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**NATIONAL OPEN UNIVERSITY OF NIGERIA**

**Plot 91, Cadastral Zone, Nnamdi Azikiwe Express way, Jabi-Abuja.**

**FACULTY OF SCIENCES**

**DEPARTMENT OF PURE AND APPLIED SCIENCE**

**NOVEMBER 2018 EXAMINATION**

**COURSE CODE: BIO 303**

**COURSE TITLE: GENERAL CYTOLOGY**

**CREDIT UNIT: 2**

**TIME ALLOWED: 2 HOURS**

**INSTRUCTION: ANSWER QUESTION ONE AND ANY OTHER THREE QUESTIONS**

**1**a. Complete the table below by stating the events of the contributions of the scientists **(5marks):**

|  |  |  |
| --- | --- | --- |
| **Year** | **Scientist** | **Event** |
| 1665 | Robert Hooke | Coined the word “cells” |
| 1674 | Antoine  van  Leeuwenhoek | ? |
| 1831 | Robert Brown | ? |
| 1839 | Theodor Schwann &  Matthias Schleiden | ? |
| 1858 | Rudolf Virchow | ? |
| 1882 | Walter Flemming | ? |

b. List **three** types of Carbohydrates **(3marks)**

c. Define each of these carbohydrate types **(3marks)**

d. Write short notes on Starch and Glycogen **(9marks)**

e. i. What is Karyotyping? **(2 ½ marks)**

ii. After karyotyping, give **five** characteristics usually observed in the chromosome. **(2 ½ marks))**

**2**a. Explain the term Nucleic acid **(8marks)**

b**.** What is a protein? **(5marks)**

c. List **four** structural levels of proteins **(2marks)**

**3**. Describe the following phases of eukaryotic cell cycle:

a. Gap 1 Phase; **(5marks)**

b. S phase; **(5marks)** and

c. Gap 2 phase **(5marks)**

**4**a.What is Resolution of a light microscope? **(6marks)**

b. Mention **two** types of electron microscope. **(2marks)**

c. State **two** advantages and **five** disadvantages of an electron microscope. **(7marks)**

**5**a. Differentiate between embryology and embryogenesis. **(4marks)**

b. Mention the **three** main stages embryogenesis. **(3marks)**

c. Explain any **two** of these stages of embryogenesis. **(8marks)**