  - c. Mitochondria and nucleus
  - d. None of the above
18. \_\_\_\_\_ is most commonly used as raw material in papermaking
  - a. Cellulose
  - b. Trees
  - c. Lignin
  - d. Pulp
19. \_\_\_\_\_ are the most abundant biomolecules on earth.
  - a. Carbohydrates
  - b. Lipids
  - c. Proteins
  - d. Enzymes

20. Which carbohydrate is found primarily in milk and milk products?
- |             |            |
|-------------|------------|
| a. fructose | b. glucose |
| c. sucrose  | d. lactose |

**Section B: Short answer****(30 Marks)****Section B 1: Attempt any FIVE questions****(5 x 2 = 10 Marks)****Compare and generate suitable answers for the following:**

21. Principles of biochemistry.
22. Buffer and pH- Importance of Buffer and pH in experimental solutions.
23. Carbohydrates. Classify the carbohydrates based on the number of sugar molecule.
24. Metabolism, catabolism and anabolism.
25. Enzymes, Apo-enzymes and holoenzymes.
26. Nucleotides and nitrogenous base pairs.

**Section B 2: Attempt any FOUR questions****(4 x 5 = 20 Marks)****Apply the knowledge and generate answers for the following with diagrams:**

27. Functions of- plasma membrane, mitochondria, chloroplast and plastids.
28. Lock and key & Induced fit hypothesis of enzymes.
29. Biomolecules and its functions- Protein, Carbohydrate, Lipids and Nucleic acids.
30. Mono, di and polysaccharides with its functions.
31. Write notes on saturated, unsaturated, omega-3-fattyacids and phospholipids.

**Section C: Essay****(50 Marks)****Attempt any FOUR questions****(4 x 12.5 = 50 Marks)****Demonstrate and generate information on the following**

32. Steps of Glycolysis and its energy production levels.
33. Structure of DNA with diagram
34. DNA replication with diagram
35. Types of DNA and RNA and its functions
36. Process of Translation

**THE END****XXXXXXXXXXXX**

