

Centre Number				Examination Number											

EXAMINATIONS COUNCIL OF ZAMBIA

Examination for General Certificate of Education Ordinary Level



Science

5124/1

Paper 1

2021

Additional Information:

Electronic calculator (non-programmable) and / or Mathematical tables.
Graph paper
Soft clean eraser
Soft pencil (Type B or HB is recommended)

Time: 2 hours

Marks: 85

Instructions to Candidates

1. Write the **centre number** and your **examination number** on every page of this question paper and on the separate Answer Booklet/Paper provided.

2. There are **three** sections in this paper.

(i) Section A

There are **twenty** questions in this section. Answer **all** questions.

For each question, there are four possible answers, **A, B, C** and **D**. Choose the best one and mark it with a cross (X) on the **answer grid provided** in this question paper.

(ii) Section B

Answer **all** questions. Write your answers in the **spaces provided** in this question paper.

(iii) Section C

Answer any **two** questions. Write your answers on a separate **Answer Booklet/Paper provided**.

Information for candidates

1. Any rough working should be done in this question paper.

2. **At the end of the examination:**

(i) Fasten the separate Answer Booklet/Papers used securely to the question paper.

(ii) Circle the numbers of the section **C** questions you have answered in the grid below.

3. Cell phones are **not allowed** in the examination room.

Candidate's Use		Examiner's Use
Section A		
Section B		
Section C	1	
	2	
	3	
Total		

P1 Life Science G12

Huangqi Zhang



P1 Life Science G12:

Introductory Physics for the Life Sciences Simon Mochrie, Claudia De Grandi, 2023-04-05 This classroom tested textbook is an innovative comprehensive and forward looking introductory undergraduate physics course While it clearly explains physical principles and equips the student with a full range of quantitative tools and methods the material is firmly grounded in biological relevance and is brought to life with plenty of biological examples throughout It is designed to be a self contained text for a two semester sequence of introductory physics for biology and premedical students covering kinematics and Newton s laws energy probability diffusion rates of change statistical mechanics fluids vibrations waves electromagnetism and optics Each chapter begins with learning goals and concludes with a summary of core competencies allowing for seamless incorporation into the classroom In addition each chapter is replete with a wide selection of creative and often surprising examples activities computational tasks and exercises many of which are inspired by current research topics making cutting edge biological physics accessible to the student

Recent Advances in Polyphenol Research, Volume 3 Véronique Cheynier, Pascale Sarni-Manchado, Stéphane Quideau, 2012-02-21 Plant polyphenols are secondary metabolites that constitute one of the most common and widespread groups of natural products They express a large and diverse panel of biological activities including beneficial effects on both plants and humans Many polyphenols from their structurally simplest representatives to their oligo polymeric versions also referred to as vegetable tannins are notably known as phytoestrogens plant pigments potent antioxidants and protein interacting agents Sponsored by Groupe Polyphenols this publication which is the third volume in this highly regarded Recent Advances in Polyphenol Research series is edited by Véronique Cheynier Pascale Sarni-Manchado and Stéphane Quideau the current President of Groupe Polyphenols Like their predecessors they have once again put together an impressive collection of cutting edge chapters written by expert scientists internationally respected in their respective field of polyphenol sciences This Volume 3 provides the latest information and opinion on the following major research topics about polyphenols Organic chemistry and physical chemistry Biosynthesis genetics and metabolic engineering The role of polyphenols in plants and ecosystems Health and nutrition Analysis and metabolomics Chemists biochemists plant scientists pharmacognosists and pharmacologists biologists ecologists food scientists and nutritionists will all find this book an invaluable resource Libraries in all universities and research institutions where these disciplines are studied and taught should have copies on their bookshelves

Handbook of Proteolytic Enzymes Alan J. Barrett, Neil D. Rawlings, J. Fred Woessner, 2012-10-30 Extensively revised and updated the new edition of the highly regarded Handbook of Proteolytic Enzymes is an essential reference for biochemists biotechnologists and molecular biologists Edited by world renowned experts in the field this comprehensive work provides detailed information on all known proteolytic enzymes to date This two volume set unveils new developments on proteolytic enzymes which are being investigated in pharmaceutical research for such diseases as HIV Hepatitis C and the common cold Volume I

covers aspartic and metallo peptidases while Volume II examines peptidases of cysteine serine threonine and unknown catalytic type A CD ROM accompanies the book containing fully searchable text specialised scissile bond searches 3 D color structures and much more The only comprehensive book on proteolytic enzymes Includes 671 chapters each written by experts in their field on proteolytic enzymes from all groups of living organisms and the viruses including those that are currently major targets of pharmaceutical research Accompanying CD ROM provides fully searchable text 2D structures of peptidases in color and links directly to PubMed and MEROPS databases Each chapter describes in detail the enzyme name its history activity and specificity structural chemistry preparation biological aspects and distinguishing features Over 1000 peptidases included *Manual of Practical Colon Classification* Mohinder Partap Satija,2002 Tsetse and Trypanosomiasis Information ,2007 *Nuclear Science Abstracts* , **Science Is Not A Quiet Life: Unravelling The Atomic Mechanism Of Haemoglobin** Max F Perutz,1998-01-15 Linus Pauling called haemoglobin the most interesting and important of molecules This important volume shows how X ray crystallography was used to determine its bewilderingly complex atomic structure and to unravel the stereochemical mechanisms of its respiratory functions It introduces isomorphous replacement with heavy atoms which led to the first protein structures haemoglobin and its simpler relative myoglobin Later papers deal with the stereochemistry of the cooperative effects of haemoglobin with the relationships between the structures and impaired functions of abnormal haemoglobin with species adaptation of haemoglobin and with its action as a drug receptor and as an oxygen sensor The final papers deal with amino acid repeats which act as polar zippers and their role in certain inherited neurodegenerative diseases *Plant Breeding Abstracts* ,1995-08 *Catalogue New South Wales Free Public Library, Sydney*,1895 **The American Naturalist** ,2001 **Bulletin of the Russian Academy of Sciences** ,1994 **Class list** Salem Mass, publ. libr,1899 Class List Salem Public Library,1898 **Rating Scales for Psychopathology, Health Status and Quality of Life** Per Bech,2012-12-06 What are the various methods used to measure psychopathology in terms of rating scales A comparison of textbooks on psychopathology with international classification systems of psychopathology the WHO system ICD 10 and the American system DSM III R can be found in this handbook It describes how the principles of modern psychometric theories validate rating scales With the advent of valid scales experts have been able to measure the various aspects of psychopathology personality the symptoms of illness life events the social adjustment of side effects the health related quality of life and the side effects from psychopharmacological drugs Index Veterinarius ,2006 Mathematical Modelling in Science and Technology Xavier J.R. Avula,Rudolf E. Kalman,Anthanasios I. Liapis,2014-05-09 Mathematical Modelling in Science and Technology The Fourth International Conference covers the proceedings of the Fourth International Conference by the same title held at the Swiss Federal Institute of Technology Zurich Switzerland on August 15 17 1983 Mathematical modeling is a powerful tool to solve many complex problems presented by scientific and technological developments This book is organized into 20 parts encompassing

180 chapters The first parts present the basic principles methodology systems theory parameter estimation system identification and optimization of mathematical modeling The succeeding parts discuss the features of stochastic and numerical modeling and simulation languages Considerable parts deal with the application areas of mathematical modeling such as in chemical engineering solid and fluid mechanics water resources medicine economics transportation and industry The last parts tackle the application of mathematical modeling in student management and other academic cases This book will prove useful to researchers in various science and technology fields **Class Lists** Salem Public Library,1898

Current Advances in Plant Science ,1977 *GTPases* Alan Hall,2000 GTPases are molecular switches that are used to control biochemical pathways This book describes the properties and cellular roles of all the major families of GTPases All cells use GTPases to regulate the delivery of amino acids to the ribosome during protein synthesis but eukaryotes with their complex and compartmentalized environment have exploited the versatility of GTPases to a much greater extent In particular GTPases play a central role in regulating signal transduction pathways activated by extracellular signals and in regulating the trafficking of proteins between different organelles It is not surprising therefore that GTPases have become a center of attention for those studying the control of proliferation differentiation cell polarity cell movement and vesicle and protein trafficking This book provides a complete guide to this area and should be essential reading for cell and molecular biologists biochemists and geneticists interested in these contemporary problems **Supplement to the Catalogue of the Free Public Library, Sydney, Reference Department** Free Public Library (Sydney, N.S.W.). Reference Dept,1895

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