

## Physics 1320: Study Guide Ch 21

### Charges and Electric Forces

#### OBJECTIVES:

- To understand the nature of electric charges.
- To understand Coulomb's Law.

#### GLOSSARY:

**Electric charge:** May be positive or negative. Generally denoted by  $q$  for small charges and  $Q$  for large charges on macroscopic objects. Units of coulombs [C]. The fundamental charge element is  $e = 1.602 \times 10^{-19}$  C. This is the magnitude of the charge of an electron ( $-e$ ) and a proton ( $+e$ ).

**Point charge:** A charge that exists at a point in space but has no size. It does have an electric charge and possibly a mass.

**Continuous charge:** An object (with some size) for which electric charge is spread out over the object.

**Valence electrons:** The electrons in the outer shell of an atom.

**Conductor:** An object whose valence electrons are free to move due to an electric force. Positive charges (protons) are in the nucleus of atoms and do not move.

**Insulator:** An object whose valence electrons are NOT free to move. All electrons in an insulator are bound to their atom.

**Induction:** Movement of charge due to bringing a charged object near another object.

**Conduction:** Movement of charge due to bringing a charged object to touch another object. When the charge redistributes between the two objects, the total charge stays the same.

#### COULOMB FORCE LAW:

The magnitude of the force between two charges:

$$F = k_e \frac{|q_1||q_2|}{r^2}$$
 where  $r$  is the distance between  $q_1$  and  $q_2$ . The force is attractive if the charges are opposite, repelling if the charges are the same.

$$k = \frac{1}{4\pi\epsilon_0} = 8.99 \times 10^9 \frac{\text{Nm}^2}{\text{C}^2}$$

# Answers To Physics Ch 21 Study Guide

**J Elliott**



**Answers To Physics Ch 21 Study Guide:**

Right here, we have countless books **Answers To Physics Ch 21 Study Guide** and collections to check out. We additionally meet the expense of variant types and next type of the books to browse. The adequate book, fiction, history, novel, scientific research, as with ease as various additional sorts of books are readily genial here.

As this Answers To Physics Ch 21 Study Guide, it ends happening living thing one of the favored book Answers To Physics Ch 21 Study Guide collections that we have. This is why you remain in the best website to look the unbelievable ebook to have.

<https://navigator.inspirato.com/public/browse/HomePages/expert%20blog%20post%20ideas%20explained%20for%20beginners.pdf>

## **Table of Contents Answers To Physics Ch 21 Study Guide**

1. Understanding the eBook Answers To Physics Ch 21 Study Guide
  - The Rise of Digital Reading Answers To Physics Ch 21 Study Guide
  - Advantages of eBooks Over Traditional Books
2. Identifying Answers To Physics Ch 21 Study Guide
  - 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 Answers To Physics Ch 21 Study Guide
  - User-Friendly Interface
4. Exploring eBook Recommendations from Answers To Physics Ch 21 Study Guide
  - Personalized Recommendations
  - Answers To Physics Ch 21 Study Guide User Reviews and Ratings
  - Answers To Physics Ch 21 Study Guide and Bestseller Lists
5. Accessing Answers To Physics Ch 21 Study Guide Free and Paid eBooks

- Answers To Physics Ch 21 Study Guide Public Domain eBooks
  - Answers To Physics Ch 21 Study Guide eBook Subscription Services
  - Answers To Physics Ch 21 Study Guide Budget-Friendly Options
6. Navigating Answers To Physics Ch 21 Study Guide eBook Formats
- ePub, PDF, MOBI, and More
  - Answers To Physics Ch 21 Study Guide Compatibility with Devices
  - Answers To Physics Ch 21 Study Guide Enhanced eBook Features
7. Enhancing Your Reading Experience
- Adjustable Fonts and Text Sizes of Answers To Physics Ch 21 Study Guide
  - Highlighting and Note-Taking Answers To Physics Ch 21 Study Guide
  - Interactive Elements Answers To Physics Ch 21 Study Guide
8. Staying Engaged with Answers To Physics Ch 21 Study Guide
- Joining Online Reading Communities
  - Participating in Virtual Book Clubs
  - Following Authors and Publishers Answers To Physics Ch 21 Study Guide
9. Balancing eBooks and Physical Books Answers To Physics Ch 21 Study Guide
- Benefits of a Digital Library
  - Creating a Diverse Reading Collection Answers To Physics Ch 21 Study Guide
10. Overcoming Reading Challenges
- Dealing with Digital Eye Strain
  - Minimizing Distractions
  - Managing Screen Time
11. Cultivating a Reading Routine Answers To Physics Ch 21 Study Guide
- Setting Reading Goals Answers To Physics Ch 21 Study Guide
  - Carving Out Dedicated Reading Time
12. Sourcing Reliable Information of Answers To Physics Ch 21 Study Guide
- Fact-Checking eBook Content of Answers To Physics Ch 21 Study Guide
  - 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

### **Answers To Physics Ch 21 Study Guide Introduction**

In this digital age, the convenience of accessing information at our fingertips has become a necessity. Whether its research papers, eBooks, or user manuals, PDF files have become the preferred format for sharing and reading documents. However, the cost associated with purchasing PDF files can sometimes be a barrier for many individuals and organizations. Thankfully, there are numerous websites and platforms that allow users to download free PDF files legally. In this article, we will explore some of the best platforms to download free PDFs. One of the most popular platforms to download free PDF files is Project Gutenberg. This online library offers over 60,000 free eBooks that are in the public domain. From classic literature to historical documents, Project Gutenberg provides a wide range of PDF files that can be downloaded and enjoyed on various devices. The website is user-friendly and allows users to search for specific titles or browse through different categories. Another reliable platform for downloading Answers To Physics Ch 21 Study Guide free PDF files is Open Library. With its vast collection of over 1 million eBooks, Open Library has something for every reader. The website offers a seamless experience by providing options to borrow or download PDF files. Users simply need to create a free account to access this treasure trove of knowledge. Open Library also allows users to contribute by uploading and sharing their own PDF files, making it a collaborative platform for book enthusiasts. For those interested in academic resources, there are websites dedicated to providing free PDFs of research papers and scientific articles. One such website is Academia.edu, which allows researchers and scholars to share their work with a global audience. Users can download PDF files of research papers, theses, and dissertations covering a wide range of subjects. Academia.edu also provides a platform for discussions and networking within the academic community. When it comes to downloading Answers To Physics Ch 21 Study Guide free PDF files of magazines, brochures, and catalogs, Issuu is a popular choice. This digital publishing platform hosts a vast collection of publications from around the world. Users can search for specific titles or explore various categories and genres. Issuu offers a seamless reading experience with its user-friendly interface and allows users to download PDF files for offline reading. Apart from dedicated platforms, search engines also play a crucial role in finding free PDF files. Google, for instance, has an advanced search feature that allows users to filter results by file type. By specifying the file type as "PDF," users can find websites that offer free PDF downloads on a specific topic. While downloading Answers To Physics Ch 21 Study Guide free PDF files is convenient, its important to note that copyright laws must be respected. Always ensure that the

PDF files you download are legally available for free. Many authors and publishers voluntarily provide free PDF versions of their work, but it's essential to be cautious and verify the authenticity of the source before downloading Answers To Physics Ch 21 Study Guide. In conclusion, the internet offers numerous platforms and websites that allow users to download free PDF files legally. Whether it's classic literature, research papers, or magazines, there is something for everyone. The platforms mentioned in this article, such as Project Gutenberg, Open Library, Academia.edu, and Issuu, provide access to a vast collection of PDF files. However, users should always be cautious and verify the legality of the source before downloading Answers To Physics Ch 21 Study Guide any PDF files. With these platforms, the world of PDF downloads is just a click away.

### FAQs About Answers To Physics Ch 21 Study Guide Books

**What is a Answers To Physics Ch 21 Study Guide PDF?** A PDF (Portable Document Format) is a file format developed by Adobe that preserves the layout and formatting of a document, regardless of the software, hardware, or operating system used to view or print it. **How do I create a Answers To Physics Ch 21 Study Guide PDF?** There are several ways to create a PDF: Use software like Adobe Acrobat, Microsoft Word, or Google Docs, which often have built-in PDF creation tools. Print to PDF: Many applications and operating systems have a "Print to PDF" option that allows you to save a document as a PDF file instead of printing it on paper. Online converters: There are various online tools that can convert different file types to PDF. **How do I edit a Answers To Physics Ch 21 Study Guide PDF?** Editing a PDF can be done with software like Adobe Acrobat, which allows direct editing of text, images, and other elements within the PDF. Some free tools, like PDFescape or Smallpdf, also offer basic editing capabilities. **How do I convert a Answers To Physics Ch 21 Study Guide PDF to another file format?** There are multiple ways to convert a PDF to another format: Use online converters like Smallpdf, Zamzar, or Adobe Acrobat's export feature to convert PDFs to formats like Word, Excel, JPEG, etc. Software like Adobe Acrobat, Microsoft Word, or other PDF editors may have options to export or save PDFs in different formats. **How do I password-protect a Answers To Physics Ch 21 Study Guide PDF?** Most PDF editing software allows you to add password protection. In Adobe Acrobat, for instance, you can go to "File" -> "Properties" -> "Security" to set a password to restrict access or editing capabilities. Are there any free alternatives to Adobe Acrobat for working with PDFs? Yes, there are many free alternatives for working with PDFs, such as: LibreOffice: Offers PDF editing features. PDFsam: Allows splitting, merging, and editing PDFs. Foxit Reader: Provides basic PDF viewing and editing capabilities. How do I compress a PDF file? You can use online tools like Smallpdf, ILovePDF, or desktop software like Adobe Acrobat to compress PDF files without significant quality loss. Compression reduces the file size, making it easier to share and download. Can I fill out forms in a

PDF file? Yes, most PDF viewers/editors like Adobe Acrobat, Preview (on Mac), or various online tools allow you to fill out forms in PDF files by selecting text fields and entering information. Are there any restrictions when working with PDFs? Some PDFs might have restrictions set by their creator, such as password protection, editing restrictions, or print restrictions. Breaking these restrictions might require specific software or tools, which may or may not be legal depending on the circumstances and local laws.

### **Find Answers To Physics Ch 21 Study Guide :**

[expert blog post ideas explained for beginners](#)

[why blog post ideas 2025 for workers](#)

[affordable capsule wardrobe for creators for creators](#)

*how to capsule wardrobe guide*

[quick affiliate marketing tips for students](#)

[best ai seo tools 2025 for students](#)

**best affiliate marketing step plan for students**

[what is minimalist lifestyle tips for beginners](#)

**pro ai writing assistant tips**

[ultimate side hustles explained for students](#)

**affordable keyword research usa for creators**

*why cheap flights usa guide for beginners*

[expert ai writing assistant online for creators](#)

[affordable pilates for beginners for students](#)

*how to anti inflammatory diet usa*

### **Answers To Physics Ch 21 Study Guide :**

*read bioinspired chemistry for energy a workshop summary - Apr 30 2023*

web the workshop featured presentations and discussions on the current energy challenges and how to address them with emphasis on both the fundamental aspects and the

*bioinspired chemistry for energy ncbi bookshelf - Nov 25 2022*

web overview the role of bioinspired chemistry in improving alternative energy technologies workshop structure opening

remarks setting the

[bioinspired chemistry for energy a workshop summary to the](#) - Oct 25 2022

web bioinspired chemistry for energy a workshop summary to the chemical sciences roundtable

**bioinspired chemistry for energy a workshop summary to the** - Feb 26 2023

web bioinspired chemistry for energy a workshop summary to the chemical sciences roundtable ebook written by national research council division on earth and life

*bioinspired chemistry for energy a workshop summary to the* - Oct 05 2023

web speakers at the workshop summarized the current energy challenges such as carbon emissions population growth and cost and presented opportunities to address these

*biographies bioinspired chemistry for energy ncbi bookshelf* - Apr 18 2022

web bioinspired chemistry for energy a workshop summary to the chemical sciences roundtable show details

[read bioinspired chemistry for energy a workshop summary](#) - Aug 03 2023

web bioinspired chemistry for energy a workshop summary to the chemical sciences roundtable washington dc the national academies press doi 10 17226 12068

**bioinspired chemistry series on chemistry energy and the** - May 20 2022

web isbn 978 981 3274 43 3 hardcover usd 128 00 isbn 978 981 3274 45 7 ebook usd 102 00 also available at amazon and kobo description chapters supplementary the

*bioinspired chemistry for energy a workshop summary to the* - Aug 23 2022

web faced with the steady rise in energy costs dwindling fossil fuel supplies and the need to maintain a healthy environment exploration of alternative energy sources is essential

**bioinspired chemistry for energy a workshop summary to the** - Sep 04 2023

web the workshop featured presentations and discussions on the current energy challenges and how to address them with emphasis on both the fundamental aspects and the

**government industry and academic perspectives on bioinspired** - Jul 22 2022

web national research council us chemical sciences roundtable bioinspired chemistry for energy a workshop summary to the chemical sciences roundtable washington

**bioinspired chemistry for energy a workshop summa 2023** - Mar 18 2022

web bioinspired chemistry for energy a workshop summa 3 3 specifically the book focuses on wholly artificial man made systems that employ or are inspired by principles

*download solutions bioinspired chemistry for energy a* - Jun 20 2022

web bioinspired chemistry for energy a workshop summa alternative energy resources feb 05 2022 a balanced introduction to tomorrow s energy sources over the course of

**bioinspired chemistry for energy a workshop summary to the** - Sep 23 2022

web bioinspired chemistry for energy a workshop summary to the chemical sciences roundtable national research council us chemical sciences roundtable review

bioinspired chemistry for energy a workshop summary to the - Mar 30 2023

web faced with the steady rise in energy costs dwindling fossil fuel supplies and the need to maintain a healthy environment exploration of alternative energy sources is essential

**fundamental aspects of bioinspired chemistry for energy** - Dec 27 2022

web bioinspired chemistry for energy a workshop summary to the chemical sciences roundtable show details national research council us chemical sciences roundtable

**bioinspired chemistry for energy a workshop summary to the** - Jul 02 2023

web bioinspired chemistry for energy a workshop summary to the chemical sciences roundtable national research council division on earth and life studies board on

*robust implementation of bioinspired chemistry for energy* - Jan 28 2023

web bioinspired chemistry for energy a workshop summary to the chemical sciences roundtable show details national research council us chemical sciences roundtable

front matter bioinspired chemistry for energy a workshop - Jun 01 2023

web bioinspired chemistry for energy a workshop summary to the chemical sciences roundtable washington dc the national academies press doi 10 17226 12068

*mr men adventure with minibeasts youtube* - Feb 24 2022

web little miss tiny needs help finding her lost thimble and little miss inventor and friends help mrm men bedtime story read aloud

mr men and little miss adventure with knights - Jun 30 2022

web mr men little miss adventure with knights is a book in the mr men adventures series it was released on 22 may 2018 there is a medieval tournament at sir lance s castle and mr snooty and his friends are invited how will the mr men fare with the heavy armour jousting and sword fighting

**mr men adventure with minibeasts mr men wiki fandom** - Dec 05 2022

web mr men adventure with minibeasts is part of the mr men adventures series of books it was released on 30 may 2019 synopsis poor little miss tiny she has lost her favourite thimble and it s up to mr happy little miss inventor little miss bossy mr

strong mr tickle little miss sunshine and little miss giggles to get it back

*mr men adventure with minibeasts amazon singapore* - Oct 15 2023

web so begins an adventure in the garden with some giant minibeasts and very tiny mr men and little miss the mr men and little miss adventures take roger hargreaves beloved characters on amazing trips to other worlds and different times where they have all kinds of funny and exciting escapades

**mr men and little miss adventures collection 9 books se** - Jan 06 2023

web the books are a new larger format so that you can enjoy their inimitable stories in even greater scale bold illustrations and funny stories make mr men and little miss the perfect story time experience for children aged two and up mr men and little miss adventures collection 9 books set

mr men little miss adventures 12 books books2door - Sep 02 2022

web so begins an adventure in the garden with some giant minibeasts and very tiny mr men and little miss the mr men and little miss adventures take roger hargreaves beloved characters on amazing trips to other worlds and different times where they have all kinds of funny and exciting escapades

*mr men adventures series by roger hargreaves goodreads* - Sep 14 2023

web mr men adventures series 16 primary works 16 total works the mr men and little miss adventures take roger hargreaves beloved characters on amazing trips to other worlds and different times where they have all kinds of funny and exciting escapades more

**mr men adventure with mini beasts mr men little miss adventure** - Jun 11 2023

web jul 2 2019 mr men adventure with mini beasts mr men little miss adventure series ebook hargreaves roger hargreaves adam amazon co uk books

mr men adventure with minibeasts mr men and little miss adventures - May 10 2023

web may 30 2019 so begins an adventure in the garden with some giant minibeasts and very tiny mr men and little miss the mr men and little miss adventures take roger hargreaves beloved characters on amazing trips to other worlds and different times where they have all kinds of funny and exciting escapades

**mr men adventure with superheroes mr men little miss adventure** - Nov 04 2022

web may 31 2018 mr men adventure with superheroes mr men little miss adventure series ebook hargreaves roger hargreaves adam amazon co uk books

mr men adventure with monsters mr men wiki fandom - May 30 2022

web mr men adventure with monsters is the recent entry in the mr men adventures series it was released on 5 september 2019 little miss scary and her friends become stranded near a haunted house and encounter some spooky monsters including

a mummy a vampire and a werewolf but when mr jelly

[mr men adventure with mini beasts mr men little miss adventure](#) - Feb 07 2023

web mr men adventure with mini beasts mr men little miss adventure series ebook hargreaves roger hargreaves adam amazon in kindle store

**mr men and little miss big reading adventure national literacy trust** - Apr 28 2022

web aug 18 2017 go on a reading adventure with mr men and little miss here are all the resources you need to run a mr men and little miss themed competition in your school or early years setting the adventure includes five stories and accompanying activities suitable for children aged three to seven to promote storytelling communication and language

[mr men little miss adventures collection 12 books box set by](#) - Apr 09 2023

web mr men little miss adventures collection 12 books box set by roger hargreaves roger hargreaves adam hargreaves amazon sg books

**mr men minibeasts mr men adventure story books read aloud** - Oct 03 2022

web kids books kid s reading support us by subscribing sharing and thumbs up support the author by purchasing mr men little miss adventures collection from

[mr men adventure with mini beasts goodreads](#) - Aug 13 2023

web jul 2 2019 mr men adventure with mini beasts roger hargreaves adam hargreaves 4 50 4 ratings0 reviews little miss tiny has lost her thimble and she needs help to find it who better than little miss inventor with her shrinkometer and small search party so begins an adventure in the garden with some giant minibeasts and very tiny mr men

**mr men adventure with mini beasts mr men little miss adventure** - Jul 12 2023

web jul 2 2019 mr men adventure with mini beasts mr men little miss adventure series kindle edition by hargreaves roger hargreaves adam download it once and read it on your kindle device pc phones or tablets

[mr men adventure with superheroes mr men little miss adventure](#) - Mar 28 2022

web mr men adventure with superheroes mr men little miss adventure series ebook hargreaves roger hargreaves adam amazon in kindle store

**story time with adam hargreaves mr men little miss adventure** - Mar 08 2023

web listen in for story time with adam hargreaves the author and illustrator of the much loved mr men little miss book series as he reads the mr men book adventure with mini

[mr men adventure with superheroes mr men little miss adventure](#) - Aug 01 2022

web may 31 2018 mr men adventure with superheroes mr men little miss adventure series kindle edition by roger hargreaves author adam hargreaves author format kindle edition 4 7 4 7 out of 5 stars 264 ratings

**bca digital electronics and computer organisation syllabus 1st** - Feb 07 2023

web published on august 5 2023 by bachelor exam table of contents 1 unit i logic gates and circuits digital electronics and computer organisation 2 unit ii combinational building block digital electronics and computer organisation 3 unit iii memories digital electronics and computer organisation

download bca university 1st sem digital electronics bca notes notes - Sep 14 2023

web download digital electronics bca notes bca university notes questions from last year s exams curriculum books and study materials for the 1st sem semester at bca university

for allahabad state university students digital electronics - Apr 28 2022

web bca iind sem course code digital electronics bca s109 prepared by sushant srivastava assistant professor kulbhashkar ashram pg college formal proof of demorgan s theorems demorgan s theorems a a b a b b a b a b note and operation proof of demorgan s theorem b

bca sem 3 unit 3 pdf digital electronics i notes teachmint - Apr 09 2023

web jan 8 2022 bca sem 3 unit 3 pdf digital electronics i notes teachmint

*bca digital electronics notes 1 sem pdf* - Jan 06 2023

web bca digital electronics notes 1 sem advances in micro electronics embedded systems and iot sep 30 2022 this book discusses the latest developments and outlines future trends in the fields of microelectronics electromagnetics and telecommunication it contains original research works presented at the international

**download free bca digital electronics notes 1 sem** - May 30 2022

web digital electronics handwritten notes mar 13 2023 digital electronics handwritten notes is written by niranjan kumar it is specially prepared for ies gate psu and state level enginerring services digital electronics ii class notes computer handbook apr 14 2023 foundation of digital electronics and logic design dec 18 2020

*digital electronics notes for asu bca 2nd sem* - Feb 24 2022

web k rrrh surn sun sum tún cell½ sum scanned with camscanner

*bca sem3 unit 2 pdf digital electronics i notes teachmint* - Nov 04 2022

web jan 11 2022 notes of bca digital electronics i bca sem3 unit 2 pdf study material dashboard login login feedback logout bca sem3 unit 2 pdf learning management system assessments fee management student information system admission management student tracking system

digital electronics bca notes digital electronics studocu - Oct 15 2023

web digital electronics principles devices and applicationsis a comprehensive book covering in one volume both the fundamentals of digital electronics and the applications of digital devices and integrated circuits it is different from similar

books on

**digital electronics and computer organisation bca solved** - Mar 08 2023

web aug 5 2023 discover thorough notes on digital electronics and computer organisation from bca solved exam papers to succeed in your studies reveal the fundamentals of digital circuits and computer architecture dudes you want more useful details regarding this subject please keep in mind this as well

digital electronic and computer organisation bca notes - Aug 13 2023

web nov 17 2022 digital electronic and computer organisation bca notes in this article have bca 2nd semester digital electronic and computer organisation unit wise notes here all unit notes available for digital electronic and computer organization digital electronic and computer organisation bca notes unit 1 logic gates and circuit

**digital electronic bca 104 studocu** - Jun 30 2022

web studying digital electronic bca 104 at bangalore university on studocu you will find 28 lecture notes practice materials tutorial work essays and much more for

**digital electronics notes for bca 2023 cyberlab sutd edu sg** - Aug 01 2022

web digital electronics notes for bca the ag electronics notes nov 10 2021 study notes for technicians feb 25 2023 notes for a course in physical electronics jun 24 2020 integrated circuits study guide with answer key apr 15 2022 integrated circuits study guide with answer key trivia questions bank worksheets to review

**number system notes complete digital electronics teachmint** - Dec 05 2022

web aug 26 2022 notes of bca electronics 1st sem digital electronics number system notes complete study material

**digital electronics and computer organisation bca 204 studocu** - Mar 28 2022

web studying digital electronics and computer organisation bca 204 at chaudhary charan singh university on studocu you will find 39 lecture notes mandatory

digital electronics and computer organisation b c a study - Jul 12 2023

web digital electronics and computer organisation unit 1 logic gates and circuit unit 2 combinational building blocks unit 3 memories unit 4 sequential building blocks unit 5 memory organisation like this loading

**subject digital electronics code bca 106 unit i** - Oct 03 2022

web fan out is a term that defines the maximum number of digital inputs that the output of a single logic gate can feed most transistor transistor logic ttl gates can feed up to 10 other digital gates or devices thus a typical ttl gate has a fan out of 10 characteristics of ecl nonsaturated digital logic family propagation rate as low as 1 2ns

*lecture notes for digital electronics engineering docsity* - Sep 02 2022

web download now thousands of lecture notes in digital electronics on docsity prepare for your exams get points guidelines

and tips lecture notes for digital electronics for engineering s students no documents found press enter to search latest

uploaded digital electronics for bca boolean notes for engineering students

*bca sem3 de unit 1 pdf digital electronics i notes teachmint* - Jun 11 2023

web jan 8 2022 *bca sem3 de unit 1 pdf digital electronics i notes teachmint*

**bca sem 3 unit 4 pdf digital electronics notes teachmint** - May 10 2023

web jan 8 2022 *bca sem 3 unit 4 pdf digital electronics i notes teachmint*