



education

Department of
Education
FREE STATE PROVINCE

PHYSICAL SCIENCES PAPER 1 (PHYSICS)

GRADE 12

TERMS & DEFINITIONS, QUESTIONS & ANSWERS PER TOPIC

2021



TABLE OF CONTENTS



HOW TO USE THIS DOCUMENT	2
TERMS AND DEFINITIONS	2
QUESTIONS	7
NEWTON'S LAWS	7
VERTICAL PROJECTILE MOTION	12
MOMENTUM AND IMPULSE	17
WORK, ENERGY AND POWER	23
DOPPLER EFFECT	29
ELECTROSTATICS	34
ELECTRIC CIRCUITS	41
ELECTRICAL MACHINES	51
OPTICAL PHENOMENA AND PROPERTIES OF MATERIALS	56
ANSWERS TO QUESTIONS	63
NEWTON'S LAWS	63
VERTICAL PROJECTILE MOTION	71
MOMENTUM AND IMPULSE	85
WORK, ENERGY AND POWER	90
DOPPLER EFFECT	99
ELECTROSTATICS	104
ELECTRIC CIRCUITS	115
ELECTRICAL MACHINES	125
OPTICAL PHENOMENA AND PROPERTIES OF MATERIALS	132
BIBLIOGRAPHY	139



Physical Science Paper 1 Grade 12 March 2014

Jayne D. Greenberg, Judy L. LoBianco



Physical Science Paper 1 Grade 12 March 2014:

Recognizing the mannerism ways to acquire this ebook **Physical Science Paper 1 Grade 12 March 2014** is additionally useful. You have remained in right site to begin getting this info. acquire the Physical Science Paper 1 Grade 12 March 2014 join that we meet the expense of here and check out the link.

You could buy guide Physical Science Paper 1 Grade 12 March 2014 or acquire it as soon as feasible. You could quickly download this Physical Science Paper 1 Grade 12 March 2014 after getting deal. So, next you require the ebook swiftly, you can straight get it. Its suitably categorically easy and appropriately fats, isnt it? You have to favor to in this tune

https://crm.avenza.com/About/browse/Download_PDFS/Science%20Webquests%20Fill%20In%20The%20Blanks.pdf

Table of Contents Physical Science Paper 1 Grade 12 March 2014

1. Understanding the eBook Physical Science Paper 1 Grade 12 March 2014
 - The Rise of Digital Reading Physical Science Paper 1 Grade 12 March 2014
 - Advantages of eBooks Over Traditional Books
2. Identifying Physical Science Paper 1 Grade 12 March 2014
 - Exploring Different Genres
 - Considering Fiction vs. Non-Fiction
 - Determining Your Reading Goals
3. Choosing the Right eBook Platform
 - Popular eBook Platforms
 - Features to Look for in an Physical Science Paper 1 Grade 12 March 2014
 - User-Friendly Interface
4. Exploring eBook Recommendations from Physical Science Paper 1 Grade 12 March 2014
 - Personalized Recommendations
 - Physical Science Paper 1 Grade 12 March 2014 User Reviews and Ratings
 - Physical Science Paper 1 Grade 12 March 2014 and Bestseller Lists
5. Accessing Physical Science Paper 1 Grade 12 March 2014 Free and Paid eBooks

- Physical Science Paper 1 Grade 12 March 2014 Public Domain eBooks
 - Physical Science Paper 1 Grade 12 March 2014 eBook Subscription Services
 - Physical Science Paper 1 Grade 12 March 2014 Budget-Friendly Options
6. Navigating Physical Science Paper 1 Grade 12 March 2014 eBook Formats
- ePub, PDF, MOBI, and More
 - Physical Science Paper 1 Grade 12 March 2014 Compatibility with Devices
 - Physical Science Paper 1 Grade 12 March 2014 Enhanced eBook Features
7. Enhancing Your Reading Experience
- Adjustable Fonts and Text Sizes of Physical Science Paper 1 Grade 12 March 2014
 - Highlighting and Note-Taking Physical Science Paper 1 Grade 12 March 2014
 - Interactive Elements Physical Science Paper 1 Grade 12 March 2014
8. Staying Engaged with Physical Science Paper 1 Grade 12 March 2014
- Joining Online Reading Communities
 - Participating in Virtual Book Clubs
 - Following Authors and Publishers Physical Science Paper 1 Grade 12 March 2014
9. Balancing eBooks and Physical Books Physical Science Paper 1 Grade 12 March 2014
- Benefits of a Digital Library
 - Creating a Diverse Reading Collection Physical Science Paper 1 Grade 12 March 2014
10. Overcoming Reading Challenges
- Dealing with Digital Eye Strain
 - Minimizing Distractions
 - Managing Screen Time
11. Cultivating a Reading Routine Physical Science Paper 1 Grade 12 March 2014
- Setting Reading Goals Physical Science Paper 1 Grade 12 March 2014
 - Carving Out Dedicated Reading Time
12. Sourcing Reliable Information of Physical Science Paper 1 Grade 12 March 2014
- Fact-Checking eBook Content of Physical Science Paper 1 Grade 12 March 2014
 - Distinguishing Credible Sources
13. Promoting Lifelong Learning
- Utilizing eBooks for Skill Development

- Exploring Educational eBooks

14. Embracing eBook Trends

- Integration of Multimedia Elements
- Interactive and Gamified eBooks

Physical Science Paper 1 Grade 12 March 2014 Introduction

In the digital age, access to information has become easier than ever before. The ability to download Physical Science Paper 1 Grade 12 March 2014 has revolutionized the way we consume written content. Whether you are a student looking for course material, an avid reader searching for your next favorite book, or a professional seeking research papers, the option to download Physical Science Paper 1 Grade 12 March 2014 has opened up a world of possibilities. Downloading Physical Science Paper 1 Grade 12 March 2014 provides numerous advantages over physical copies of books and documents. Firstly, it is incredibly convenient. Gone are the days of carrying around heavy textbooks or bulky folders filled with papers. With the click of a button, you can gain immediate access to valuable resources on any device. This convenience allows for efficient studying, researching, and reading on the go. Moreover, the cost-effective nature of downloading Physical Science Paper 1 Grade 12 March 2014 has democratized knowledge. Traditional books and academic journals can be expensive, making it difficult for individuals with limited financial resources to access information. By offering free PDF downloads, publishers and authors are enabling a wider audience to benefit from their work. This inclusivity promotes equal opportunities for learning and personal growth. There are numerous websites and platforms where individuals can download Physical Science Paper 1 Grade 12 March 2014. These websites range from academic databases offering research papers and journals to online libraries with an expansive collection of books from various genres. Many authors and publishers also upload their work to specific websites, granting readers access to their content without any charge. These platforms not only provide access to existing literature but also serve as an excellent platform for undiscovered authors to share their work with the world. However, it is essential to be cautious while downloading Physical Science Paper 1 Grade 12 March 2014. Some websites may offer pirated or illegally obtained copies of copyrighted material. Engaging in such activities not only violates copyright laws but also undermines the efforts of authors, publishers, and researchers. To ensure ethical downloading, it is advisable to utilize reputable websites that prioritize the legal distribution of content. When downloading Physical Science Paper 1 Grade 12 March 2014, users should also consider the potential security risks associated with online platforms. Malicious actors may exploit vulnerabilities in unprotected websites to distribute malware or steal personal information. To protect themselves, individuals should ensure their devices have reliable antivirus software installed and validate the legitimacy of the websites they are downloading from. In conclusion, the ability to download Physical Science Paper 1 Grade 12 March 2014 has

transformed the way we access information. With the convenience, cost-effectiveness, and accessibility it offers, free PDF downloads have become a popular choice for students, researchers, and book lovers worldwide. However, it is crucial to engage in ethical downloading practices and prioritize personal security when utilizing online platforms. By doing so, individuals can make the most of the vast array of free PDF resources available and embark on a journey of continuous learning and intellectual growth.

FAQs About Physical Science Paper 1 Grade 12 March 2014 Books

How do I know which eBook platform is the best for me? Finding the best eBook platform depends on your reading preferences and device compatibility. Research different platforms, read user reviews, and explore their features before making a choice. Are free eBooks of good quality? Yes, many reputable platforms offer high-quality free eBooks, including classics and public domain works. However, make sure to verify the source to ensure the eBook credibility. Can I read eBooks without an eReader? Absolutely! Most eBook platforms offer webbased readers or mobile apps that allow you to read eBooks on your computer, tablet, or smartphone. How do I avoid digital eye strain while reading eBooks? To prevent digital eye strain, take regular breaks, adjust the font size and background color, and ensure proper lighting while reading eBooks. What the advantage of interactive eBooks? Interactive eBooks incorporate multimedia elements, quizzes, and activities, enhancing the reader engagement and providing a more immersive learning experience. Physical Science Paper 1 Grade 12 March 2014 is one of the best book in our library for free trial. We provide copy of Physical Science Paper 1 Grade 12 March 2014 in digital format, so the resources that you find are reliable. There are also many Ebooks of related with Physical Science Paper 1 Grade 12 March 2014. Where to download Physical Science Paper 1 Grade 12 March 2014 online for free? Are you looking for Physical Science Paper 1 Grade 12 March 2014 PDF? This is definitely going to save you time and cash in something you should think about. If you trying to find then search around for online. Without a doubt there are numerous these available and many of them have the freedom. However without doubt you receive whatever you purchase. An alternate way to get ideas is always to check another Physical Science Paper 1 Grade 12 March 2014. This method for see exactly what may be included and adopt these ideas to your book. This site will almost certainly help you save time and effort, money and stress. If you are looking for free books then you really should consider finding to assist you try this. Several of Physical Science Paper 1 Grade 12 March 2014 are for sale to free while some are payable. If you arent sure if the books you would like to download works with for usage along with your computer, it is possible to download free trials. The free guides make it easy for someone to free access online library for download books to your device. You can get free download on free trial for lots of books categories. Our library is the biggest of these that have literally hundreds of thousands of different products

categories represented. You will also see that there are specific sites catered to different product types or categories, brands or niches related with Physical Science Paper 1 Grade 12 March 2014. So depending on what exactly you are searching, you will be able to choose e books to suit your own need. Need to access completely for Campbell Biology Seventh Edition book? Access Ebook without any digging. And by having access to our ebook online or by storing it on your computer, you have convenient answers with Physical Science Paper 1 Grade 12 March 2014 To get started finding Physical Science Paper 1 Grade 12 March 2014, you are right to find our website which has a comprehensive collection of books online. Our library is the biggest of these that have literally hundreds of thousands of different products represented. You will also see that there are specific sites catered to different categories or niches related with Physical Science Paper 1 Grade 12 March 2014 So depending on what exactly you are searching, you will be able to choose ebook to suit your own need. Thank you for reading Physical Science Paper 1 Grade 12 March 2014. Maybe you have knowledge that, people have search numerous times for their favorite readings like this Physical Science Paper 1 Grade 12 March 2014, but end up in harmful downloads. Rather than reading a good book with a cup of coffee in the afternoon, instead they juggled with some harmful bugs inside their laptop. Physical Science Paper 1 Grade 12 March 2014 is available in our book collection an online access to it is set as public so you can download it instantly. Our digital library spans in multiple locations, allowing you to get the most less latency time to download any of our books like this one. Merely said, Physical Science Paper 1 Grade 12 March 2014 is universally compatible with any devices to read.

Find Physical Science Paper 1 Grade 12 March 2014 :

science webquests fill in the blanks

scott eagle imager 160 charger manual

scope for life science matric 2014

scope for economics grade 1 paper 2014

science subjects jsc 2014 suggestion a set

science study guide and answers 8th grade chap 15

scorpion 1972 owners service repair manual

scope grade 11 paper 1 2013

scientific revolution worksheet with answers

scotts reel mower bermuda

scope for maths paper on grade 10

scoring manual for beery vmi 5

scope for geography paper 1 final exam

scope for rewrite matric

scope physics p1 final exam

Physical Science Paper 1 Grade 12 March 2014 :

cities of power the urban the national the - Aug 14 2023

web oct 12 2021 a sociological analysis of urban politics in this brilliant very original survey of the politics and meanings of urban landscapes leading sociologist göran therborn

göran therborn cities of power the urban the national the - Jun 12 2023

web may 2 2017 buy cities of power the urban the national the popular the global by professor goran therborn isbn 9781784785444 from amazon s book store

cities of power the urban the national the popular the global - May 11 2023

web oct 12 2021 in this brilliant very original survey of the politics and meanings of urban landscapes leading sociologist göran therborn offers a tour of the world s major capital

cities of power the urban the national the popular the - Aug 02 2022

web buy cities of power the urban the national the popular the global book online at low prices in india cities of power the urban the national the popular the

cities of power the urban the national the - Sep 22 2021

cities of power penguin random house - Jan 27 2022

web may 2 2017 in this brilliant very original survey of the politics and meanings of urban landscapes leading sociologist göran therborn offers a tour of the world s major capital

cities of power the urban the national the popular the - Jul 13 2023

web may 2 2018 the urban is the force of the city s historical built environment and traditions narrowing or guiding later directions of change the national is the power of the

cities of power the urban the national the popular the - May 31 2022

web buy cities of power the urban the national the popular the global by goran therborn online at alibris we have new and used copies available in 2 editions starting at 4 45

cities of power the urban the national the popular the global - Apr 29 2022

web why are cities centers of power a sociological analysis of urban politics in this brilliant very original survey of the politics

and meanings of urban landscapes leading

cities of power the urban the national the popular the - Oct 04 2022

web through a global historical lens and with a thematic range extending from the mutations of modernist architecture to the contemporary return of urban revolutions therborn

cities of power the urban the national the popular the global - Jul 01 2022

web cities of power the urban the national the popular the global goran therborn amazon com au books

cities of power the urban the national the popular the - Apr 10 2023

web may 13 2018 goran therborn 2017 cities of power the urban the national the popular the global london and new york verso books asci 2018 international

dr dave smith takes helm as uk s national technology adviser - Oct 24 2021

cities of power the urban the national the popular the - Dec 26 2021

web 1 day ago 14 september 2023 dave smith appointed as the uk s national technology adviser the senior appointment will drive government commitment to work with the tech

cities of power the urban the national the popular the - Nov 05 2022

web select search scope currently catalog all catalog articles website more in one search catalog books media more in the stanford libraries collections articles journal

cities of power by göran therborn overdrive - Nov 24 2021

cities of power the urban the national the popular the global - Jan 07 2023

web cities of power the urban the national the popular the global professor goran therborn amazon com tr kitap

cities of power the urban the national the popular the global - Dec 06 2022

web why are cities centers of power a sociological analysis of urban politicsin this brilliant very original survey of the politics and meanings of urban landscapes leading

cities of power the urban the national the popular the global - Feb 25 2022

web cities of power the urban the national the popular the global ebook therborn göran amazon in kindle store

cities of power the urban the national the popular the global in - Sep 03 2022

web cities of power the urban the national the popular the global ebook written by göran therborn read this book using google play books app on your pc android ios

cities of power the urban the national the popular the global - Mar 29 2022

web in this brilliant very original survey of the politics and meanings of urban landscapes leading sociologist göran therborn offers a tour of the world s major capital cities

cities of power the urban the national the - Feb 08 2023

web a sociological analysis of urban politics in this brilliant very original survey of the politics and meanings of urban landscapes leading sociologist göran therborn offers a tour of

goran therborn 2017 cities of power the urban the national - Mar 09 2023

web may 2 2017 cities of power the urban the national the popular the global ebook therborn göran amazon co uk kindle store

hotel management system project report itsourcecode com - May 12 2023

web july 20 2021 by nym hotel management system project report the hotel management system project is software developed to maintain and manage the various hotel task and processes its main goals are to increase income streamline operations and

pdf a sample hotel management system project documentation - Aug 03 2022

web a sample hotel management system project documentation a specimen hostelry management system scheme documentation a sample hotel general verfahren project documentation

hotel management system project report 1000 projects - Jan 28 2022

web oct 4 2012 the theme of my project is hotel management system this project is a fine thought to make the complex procedure of the hotel management system to an easy manner which is systematic modular designed selective menu based user display the modular design and constructed system is very much user oriented in which user can

sample hotel management system project documentation pdf - Jun 01 2022

web by storing or accessing sample hotel management system project documentation books on your computer your have found the answers or you could find another books in our online collections that related with sample hotel management system project documentation pdf

pdf a sample hotel management system project documentation - Feb 26 2022

web a taste hotel management system project documents pdf a sample hotel management system project documentation mark buluma eugene academia edu a sample hotel management system project documentation

design and implementation of an automated hotel management system - Jun 13 2023

web i introduction the aim of this project is to develop an integrated hotel management system that both administrators and customers can use the admin will inform customers of the availability of rooms in various hotels and customers will verify the availability of rooms in the desired hotel

hotel management system project report documentation - Mar 10 2023

web this application allows the hotel management the ability to operate the entire system from a single online interface giving them more power and flexibility room booking staff management and other hotel management services are included in this project the manager can use the system to advertise available rooms

pdf a sample hotel management system project documentation - Dec 27 2021

web a sample hotel betriebswirtschaft system project documentation a sample room management system project documentation a product hotel management system project documentation

project documentation of hotel management system - Jan 08 2023

web project documentation of hotel management system uploaded by fazly cader description the document is described that the solution is a new self contained software product which will be produced by the project team in order to overcome the problems that have occurred due to the current manual system

pdf a sample hotel management system project documentation - Mar 30 2022

web a sample stay administrator system project documentation pdf a sample hotel management system project documentation mark buluma eugene academia edu hotel management system project documentation with source code

[a sample hotel management system project documentation](#) - Jul 14 2023

web this is divided into the following design phases system flowchart system dataflow diagram input design processing design and output design 3 1 dataflow diagram system dataflow diagram reception guest information and booking office orders input guest booking guest facilities and admission in services input of

a sample hotel management system project documentation - Sep 04 2022

web 2 20 2017 a sample hotel management system project documentation mark buluma eugene academia edu pdf a sample hotel management system project documentation a sample hot el uploaded by management syst em mark buluma eugene project document at ion

pdf a sample hotel management system project desklib - Jul 02 2022

web pdf a sample hotel management system project added on 2019 09 23 the current system of xyz hotel is based on a manual system and this system is very cumbersome to manage and to deal with all requirements of hotel management

pdf a sample hotel management system project documentation - Apr 30 2022

web a sample stay management system your dokumentation pdf a sample hotel management system project documentation mark buluma eugene academia edu project report on hotel management system freeprojectz

research and design of hotel management system model - Dec 07 2022

web jun 4 2013 in order to make the hotel management work systematic standardization and automation achieve the aim of

improving the efficiency of hotel guest room management this paper designs the hotel

hotel management system project documentation with - Feb 09 2023

web sep 19 2021 hotel management system project documentation with source code the main objective of the hotel administration is to maintain a constant inflow of visitors and guests

hotel management system project documentation - Aug 15 2023

web the project hotel management system is a web based application that allows the hotel manager to handle all hotel activities online interactive gui and the ability to manage various hotel bookings and rooms make this system very flexible and convenient

project proposal document for hotel management system pdf - Nov 06 2022

web sep 14 2014 project proposal document for hotel management system sep 13 2014 0 likes 219 930 views charitha gamage follow engineer at wfh report education download the full version scribd com doc 296848988 project

hotel management system irjmet - Oct 05 2022

web this project examines the aspect of the hospitality industry which is hotel management in the 21st century the use of the internet computers and other electronic devices have made handling different jobs and aspects of management very easy this project is the design and implementation of an electronic hotel management system that provides

hotel management system project documentation pdf scribd - Apr 11 2023

web sample hotel management system project documentation hotel management system college name bengal college of engineering and technology bidhannagar durgapur download online hotel management system php project with source code project report documentation and ppt sociallocker

university of strathclyde part 1 architecture showcase - May 02 2023

web strathclyde s department of architecture is among the oldest and largest such departments in the uk we re renowned for our commitment to addressing environmental and societal challenges facing the built environment in local and global contexts focussing on real world problems and improving people s lives

part 1 2012 13 university of strathclyde download only apidev - Jul 04 2023

web it is not a propos the costs its not quite what you craving currently this part 1 2012 13 university of strathclyde as one of the most effective sellers here will categorically be in the midst of the best options to review part 1 2012 13 university of strathclyde 2020 12 15 cook erick streaming and copyright law affirm press

free part 1 2012 13 university of strathclyde - Feb 28 2023

web part 1 2012 13 university of strathclyde minutes of the general council of medical education registration of the united kingdom of the executive committee and of the branch councils aug 15 2022

part 1 2012 13 university of strathclyde avvu com tr - Feb 16 2022

web jun 9 2023 university of strathclyde endowment 33 1 in 2012 the university became there are ap 3 strathclyde enhanced partnership initiative evaluation report part 1 setting the s the university of strathclyde was established more than 200 years ago and was recently awarded times higher education u official university avvu com tr 2 5

part 1 2012 13 university of strathclyde pdf full pdf - Oct 27 2022

web jun 25 2023 1 part 1 2012 13 university of strathclyde pdf eventually you will agreed discover a additional experience and completion by spending more cash still when realize you believe that you require to acquire those all

university of strathclyde glasgow united kingdom - Aug 25 2022

web find 21959 researchers and browse 70 departments publications full texts contact details and general information related to university of strathclyde glasgow united kingdom

eren ağırbaş university of strathclyde İstanbul linkedin - Sep 25 2022

web these traits have proven invaluable in my academic pursuits which require dedication and perseverance i had a journey abroad as an erasmus exchange student at the university of strathclyde

2012 3 university of strathclyde architecture flickr - Mar 20 2022

web explore university of strathclyde architecture s photos on flickr university of strathclyde architecture has uploaded 753 photos to flickr

part 1 2012 13 university of strathclyde pdf portal dlc ui edu - Jun 22 2022

web this online notice part 1 2012 13 university of strathclyde can be one of the options to accompany you behind having additional time it will not waste your time agree to me the e book will unquestionably way of being you additional thing to read

shahroz khan 0000 0003 0298 9089 orcid - Dec 29 2022

web university of strathclyde glasgow gb education show more detail source check circle university of strathclyde istanbul teknik Üniversitesi istanbul tr 2015 01 25 part of isbn 9781665432931 contributors muhammad usama aqib arif

part 1 2012 13 university of strathclyde darelova - May 22 2022

web may 21 2023 university of strathclyde student handbook 2012 13 name university of strathclyde student handbook also included in part 1 of the university the university of strathclyde law clinic aims to provide college amp university the law clinic recently took part in an exciting event at the fruitmarket

part 1 2012 13 university of strathclyde pdf wp publish - Aug 05 2023

web part 1 2012 13 university of strathclyde is available in our book collection an online access to it is set as public so you can get it instantly our digital library spans in multiple countries allowing you to get the most less latency time to download

any of our books like this one kindly say the part 1 2012 13 university of strathclyde is

university of strathclyde student handbook 2012 13 issuu - Oct 07 2023

web sep 11 2012 also included in part 1 of the university calendar are admission to the university examinations academic dishonesty student discipline use of the libraries health and safety policy access

İstanbul teknik Üniversitesi linkedin de haberdetay - Jul 24 2022

web an international joint undergraduate program between istanbul technical university and university of strathclyde in the field of naval architecture and marine İstanbul teknik Üniversitesi linkedin de haberdetay

part 1 2012 13 university of strathclyde exocorriges com - Sep 06 2023

web part 1 2012 13 university of strathclyde changes are published by incorporation in the next edition of the university calendar 4 3 1 part i construction application interpretation

genel anasayfa - Jun 03 2023

web Üniversitemiz ile strathclyde Üniversitesi arasında gemi İnşaatı ve gemi makinaları mühendisliği alanında gerçekleştirilen çift diploma programıyla birlikte öğrenciler 1 ve 2 yıllarını İtÜ de 3 ve 4 yıllarını ise strathclyde Üniversitesi nde tamamlayacaklar ve hem İtÜ den hem de strathclyde Üniversitesi

part 1 2012 13 university of strathclyde - Apr 20 2022

web university of strathclyde follow science university calendar 2012 13 the university of strathclyde strathclyde enhanced partnership initiative evaluation report part 1 2012 13 university of strathclyde studylib net university of strathclyde student handbook 2012 13 by university of strathclyde postgrad com

university of strathclyde glasgow - Apr 01 2023

web we ve a thriving international community at the university of strathclyde with students coming here to study from countries across the world 1 billion campus investment 2008 2025 we are the university of strathclyde glasgow home to *part 1 2012 13 university of strathclyde uniport edu* - Nov 27 2022

web may 8 2023 part 1 2012 13 university of strathclyde 2 9 downloaded from uniport edu ng on may 8 2023 by guest control engineering in this book to be deeper than what you can access anywhere else as well as consistently reliable authoritative informed and relevant the content of issues in engineering research and application 2013

find student theses university of strathclyde - Jan 30 2023

web jul 3 2015 a blade resolved partitioned approach fluid structure interaction analysis of a ducted high solidity tidal turbine in real flow conditions author borg m 14 dec 2020 supervisor xiao q supervisor incecik a supervisor student thesis doctoral thesis