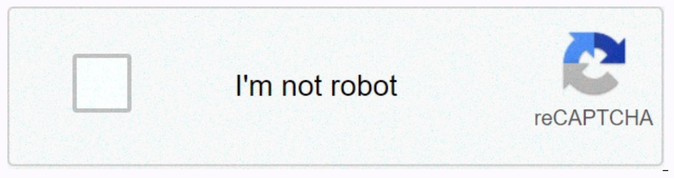

Continue

Physics textbook pdf class 10 ssc

Telangana 10th Textbook 2021, (తెలంగాణ 10 వ తరగతి పాఠ్య పుస్తకం 2021), TS SSC Book 2021 (*all topics) pdf Download 2021, TS SSC Textbook 2021 (*all subjects) responsible for the responsible promotion and development of Telangana Education of Secondary Education, Responsible Education of Telangana Education BSE Public Private Schools Board of Education under the State Government, BSE Telangana, BSE Telangana conducted 10 class exam month March 2021, Telangana 10-class textbooks 2021 free distribution of government schools for student educational purposes, thus including all subjects in TS SSC textbooks 2021 Rach Telangda exam Year 10 textbooks have in-depth knowledge of each topic, annual year 10 schools, after the summer school holidays every June, lark of students enrolled in government schools and private schools *Latest update: Secondary Education Board, Telangana State Short-flowing BSET , Telangana's Board of Education, a government agency in Telangana, has released a December and January exam schedule for all high school education level students with year 10 students, where they have updated the Telangana Grade 10 textbook 2020-2021 pdf for all middle school students. Below telangana 10 class book 2021 Pdf30% response solution Telangana 10 book 2021telangana 10 textbooks 2021 Board of Education Telangana Name of secondary education textbook Education Board Government Education Standard 10 / Secondary school name of Costellougu, Hindi, English, Mathematics, Environment, Sociology, Physics, Biology Book Download Telangana 10 Textbooks 2021 All Topics PDF Format Download Official Websitewww.bse.telangana.gov.inTelangana 10 Textbooks 2021 Educational Research and Education State Council is responsible for designing textbook course curriculum for students in class 10. The organization is the group's group that is also looking to provide students with quality education by providing them with better learning materials. For students' convenience, we have compiled all the research materials needed to prepare for the SCURT Telangana Class 10 exam here. So, go through this complete article and get research materials to help your private college students pay your amount after free student TS 10 class books 2021 all subjects offer Telangana 10 class books 2021, students will not relax with any damage to your book, our web portal Provident Telangana SSC textbook 2021, All Biology, English Wise PDF format download Telangana 10 Class Book 2021 serves as an effective learning research resource for high school students. SCERT Telangana 10 Class Textbook 2021 helps students understand in-depth concepts. The 10th Grade Book 2021 Telangana Textbook 2021, which is asked for in this exam, is based on an expert's textbook pattern published by the State Board of Education, Research and Training, and recommends that students download the Telangana Board Year 10 textbook 2021 to learn the textbook test. In TS SSC textbook 2021, the content described in this book is easy to understand and interesting. Students will learn the concept by practicing exercise important questions after completing all Chapter Telangana 10 class textbooks 2021, TS SSC books 2021 all topics Pdf download TS 10 class text books 2021 download Telangana 10 textbooks 2021, TS SSC Books 2021 (*All Topics) PDF Downloads, BSE Telangana 10 Class Book Downloads Telangana 10 th Textbooks 2021 Telangana SSC Textbooks 2021 Telangana SSC Textbooks 2021 (English Medium) Research Materials Download Telugu Books (English Medium), Download Hindi Books (English Medium) Download English Books (English Media) Download Physics Books (English Medium) Download Physics Books (English Medium) Download Social Research Books (English Medium) Download Telangana 10 Class Text Books 2021 (Telugu Media) Research Materials, Research Materials, Important Questions Download AP 10th Telugu Medium Textbook 2021 Download TS 10 Class English Medium Textbook 2021 Download TS 10th Grade Urdu Chinese 2021 Download TS 10Th Grade Hindi Medium Textbook 2021 Download TS 10 Class Kannada Medium Textbook 2021 Download Telangana 10th Grade Maratti Medium Textbook 2021 Telangana Class 10 Tamil Medium Textbook 2021 Comprehensive Textbook covers all important content for the course and also provides appropriate indicators for the school year. As the AP SSC syllabus is updated, the topics covered in Class 10 will change accordingly. Therefore, we can say that ap SSC Class 10 science textbooks also rely on syllabuses prescribed by the Andhra Pradesi Committee. The science textbooks used in AP Class 10 are separated into two subjects: physical sciences and biological sciences. Read more about ap ssc science textbooks here: Students can also refer to the AP Class 10 question paper here. Chapter Details on AP SSC Classes 10 Physical Science Books Chapter Wise Details AP SSC Class 10 Biological Sciences Book Students can also download the full textbook from Below: AP SSC Class Download 10 General Science Textbooks Class 10 Physical Science Textbooks Class 10 Biological Sciences Textbooks Why Use AP SSC Classes 10 General Science Textbooks? After much analysis, the subjects experts who created the book are described as an easy way for the complex teachers of the scientific formulas who created the book to provide projects based on this book, and an overview of the book where students can prepare for exams ap board classes and AP Ssc research materials can be found at BYJU's SSC for an overview of other resources. Science is a topic where you have the opportunity to make a full score. How? By continuously practicing biologically labeled diagrams, physical circuit diagrams, and chemical reactions in each chapter. Also, the exercise questions given on the back of every chapter are perfectly always good. In addition, they can solve the Maharashtra SSC board question paper PDF as well. The general science topics introduced for year 10 students are the basics of the concepts to be taught at the HSC. The Maharashtra Committee's Part 1 Science Part 1 textbook introduces the following chapters: The Class 10 Science Part 2 textbook covers herotti and evolution, part 1 of the life process of living organisms, part 1 of the life process of living organisms, environmental management, green energy, animal classification, cell biology and biotechnology, microbiology introduction, social health, disaster management. Download MSBSHSE 10 std Science Textbook Marati, a free PDF of class 10 science textbooks for the Maharashtra State Council according to hindi English MSBSHSHSE's latest syllabus is available here. Download the General Science PDF for SSC from the link below. Download the textbook PDF from Maratti, under english and Hindi and other important links: MSBSHSE Question Paper MSBSHSHSE Sample Paper Maharashtra SSC Board and stay tuned for more information on its resources. 1. iFreedistributionbyA.P.Government Sri M. Ramabramam, Lecturer, Govt.IASE, Masabtank, Hyderabad. Professor Kamal Magendru, Vidya Bavan Education Resource Centre, Uddypur, Rajasthan. Dr. TVSRamesh, Co-Co-co-; T Department, SCURT, AP, Hyderabad. Miss. Preti Misra, Vidiyababan Center for Education and Resources, Uddypur, Rajasthan. GovernmentAndra Padeci, editor of Coordinated Academic Support, published by the government of Hyderabad. According to the law science physics physics science physics class X PhD. B Krishnazulu Naidu, Retd., University of Physics Osmania, gets the rights grown by Professor Hyderabad. Dr. M.Adinarayana, Retd., Professor University of Osmania, Hyderabad. Dr. M Salagram Retd., Professor of Physics Osmania University, Hyderabad. Dr. K.Benkateswara Rao Rhett, leader of The Chemical NewScience College Hyderabad. N. Uppendaredi, Ph.D., C&D; T Department Professor, SCURT., A.P., Hyderabad. Dr.C.V. Sarveswara Sharma Reed, reader of physics Amalapuram. 2. ii © Andhra Padeci, Hyderabad. The new edition first published in 2014 right to book. No part of this publication may be duplicated, stored in the search system, transmitted in any form or in any form, and the Publisher may not distribute it to the Publisher, in any form of similar terms, and may not be replicated without the conditions imposed on subsequent buyers. The rights owner of the copy of the book is the director of school education, Hyderabad, Andhra Pradesh. We used some photos that are under a creative common license. They are acknowledged at the end of the book. The book is 70 G.M. S. Maplitho, title page 200 G.S. . Printed on free distribution of white art cards printed in India by the M. Andhra Padeci government. 3. iiiFreedistributionbyA.P.Gov SriR.AnandaKumar, SA, ZPHSGavaravaram, Visakhapatnam. Sri Madusodana Reddy Dandala, SA, ZPHS Munaula, Flying. Sri S. NaushadAli, SA, ZPHS G.D. Neller, Chitor. Sri S. Bramanda Reddy, SA, ZPHS Imadikerubu, Prakasam. Sri S.U. Shiva Ram Prasad, SA, GBHS Seultanbazar, Hyderabad. Sri K.V.K. Srikanth, SA, GTWAHS. L. Puram, Srikakulam. Sri M. Eswara Rao, SA, GHS Sompeta, Srikkulam Sri K. Gagan Kumar, SA, ZPHSMirzapur, Nizamabad. Text Book Development Committee Writer Cover Page, Graphics and Design Sri G. Gopaledi, Director, S.C.E.R.T., A.P., Hyderabad. Sri B. Sydkar, Government, Government Textbook Printing Paper, A.P., Hyderabad. Dr. N. Upendaredi, C&D; Professor of T Department, S.C E.R.T., A.P., Hyderabad. Sri M. Ramabramam, Lecturer, Govt.IASE, Madagascar, Hyderabad. Sri K. Sydakara Charlie, SGT, UPS Neelikurthy, Urangal. Srikura Schurshi Bbu, B.Tech, MA., MPhill. Mana Media Graphics, Hyderabad. Sri Kisan Kysoju, Graphic Designer, C&A TDept., SCURT, AP, Hyderabad. 4. Iv Introduction ... We believe that year 10 education is a key aspect of school education and a turning point in a student's life. Currently, 10 class science textbooks in the hands of are developed in accordance with national and national curriculum frameworks and educational rights laws. The book helps students review the various concepts learned through the learning experience provided by the school and gain a comprehensive knowledge of these concepts. Textbook lessons are provided in a way that helps students prepare for competitive exams and prepare for intermediate education. The new science textbooks are specifically designed with appropriate education in harmony with the ongoing comprehensive assessment (CCE) we are now implementing in school education. This textbook helps teachers evaluate the students they are learning while teaching the learning process. In addition to gaining knowledge of concepts, they promote effective learning of various concepts of science in scientific ways. Because students must complete board exams in Grade 10, it is essential to complete the syllabus at a set time. However, the completion of the syllabus means that students understand the concept and strive to achieve their learning skills. Teachers should implement educational strategies, such as reading textbooks, discussions, analysis, laboratory activities, field learning, and report preparation. Teachers should take special care to avoid the practice of rotten memorization of scientific information from guides and question banks. Classroom education in science should be done in a way that encourages children to think and work scientifically. We also need to increase our love for nature. Even it should be able to understand and appreciate the laws governing nature in building so much diversity all around. Scientific learning doesn't just reveal anything new. It is also important to move forward without interfering with interdependence and interdependence, with an understanding of the intrinsic principles of nature. High school children have the cognitive ability of understanding the nature and characteristics of the changing world surrounding them. And you can analyze abstract concepts. At this level, we can't soak up their sharp thinking skills with dry education of simple equations and theoretical principles. To do this, we need to create a learning environment in the classroom where they provide an opportunity to explore multiple alternatives to solving problems that apply scientific knowledge and establish new relationships. Scientific learning is not just confined to the four walls of the classroom. It not only has a clear connection to the lab and field. Therefore, there is a lot of importance in the field of scientific education experience/experimentation. 5. vFreedistributionbyA.P. The government needs to implement the guidelines of the National Curriculum Framework - 2005, which emphasizes the connection between scientific education and the local environment. The Right to Education Act of 2009 also suggested that children's ability to learn should be prioritized. Similarly, science education should be in such a way that it will help foster a new generation with scientific thinking. A key aspect of science education is to make children understand the thought process of scientists and their efforts behind them Search. National Curriculum Framework - 2011 stated that children should be able to express their ideas and opinions on various aspects. This scientific text book is ready to meet the set standards of SCF and thus supports children who become self-reliant researchers who can think intensely in scientific terms. New textbooks are developed to achieve the desired academic standards. Therefore, teachers need to develop a variety of educational learning strategies to help students achieve class-specific academic standards. We should avoid rotten learning methods for the successful implementation of continuous comprehensive assessment (CCE). It's a big deal to know more about how to evaluate a student's progress with a comprehensive and formative assessment. The new textbook reflects ongoing comprehensive evaluation and education methods for the concepts discussed. This is very useful for teachers and students. The design of concepts and activities in new textbooks will help you achieve specified academic standards. Teachers should plan appropriate educational strategies to improve academic standards among students to the end of the lesson. For the effective implementation of continuous comprehensive evaluation, education should be far from the method of rotten memorizing of East Sea this. Teachers should have a good understanding of how assessments can help assess children's progress in a constructive and comprehensive way. New textbooks are not limited to simply providing the necessary information about the concept. Instead, they are focusing on new educational strategies and assessment techniques that are very important to both teachers and students. We are grateful to the Vidyababan Society, Rajasthan for their cooperation in designing new textbooks, writers for preparing lessons, and editors checking text issues with the DTP group who wrote the textbooks cutely. We suggest that educators, teachers, parents, students, and others make this book more meaningful. Teachers play a pivotal role in the comprehensive use of children's textbooks. We want our teachers to do their best to properly utilize textbooks to instill scientific thinking among children and make them good scientists. SCURT, AP, Hyderabad 6. vi Dear teacher ... The New Science TextBooks Reserve develops children's observation and research processes. The official documentation of national and national curriculum framing works, and the right to educational law pairings have a significant path to scientific education. This textbook is adopted according to such aspirations. Therefore, science teachers need to adapt to a new approach in education. In this view, watch for specific to-dos and things you don't do: • Teaching in 10th grade means that children prepare for announcements. In Year 10, the curriculum should strive to achieve academic standards. • Avoid practices such as using guides and question banks to ask children to read

only important questions. • Before reading classes thoroughly, you should start training and surf thedethertext. Then there are the fairy tale concepts that make toronto theory • The expressions and idea of encouraging children, and the answers, weighting • Collecting specific information from the collection of cultures on the school book according to some guidelines, and make-it-to students. • In public inspections, weights are given to all aspects of the syllabus. Everything else should be treated as part of the curriculum, except for the fore text of the textbook. • The text concept comes in two ways: one as classroom training and the other as laboratory performance. • Laboratory activitiespartarepartandparcelowalesson. So, teachers should conduct all activities, but separately. • Teacher advisory advice includes translation classes during the following educational phases - mind mapping, reading lessons and identifying new words by children, conducting activities, demo discussions, and conclusion assessments. • Inthetext, some special activities, express box entries: 'thinkanddiscuss, letusdo, conducted in-view, preparation reports, display monthly catches, participating theater days, field observations, organized special days'. Toperformallofthemis needed. • Abbreviations given at the end of each question in the Learning Improvement section (A.S.) indicates that it is academic. • Collection information websitesource, pass-onto students sothatcan@yna.co.kr • Science clubs such as planandexecuteactivities, elocution, drawing, writing poetry, creating models etc.to develop positive attitudes among children about environment, biodiversity and ecological balance. 7. viiFreedistributionbyA.P.Government • As part of an ongoing comprehensive assessment, observation and recording of children's learning skills during a number of activities in the laboratory, laboratory and field. We believe, you realized, that learning and science thinking is not just about drilling lessons, but in fact, a valuable exercise that motivates children to explore, systematically prepare for problems, and prepare properly. Dear students... Learning science does not mean a good score on the subject. They are told to do what they have learned and their daily lives, such as thinking. Toachievethis, instead of copycat science theorybyrote, onemustbeableto Progress, explanation, conducted experiments, confirmation observations, confirmationwithyourownideasanddrawing theory. This textbook learns about utos in the very process. What you need to do to achieve this: • 10-class, wide variety of concepts. Therefore, each class passes thoroughly and actually bears fruit. • Be careful what you come across so you can learn better lessons. • Consider the principles of the lesson. Identify concepts that you need to know more to understand the lessons in depth. • DonomansAltorontoron talks about this. • During the heart of Yumeiget Island, you can express your experiment theory freely. • Implement an experiment/lab period with your teacher to clearly understand the concept. You can get to know a lot of things while learning through experimentation. • Observations of the nature that can help you. Putwhatyou wasintopractice. • Analysis And Education Point Relationship Daily Life and Discussion Discuss what you learned with farmers and craftsmen in your science class. • Work as a group during interviews and field trips. Preparing and displaying reports is mandatory. Discuss prepared reports. • Conduct educational studies on list-view and internet, school libraries and laboratories. • Whether notes are notes, writing or not, expressing your opinions. • Read as many textbook-related books as possible. • YouorganizeyourselfTheScienceClubprogramsyour School. • Observation problems straight away from fat and search out solutions You can suggest through your science school. 8. viii Academic Standards S.No. Academic Standards Description 1. 2. 3. 4. 5. 6. 7. Conceptual understanding asks questions and conducts hypothesis experiments and field research. Information technology and project communication through drawing, models that create awareness and aesthetics, applications for daily life, interest in biodiversity. Children can explain the process of a given concept in a textbook, cite examples, give reasons, and give comparisons and differences. Children can develop their own brain mapping. Children can ask questions, clarify concepts, and participate in discussions to understand. They can create hypotheses on a given problem. To understand a given concept in a textbook, children can experiment on their own. They can participate in field surveys and report on them. Children can collect and systematically analyze information (using interviews, internet, etc.). They can do their own project work. Children can draw and create models to explain conceptual understanding. You can plot graphs. Use the given information or collected data. Children can appreciate human power and nature and have an aesthetic sense of nature. They can also follow constitutional values. Children can take advantage of science concepts that confront their daily situations. They can show an interest in biodiversity. 9. ixFreedistributionbyA.P.Government when opened 11111 chemical reaction and equation22222 reflection of light by other surfaces3333 acid, Refraction of light from gas and salt44444 flat surface55555 Refraction of light from curved surface 66666 Classification of human eye and colorful world77777 elements - Periodic table 9999 101011111111 111 1121212121222[131] 3131313 Carbon and compounds14141414 Reference 86/19 8 July 20-68 8 Aug 45-68 8 Aug 69 99 8 days 8 August 69-1111 10 Dec 134413131313131313141300)00000-134413000 135-159 5 October 16 0-175 10 Nov 176-201 10 Dec 228-227 September 228-257 10 Dec 258-285 5 Jan 286-301 1222-341 342 Chemical Bonding Index 10. x Our country - Rabindranattavore Jana Ghana Mana adhinayaka Jaya he Bharatha bhagya-vidha Punjab Sindhu Gujarata Marata Dravida Ukala Banga. Vindia Himashala Jamuna River Oushala Jaladi Taranya, Taba Schwa name jage Tava shubha asisha mage Gahe Taya Jaya Gatta Gatta Gana Mangala Deiaka Jaya he, Bharata Bagaya-vidhaha, Jaya, Jaya He, Jaya Heya all Indians are my brothers and sisters. I love my country and am proud of my rich and diverse heritage. I will always try to be worthy. I will pay my respects to my parents, teachers, and all elders and treat everyone with courtesy. I will be kind to animals. We are committed to our country and our people. Their welfare and prosperity alone are my happiness. 11. Remember the experiments made in class 7 with a glass tumbler containing FreedistributionbyA.P.Government 1 cold water, lukewarm water and hot water. We understood that 'hot' and 'cold' are relative terms and that heat is a form of energy. We use the term temperature and heat to describe these observations. These words have a special technical meaning. To understand what they mean, activity activity 1 You can take out wood fragments and pieces of metal and store them in a refrigerator or ice box. After 15 minutes, take them out and ask a friend to stand and touch them. • What is cold? For what? When we store the ingredients in the refrigerator, they lose heat energy, that will be colder. Pieces of iron and wood were kept in the fridge for the same period, but the pieces of metal feel colder than the pieces of wood. • What is the reason for this difference in cold? • What does it have to do with the transmission of thermal energy in our bodies? Object? When you touch a piece of metal or wood, you feel cold. This means that heat energy is being transferred from the fingers to the pieces. When you lift your finger, you don't feel 'cold'. In other words, when heat energy flows out of your body, you get a feeling of 'coolness' and when it comes into your body, you feel like it's going to be 'hot'. You can test this by bringing your finger near the flame of the matchbox! Column 1 Chapter 12. Heat2 X Class So, if a piece of metal is thought to be 'colder' than a piece of wood, it means that more thermal energy flows out of the body when you touch a piece of metal compared to a piece of wood. In other words, the 'degree of cold' of a piece of metal is more 큼 piece of wood. The conventional definition of temperature is the degree of hotness or cold. We say that pieces of metal are at a lower 'temperature' compared to pieces of wood when they are pulled out of the fridge. • Why does the transmission of thermal energy take place between objects? • Does the transfer of heat happen in all situations? • What are the transmission conditions for thermal energy? To find out the heat equilibrium heat and temperature, when two bodies are placed in thermal contact, the thermal energy is transferred from the 'hoter' body to the 'colder' body. This transfer of thermal energy continues until both bodies reach the same degree of hotness (or) cold. At this stage, we say that the body has achieved 'thermal equilibrium'. Therefore, the state of thermal equilibrium indicates the state of the body that receives or does not provide thermal energy. If you don't feel hot or cold around you, your body is said to be in the ambient atmosphere and thermal flats. Similarly, the furniture in the room is in the air and heat equilibrium in the room. So we can say that the furniture and air in the room is at the same temperature. What is heat and temperature? • How can I distinguish it from a column? Remove 2 cups of activity and fill with hot and cold water. Now take a laboratory thermometer, observe the level of the water on it and pay attention to the book. Store in hot water. Observe changes in the levels of the number of people. Record the read. • What changes did you find when reading the thermometer? (The level of the 1000s)? 13. Free-weightedByA.P.Gov. 3 • Has the level of the blood increased or decreased? Now place the thermometer in cold water and observe changes in the level of the water. Has the level decreased or increased? We know that the body in contact achieves thermal equilibrium due to the transmission of thermal energy. Keeping the thermometer in hot water observes rising levels of the water. this happens because there's a column transferred from the column The body (the water of the thermometer) which is cold in the body (hot water). Similarly, in the second case, you will observe the level of the water coming down from the initial level, since it transfers heat from the water (the hoter body) to the water (colder body). Therefore, we define heat as follows: heat is a form of transport energy that flows into the body from a higher temperature to a lower temperature at body temperature. The decorating of the thermometer's column indicates that the flow of heat between the thermometer liquid (the water) and the water has stopped. Thermal equilibrium was achieved between water and thermometer liquid (water). In thermal equilibrium, thermometer readings provide temperature. Therefore, 'temperature' is a measure of thermal equilibrium. If two different systems, thermal contact A and B are in thermal equilibrium individually with different systems C (thermal contact with Aand B), will system Aand B be in thermal equilibrium with each other? We know that C and Ais in thermal equilibrium, both have the same temperature. Similarly, the temperatures of B and C are the same. Therefore, A and B have the same temperature, so they will be in thermal equilibrium with each other. (A, B and C are in thermal contact). Si units of heat are line (J) and CGS units are calories (cal). The amount of heat needed to raise the temperature of a gram of water to 10°C is said to be calories. 1cal = SI units with a 4.186-a-line temperature are Kelvin (K). It can also be expressed in Celsius (0C). 00 C = 273K • How would you switch to Kelvin for Celsius conversion? Kelvin's Temperature = 273+ Degrees Celsius Adds 273 to the celsius temperature value to obtain the temperature of the Kelvin scale. 14. Heat4 X Class Note: The temperature measured on the Kelvin scale is called absolute temperature. Temperature and exercise energy activity 3 second with hot water and cold water to bring two bowls. Gently sprinkle the food color on the surface of the water in two bowls. Observe the movement of small grains of food color. • How do you move? • Why do you move randomly? • Why do grains in hot water move faster than grains in cool water? You'll find that food is grain of color shaking (go randomly). This occurs because the water molecules in both bowls move randomly. Compared to shaking in cold water, we observe more shaking of food-colored grains in hot water. We know that the body has motor energy. Since the speed of movement of particles (grains of food color) in water bowls is different, we can say that they have different motor energies. So we conclude that the average motor energy of molecules/particles of a hot body is greater than that of a cold body. So we can say that the temperature of the body is an indicator of The average motor energy of its body's molecules. The average motor energy of the molecule is directly proportional to the absolute temperature activity 4 take water in a container and heat it to 60 °C. Take a cylindrical transparent glass jar and fill half of it with this hot water. Pour coconut oil onto the surface of the water very gently. (Be careful not to mix water and oil). Close the lid with two holes on top of the glass jar. Take two thermometers and insert them through the holes in the lid in such a way that the bulbs of one thermometer lie inside the water and only inside the coconut oil, as shown in the other Figure 1. Fig-1 Hot Water Coconut Oil Thermometer Lid 15. Free worship. P.Government 5 now observes the readings of both thermometers. The readings of thermometers stored in water decrease, while at the same time increasing the readings of thermometers stored in oil. • Why does this happen? Because the average motor energy of oil molecules increases, the average motor energy of water molecules decreases. That is, the temperature of the oil increases while the temperature of the water decreases. • Can I say that water loses energy? In the discussion above, it is clear that while oil gets energy, water loses energy. Because of the temperature difference between water and oil. Therefore, some thermal energy flows from the water to the oil. In other words, the motor energy of the water molecule decreases while the movement energy of the oil molecule increases. • Can we now distinguish between heat and temperature based on the discussion we have created with the above activities? Activities 2, 3, and 4 can distinguish between heat and temperature as follows: Hitiste Energy is an exercisetoachodevadi. Therefore, temperature determines the direction of the heat (energy) flow, whereas heat is the flowing energy. Take a large jar with 5 water for certain thermal activities and take up to 80o C. Take two identical boiling test tubes with a single hole cork. One of them is filled with 50 g of water and the other is filled with 50 g of oil at room temperature. Insert two thermometers through a hole in the cork, one each in two test tubes. Now place the clamping theemaa retort stand in the hot water jar as shown in 2. Observe the readings of the thermometer every three minutes. Check the readings on the notebook. • Which of the untested levels of electricity rises rapidly? Fig-2 room temperature oil 80o C hot water from water 16. Heat6 X class • Is the amount of heat given to water and oil the same? How can I assume this? We believe this is because the same amount of heat is stored in jars of hot water at the same intervals as it is supplied to water and oil. We have an upward rate The temperature of the oil is higher than the rise. • Why does this happen? We conclude that the rate of temperature rise depends on the nature of the material. Take 250ml of water to the Activity 6 beaker (small beaker) and 1 litre of water to another beaker (larger beaker) and use a thermometer to record the initial temperature (the initial temperature must be the same). Now heat the two beakers until the temperature of the water rises to 60 0C. • Which beaker does need more time? Compared to the water in smaller beakers, you can see that it takes more time to increase the temperature of the water in a larger beaker. This means that for the same change in temperature, a small beaker must supply more heat energy to the water in a larger beaker (greater quantity of water) than water. The amount of heat (Q) absorbed by the material for the same change in temperature is mass (m) $Q \propto m$ (when ΔT is constant).... (1) Now take 1 liter of water in a beaker and heat it over a constant flame. Record the temperature change (ΔT) every two minutes. • What do you know? With the only public body temperature rise, that is, the change in temperature for the mass (m) of water means that it is proportional to the amount of heat (Q) absorbed by it. $Q \propto \Delta T$ (when 'm' is constant).... (2) In equations (1) and (2), we have $Q \propto m\Delta T$ $Q = mS\Delta T$ where ''s' is the schedule for a given material. This constant is called the specific heat of the material. 17. FreedistributionbyA.P.Government 7 Q S = –--The specific heat of the mΔT material is the amount of heat required to raise the temperature of the unit mass of the material as a unit. • How much thermal energy does it take to increase the temperature of the unit mass of a substance to 1 °C? CGS unit of a particular column is Cal / g-o C and SI unit J / kg-K 1 cal / g-o C = 1 kcal / kg-K = 4.2 x 103 J / kg-K we saw that the rise in temperature depends on the characteristics of the material; Therefore, the specific heat of the substance depends on its nature. If a particular column is high, the rate of rise (or descent) of the temperature is low for the same amount of heat supplied. It gives us an idea of the degree of 'rejection' of the material to change the temperature. • Why are certain heats different for different substances? Let us find out. We know that the temperature of the body is directly proportional to the average motor energy of the particles in the body. Molecules (body or substance) in the system have other forms of energy, such as linear motor energy, rotational motor energy, vibrational energy, and potential energy between molecules. The total energy of a system is called internal energy. System. When we supply thermal energy to the system, the thermal energy given to it will be shared by molecules among various forms of energy. This sharing may vary from substance to substance. Temperature rise is high for the material when the maximum share of thermal energy is utilized when increasing the linear kinetic energy. This sharing of the thermal energy in the system depends on the temperature. That is why certain heats are different for different substances. If you know the specific heat of a material, you can use the water source $Q=mS\Delta T$ material specific heat to determine the amount of heat (Q) required to increase the temperature of a particular mass of material through a specific degree. C/kg-K Lead 0.031 130 Brass 0.033 139 Brass 0.092 380 Zinc 0.093 391 Copper 0.095 399 Iron0.115 483 Glass (Flint) 0.12 0.12 504 Aluminum 0.21 882 Oil 0.50 2100 Ice 0.50 2100 Ice 0.50 2100 Ice 0.50 2100 Water 1 4180 Sea Water 0.95 3900 18. Heat8 X class specific thermal capacity for applications 1. The sun provides a large amount of energy to earth every day. The earth, especially the ocean's water source, absorbs this energy to maintain a relatively constant temperature. The sea behaves like a heat shop house for the earth. They can absorb large amounts of heat at the equator without a significant rise in temperature due to the high specific heat of the water. Therefore, the sea moderately regulates the ambient temperature near the equator to the equator. The waters of the sea transport heat to areas far north and close to the Antarctic from the equator. This transported heat helps to alleviate the climate of some parts of the earth, far from the equator. 2. The water melon taken from the refrigerator maintains its coolness for a longer time than other fruits because it contains a large percentage of water. (Water has a certain heat that is larger). 3. It seems to be outside the samosa, but the curry inside the samosa contains ingredients with a higher specific heat, so it is hot when eaten. Mixture activity method - 7 situations - 1: take two beakers of the same size and pour 200 ml of water each. Now heat the water until you get the same temperature from both beakers. If you pour this water into a larger beaker from these two beakers, what temperature can you expect the mixture to be? Measure the temperature of the mixture. • What do you observe? • What is the reason for the fact that you observed? Situation – 2: Now heat the water in one beaker to 90o C and the other to 60o C. Mix the water of this beaker with a larger beaker. • What is the temperature of the mixture? • Measure the temperature of the mixture. What did you find? • Can you give a reason for the temperature change? Situation – 3: Now take 100 ml of water from 90o C and 200 ml of water from 60o C and mix the two. • What is the temperature of the mixture? • What differences Are you careful with changes in temperature? Let us find out. The sample's initial temperatures of mass m1 and m2 are T1 and T2 (the higher of the two temperatures is called T1, and the lower one is called T2). Do not allow the mixture to become the final temperature. 19. Priddisforivaia. The temperature of the P.Government 9 mixture is lower than the temperature of the hoter sample, but higher than the temperature of the colder sample. This means that the hot sample has lost heat, and the cool sample is getting heat. The amount of heat lost by the more hot sample Q1 is m1 S (T1-T). The amount of heat obtained by cooler sample Q2 is m2 S (T-T2). Since the heat lost by the hot sample is the same as the heat obtained by the cooler sample (no heat loss), that is, M1 S (T1-T) = M2 S (T-T2) can be recorded as Q2 = M2 S (T-T2) it can be known the temperature is not the same as the temperature of 3 °C that can be simple – it can be known the temperature of 3 –. • Can you guess the reason for this? • Can I use a thermometer to find the temperature of the mixture? The principle of the mixture is that at different temperatures, two or more bodies are brought into thermal contact, and then the net heat lost by the hot body is equal to the net heat obtained by the cold body until it achieves thermal equilibrium. Net heat loss = net heat gain (if the heat is not lost by other processes) This is known as the principle of the method of the mixture. Determine the specific heat of the solid target: to find a specific column of a given solid. Required materials: calorimeter, thermometer, agitator, water, steam heater, wooden box and lead shot. Calorie-based, m1 =... Now fill a third of the calorimeter with water. Measure mass and temperature. Calorie system mass plus water, m2 = ... Mass of water, m2 –m1 = water temperature in caloric system, T1 = ... Note: The caloric system and water are at the same temperature. Lab Activity 1 20. The Heat10 X Class has a few lead shots and is placed in a hot water or steam heater. Heat to a temperature of 100o C. Let's look at this temperature as T2. You can quickly move hot lead shots to the calorimeter with heat loss. You can see that the mixture settles at a certain temperature after a certain period of time. The mass of this temperature T3 and calori meter is measured with the contents (water and lead shot). The mass of the caloric system with the contents, m3 = ... Mass of lead shot, m3 – m2 = ... Since there is no heat loss in the surrounding environment, it can be assumed that the entire heat lost by the solid (lead shot) is transferred to the thermometer and water to reach the final temperature. Let's look at the calorimeter, lead shot, and specific heating of water in Sc, Sl, and Sw, respectively. According to Method of mixture, we know; Solid = heat lost by solids = heat gain by heat gain Water (m3 - m2) Sl (T2 -T3) = m1 Sc (T3 -T1)+(m2-m1) SW (T3-T1) [m1 Sc +(m2-m1)s w] (T3-T1) Sl = – Evaporative wet clothes will disappear when the clothes are dry. • Where does the water go? Similarly, when the floor of the room is washed with water, the water on the floor disappears within a few minutes and the floor dries. • Why does the water on the floor disappear after a while? Let. Take a few drops of spirit in the palm of your hand using activity 8 droppers. • Why does my skin get cold? Take a few drops of spirit (e.g. 1ml) separately in two petri dishes (shallow glass or plastic cylindrical lid plates used in the lab). Keep one of the dishes that include spirit under the ceiling pan and turn on the pan. Store another dish with the lid closed. Observe the amount of spirit in both dishes after 5 minutes. 21. Free DistributionbyA.P.Gov. 11 • What do you know? You will find some spirit left on the plate that you keep in the lid dish, and you will find that the spirit on the plate that is kept under the ceiling pan is gone. • What are the reasons for this change? To answer the above questions, you need to understand the evaporation process. The spirit minutes stored in petri dish move continuously at random speeds in various directions. As a result, these molecules collide with other molecules. During collisions they transfer energy to other molecules. When molecules inside a liquid collide with molecules on the surface, molecules on the surface can gain energy and fly off the surface. Some of these escape molecules can be directed back into the liquid when they collide with air particles. If the number of escape molecules is greater than the returned number, the number of molecules in the liquid decreases. Therefore, when the liquid is exposed to air, the molecules on the surface continue to escape from the surface until the entire liquid disappears into the air. This process is called evaporation. During the evaporation process, the energy of the molecules inside the liquid decreases and slows down. They transmit this energy to escape molecules during collisions. The escape process of molecules from the surface of the liquid at any temperature is called evaporation and let us determine the reason for the rapid evaporation of the spirit kept under the pan. When air flies over the surface of the liquid in an open pan or putty dish, the number of molecules returned is greatly reduced. Because this escapes from any molecule The surface is blown out of the vicinity of the liquid. This increases the rate of evaporation. That's why the spirit of the petri dish stored under the ceiling pan evaporates quickly compared to the closed one. You can see that clothes dry faster when the wind blows. This means that the system's temperature will drop when evaporated. Evaporation is a surface phenomenon. Evaporation can also be defined as a phase change to a gas generated on the liquid surface. It is a cooling process because liquid particles constantly give up energy to particles that escape from the surface. 22. The Heat12 X class let's look at the following example. • Why do we sweat while we work? When we work, we mainly send our energy in the form of thermal energy from the body. As a result, the temperature of the skin increases and the water industrswygles evaporate. This evaporation cools the body. The rate of evaporation of the liquid depends on the surface area, temperature and amount of steam already present in the surrounding air. • Is there a reverse process of evaporation? • When and how does it work? Let us find out. Place a glass tumbler on the condensation activity 9 table. Pour cold water up to half the height. • What do you observe on the outer surface of the tumbler? • Why are water droplets formed on the outside of the glass? We know that the temperature of the ambient air is higher than the temperature of cold water. The air includes water molecules in the form of steam. When water molecules in the air move, attack the cold glass tumbler surface. They lower the temperature and lose the motor energy that translates into droplets. The energy lost by water molecules in the air is obtained by molecules in glass tumblers. Therefore, the average motor energy of the glass molecules increases. In turn, energy is passed from the glass molecule to the water molecule of the glass. In this way, the average motor energy of the water molecules in the tumbler rises. So we can conclude that the temperature of the water in the glass increases. This process is called condensation. It is a warming process. Condensation can also be defined as phase changes from gas to liquid. Let's take a look at the situation: you feel warm after the shower on a hot day. The number of vapor molecules per unit volume in the bathroom is 23. Free DistributionbyA.P.Gov. 13 Larger than the number of vapor molecules per unit volume outside the toilet. Humidity Some vapors are always present in the air. This vapor can come from evaporation of water from From the drying of rivers, lakes, ponds, wet clothes, sweat, etc. The presence of vapor molecules in the air is said to create atmospheric moisture. The amount of water vapor present in the air is called humidity. Dew and fog Early morning, during winter, you may have found that droplets are formed in windows, flowers, grass, etc. • How are these droplets formed? Let us find out. On winter nights, atmospheric temperatures drop. The surface of windows, flowers, grass, etc. still gets cold. The air near it is saturated with steam and condensation begins. Condensed droplets on these surfaces are known as islow. As the temperature drops further, the entire atmosphere in the area contains large capacity. Soderwater particle futuresvapu condense into dust particles in the air to form droplets. These droplets form a thick fog that keeps you airborne and limits visibility. This thick fog is called fog. • Does the constant supply of heat keep the temperature of the water rising? Boiling activity Take 10 water beakers and store them on the burner. The readings on the thermometer are recorded every two minutes. • Have you risen or descended from the water surface in the beaker? For what? • Does the temperature rise continuously? • When does the water temperature rise? You can see that the temperature of the water rises continuously until it reaches 100°C. The temperature of 24 no longer rises above 100°C. Heat14 X class water is visible. At 100 0C, the heat supply continues, but the temperature no longer increases. We also observe a lot of bubbling on the surface of the water at 1000 C. This is what we call boiling water • Why does this happen? Water is a solution, and many impurities are dissolved, including some gases. Heating water or liquid reduces the solubility of the contained gas. As a result, bubbles of gas are formed from liquids (on the bottom and walls of ships). Evaporation of water molecules in the perorons causes these bubbles, is filled with saturated steam, and increases the pressure by heating, increasing the temperature of the liquid. At a certain temperature, the pressure of the saturated steam inside the airfost is the same as the pressure applied to the airfost from the outside (this pressure is the same as the pressure of the air pressure and the water layer on the airfost). As a result, these airfoe quickly rise to the surface and collapse on the surface, releasing the vapors present in the airfodes on the surface into the air on the surface. This process of converting liquids into vapors (gases) continues as long as they supply heat. This appears to us to be boiling water. Boiling is the process of changing the liquid phase to a constant gas phase. Under a given pressure. This temperature is called the boiling point of the liquid. • Is the evaporation and boiling process the same? As you saw in the activity - 8 and 10, boiling of the liquid is essentially different from evaporation. Evaporation occurs at all temperatures, and boiling occurs at a clear temperature called a boiling point. Let's remember the 10-day question that the temperature of the liquid can no longer be increased at the start of the boiling process. The temperature is maintained at the boiling point until all the liquid is boiled. Activity – 10, you have found, while heating the water in a beaker, the temperature of the water rises continuously until it reaches 100 0 C. However, when the boiling begins, the heat supply continues, but the temperature no longer rises. • Where does the heat energy supplied go? This thermal energy is used to change the state of the water from liquid to steam (gas). This is called the latent heat of steam. The thermal energy required to change 1gm of liquid to gas at a constant temperature is called the incubity heat of steam. 25. FreedistributionbyA.P.Government 15 Consider a liquid of mass 'm' that requires the thermal energy of a 'Q' calorie to change from liquid to gas phase. Then the potential column of the fig is Q /m. The potential column of the fig is displayed by 'L'. CGS unit of permutation of airization is cal/gm and SI device is J/kg. At constant atmospheric pressure (1atm), the boiling point of water is 100°C or 373K, and the potential heat of the water's virization is 540 cal/gm. Now let's think about ice turning into water. • Why are ice cubes converted into water? Melting activity 11 small ice cubes are placed in a beaker. Insert the thermometer into the beaker's ice cube. Observe the readings of the thermometer. Now start the beaker heating that you keep on the burner. Observe changes in thermometer readings until the ice is completely melted and converted into water. • What changes can I see in the readings of the thermometer over time? • Does the temperature of the ice change during melting? You will initially observe that the temperature of the ice is below or below 0o C. If the ice temperature is below 0o C, it continues until it reaches 00 C. When the ice begins to melt, it continuously supplies heat, but there is no temperature change. • Why does this happen? The thermal energy supplied to the ice increases the internal energy of the ice molecules. The increase in the internal energy of the molecule weakens the bond as well as break the bond between the molecules (H2 O) in the ice. This process is constant. This temperature is called the melting point. This process of converting solids into liquids is called melting. The temperature of the ice does not change during melting, because the thermal energy given to the ice is fully utilized to break the bonds between the water molecules. A process in which the solid phase changes to a liquid at a constant temperature is called melting. This constant temperature is called the melting point. 26. Heat16 X Class • How much thermal energy does it take to convert 1g of ice into liquid? The thermal energy required to completely convert 1gm of solids into liquids at a constant temperature is called the latent heat of fusion. Consider the solids of mass m. Require thermal energy Q to change from solid to liquid phase. The heat required to turn a solid 1gm into a liquid is Q/m. The value of the potential heat of the fusion of ice freezes 80cal/gm and you may have observed coconut oil and gibers being converted from liquid to solid during the winter season. • What are the reasons for this change? • What is the water stored in the refrigerator? • How is it converted from liquid to solid phase? We know that the water stored in the refrigerator converts into hard ice. You know that the initial temperature of the water is more than the temperature of the ice. This means that the internal energy of the water decreases during the conversion from liquid to solid, making it solid ice. This process is called freezing. The process by which a substance on a liquid loses some of its energy and changes to a solid phase is called freezing. Freezing of water is done at 0°C temperature and one atmospheric pressure. • Is the amount of water and ice equal to the same amount of water? For what? Let us find out. Activity 12 Narrow lid Take a small glass bottle. Fill with water completely without gaps and secure lid to prevent water from coming out. Put the bottle in the deep freezer of the refrigerator for several hours. Take it out of the fridge and observe the glass bottles break. • Why is the glass bottle broken? 27. PrebunbabyA.P.Government 17 • ItuVine Systems, AanB, and (Thermal Contact) are individually with other systems C, and then with SystemsAandBareinthermal Square Flat. • Average motor energyofthemoleculesisdirect proportionally reduces temperature. • The specific heat of a material is the amount of heat required to raise the temperature of the unit mass of a substance as a unit. $S=Q/m\Delta t$ • The process of escaping molecules from a liquid surface at all temperatures is called evaporation and is a cooling process. • Condensation is the reverse process of evaporation. • Constant pressure. 1. What is the mixture of water 50gofwaterat20o C temperature 50 g at 40o C temperature? (AS1) 2. Explain whydogspanthothotsummerdays notarism for the concept? (AS1) 3. Why can we get dew on the surface of cold soft drink bottles kept outdoors? (AS1) 4. Writing differences between steaming and boiling? (AS1) Learning key words temperature improvement temperature, heat, thermal equilibrium, specific heat, evaporation, condensation, humidity, dew, fog, boiling, latent heat of vaporization, melting, freezing. What we have learned is that the amount of water poured into the glass bottle is the same as the volume of the bottle. When the water froze with ice, the bottle broke. This means that the volume of ice must be greater than the volume of water filled in the bottle. In short, we say that the water in the freeze is 'expanded' (volume increases)! Therefore, the density of ice is less than water, which explains why the ice is floating in the water. 28. Heat18 X Class 5. [High School] [1] [1] [1] [1] [1] [1] [1] [1] [1] [1] [1] [1] [1] [1] [1] Description. 6. Answer this. (AS1) a) How Energy=1g1000o +100o C? b) Howail Energy=1g100o Ccoolstowaterat0o C? c) How much energy is released or becomes compulsive when 1gm of 0o C freezes into ice at 0o C? d) Howiel energy repressoropsorbed when 1gmofsteamat100o C toseta0o C? 7. Description procedure = specific (AS1) 8. Cover up 20o C with the Kelvin scale. (AS1) 9. Your friends are asked to distinguish between evaporation and boiling. What questions can you ask him so that you can tell the difference between evaporation and boiling? (AS2) 10. What happens to water when wet clothes dry? (AS3) 11. Equal amounts of water are stored on lids and plates. Which will evaporate faster? For what? (AS3) 12. It suggests experiments to prove that the rate of evaporation of the liquid depends on the surface area and steam already present in the surrounding air. (AS3) 13. Place the Pyrex funnel under your mouth in a sauce pan filled with water by pointing the stem tube of the funnel over or upwards. Break the edges of the lower part of the funnel on your nails or coins so that the water can get under it. Place the pan on the heat and heat until it starts to boil. Where do bubbles form first? For what? Can you explain how geysers work using this experience? (AS4) 14. Gather information about geyser's work and prepare reports. (AS4) 15. Home2kgoficeat-5o C.Youknowthaticemelts at0o Candboatsat100o C.Continuethe boiling boiling teastat. Notethe temperature 1 minute. What do you understandgraph. Writing conclusions. (AS5) 16. What should I do? During the summer season in the summer of the summer, the high temperature of water in atmospheric temperature stabilization, the role of certain heat? (AS6) 17. Let's say 1l of water heats up for a period of time and the temperature is heated to 2o C. How much does the temperature rise when the 2lof water is heated at the same time? (AS7) 18. What role does it play when removing it from the refrigerator on a hot day? (AS7) 19. ifouarechillyoutsidetheshowerstall,why do you have a toilet? (AS7) 29. Free-to-tradeA.P.Gov. 19 1. Si units in a particular column are is_____________. _ 3. _ 4. Object 'A'at 10 0 C, and other objects 'B'at 10K come into contact, and the column is _ 5. The incubation heat of the fusion of ice is _ 6. The temperature of the body is _ 7. According to the principle,thenetheatlostbythehotbodyisisto _ 8. The sultry taste of summer days is _ 9. _ 10. Ice _ 1. The 2. Melting is a process in which the solid phase changes at a constant temperature c) gas phase d) all phase 3. Three bodies A, B and C are in thermal equilibrium. The temperature of B is 45o C. The temperature of the next C _ the temperature of the steel rod is 330K. o The temperature of C _ specific heat S = [] a) $Q/\Delta t$ b) $Q\Delta t$ c) $Q/m\Delta t$ d) $m\Delta t/Q$ 6. Boiling point of water at normal atmospheric pressure _ when icemelts, that temperature [] remains constant b) increased c) d) reduced d) multiple selection questions can not be said to fill in the blanks (30) chemical reactions in the 20 X class subclass you studied for temporary, permanent, natural, man changes. They can be classified into two types, known as physical changes and chemical changes. In this chapter we discuss chemical changes and express them in the form of chemical equations. Consider the following processes and how they occur during these processes: - Coal burned. - Food is digested by our body. - Iron nails are exposed to a humid atmosphere for a long time. - We breathe. - Milk is converted into curds. - Water is added to the quick name. - Crackers burned. • What changes are found? • Is it a physical or chemical change? • Is it a temporary or permanent change? All Process, the nature of the original material will change. If a new substance is formed with completely different properties from the original material, we say that chemical changes have taken place. • How do I know that a chemical reaction has happened? To inform you, let's do some activities. Chemical Reactions and Equations 2 Chapter 31. Free dispensingbyA.P.Government 21 activity take about 1 g of fast lime (calcium oxide) in 1 beaker. Add 10 ml of water here. Touch the beaker with your finger. • What do you know? Can you tell it's hot when you touch the beaker? The reason is that calcium oxide (quick lime) reacts with water and releases thermal energy in the process. Calcium oxide is dissolved in water to produce a colorless solution. Test the properties of the solution with litmus paper. • What is the nature of the solution? When soaked in the solution above, the red litmus paper turns blue. This is the default solution. Take about 100 ml of water in an activity 2 beaker and dissolve a small amount of sodium sulfate (Na2 SO4). Bring about 100ml of water to another beaker to observe the color of the solution obtained by dissolving a small amount of barium chloride (BaCl2). • What are the colors of the above solutions? • Can I name the solution I acquired? Add and observe Na2 SO4 solutions to your BaCl2 solution. • Do you observe any changes in the mixing of these solutions? Activity 3 Fig-1: Formation of barium sulfateNa2 SO4 BaCl2 taking some zinc granules in a cone flask. Add about 5 ml of diluent lysic acid to a cone flask. Observe changes in the cone flask. • What changes are found? Now keep the burning matching stick near the mouth of the cone flask. • What about burning the match stick? • Touch the bottom of the cone flask with your finger. What do you know? • Is there a change in temperature? In the above activity you can conclude during the chemical change: the formation of hydrogen gas by the action of HCl diluted in zinc and the testing of H2 gas glass tube Concal plask Dil.HCl zinc granule H2 gas 32. Chemical reaction22 X class 1. The original material loses its characteristic properties. Therefore, these may be different physical states and color products. 2. Chemical changes may be external or bendermic, and may involve thermal energy liberation or thermal energy absorption. 3. It can form insoluble substances known as sedimentation. 4. The gas can be freed to chemical changes. In our daily lives, we observe various changes happening around us. In this chapter we study various types of chemical reactions and symbolic expressions. In chemical equation activity 1, when calcium oxide reacts with water, new substances are formed, unlike calcium oxide or water. The description of the chemical reaction Pretty long in activity-1. You can write in a short format with word equations. The word equation of the above reaction is calcium oxide + water calcium peroxide.... (1) Substances that undergo chemical changes in (Reactants) (product) reactions are called reactants, and new substances formed are called products. Chemical reactions written in the form of word equations show changes in the reaction to the product by arrows placed between them. The reactant is written on the left side of the arrow and the final material, or product, is written to the right of the arrow. The arrow head point indicates the direction of reaction. If there is more than one reaction or product involved in the reaction, it is displayed as a plus (+) symbol between them. Writing chemical equations • Can you write chemical reactions in a short way other than the method discussed above? Chemical equations can be more accurate and useful if we use chemical formulas instead of words. Typically, compounds are created by listing the symbols of components and using subscripts to provide a chemical formula that represents the number of atoms in each element present in the compound. If no subscript is written, the number 1 is understood. So we can write 33. Free worship. P.Government 23 calcium oxide is a CaO, a compound formed by the reaction of water and the two compounds with H 2 O is calcium hydroxide car (OH) 2. Now the reaction of calcium oxide with water can be recorded as follows: CaO + H2 O Ca (OH)2.... (2) In the chemical equation above, calculate the number of atoms for each element to the left and right of the arrow. • Is the number of atoms on each side the same? Observe the following reactions and chemical equations: Zinc metal reacts with diluted HCl to produce ZnCl2 and release hydrogen gas. Zn + HCl ZnCl2 + H2 ... (3) Sodium sulfate reacts with barium chloride to provide white precipitates, sulfate barium. Na2 SO4 + BaCl2 BaSO4 + NaCl .... (4) • Are the atoms of each element on the left equal to the atoms of the elements to the right of the equation? Depending on the conservation of mass, the balance of chemical equations, the total mass of the product formed in the chemical reaction, should be the same as the mass of the consumption reaction. We know that atoms are the smallest particles of an element involved in a chemical reaction. It is an atom that takes up the mass of any substance. The number of atoms in each element before and after the reaction must be the same. Because atoms have not been produced or destroyed in chemical reactions, all chemical equations must be balanced. Chemical equation with the number of atoms (left) of different elements on the reactor side It is called a balanced response because it is the same as the product side (right). Balancing formula involves a component unit of the formulation associated with the number of findings of each material in the reaction. As the name implies, a formula unit is one unit that corresponds to a given formula, such as an atom, ion, or molecule. For example, one formula unit of NaCl is one Na+ ion and one Cl – ion. One formula unit of MgBr2 is one Mg2+ ion and two Br – one formula unit of ions and water is one H2 O molecule. Now let's use a systematic method to balance the chemical equations. 34. Chemical reactionsasandequations24 X class has an example of hydrogen reacting with oxygen to form water. Step 1: Create an equation with the correct chemical formula for each reactant and product. For example: In the reaction of oxygen and hydrogen to yield water, you can write a chemical equation as follows: H2 + O2 H2 O ...... (5) Step 2: After the molecular formula of the material is created, the equation is balanced. For this we should not touch the ratio of atoms in the molecules of susbtances but we can put the right number as coefficients before the formula. Put '2' in front of the molecular formula of hydrogen in the equation and also in front of the molecular formula of '2'. Observe whether the atoms of hydrogen and oxyene are the same (or) different on both sides. They are Arintenamedebothonsside. 2H2 + O2 2H2 O .... (6) Step 3: Sometimes it is likely that the coefficients of all materials are divided into suitable numbers. We can do the above because we need the lowest percentage of coefficients for reactions and products. If there are no common elements, you do not need to split the equation. The above equation does not require the division of the coefficients of matter. Step 4: Check the equations for balancing atoms on both sides of the equation. The equation (6) above is a balanced equation. Letusworkoutsomesomemoreexamplestoseehowotholystile. Eg-1: Burning propane (C3 H8) propane, C 3 H8 is a colorless, odorless gas often used as a heating and cooking fuel. Create a chemical equation for the combustion reaction of propane. The reactants are propane and oxygen, and the products are carbon dioxide and water. Write your reactions in terms of symbols and formulas of related substances and follow the four steps described in the previous discussion. Step 1: Create an imbalance equation using an accurate chemical formula for all materials. C3 H8 + O2 CO2 + H2 O ... (7), (skeleton equation) no element of fabric LHS RHS H 2 2 O 2 1 35. Free DistributionbyA.P.government 25 Elementless LHS RHS C 3 (inC3 H8) 1 (inCO2) H 8 (inC3 H8) 2 (inH2 O) O 2 (inO2) 3 (inCO2 H2 O) Note: Known as unbalanced chemical equations containing molecular formulas of substances. Skeleton equations. Step 2: Compare the number of atoms for each element on either side. Find the coefficients to balance the equations. In this case, C3 H8 - it is better to start with the most complex substances. If you look at the skeleton equation, there are three carbon atoms on the left side of the equation, but only one on the right. Adding a coefficient of 3 to CO2 on the right adds to the balance of carbon atoms. C3 H8 + O2 3CO2 + H2 O .... (8) Now look at the number of hydrogen atoms. There are eight hydrogens on the left, but only two on the right. Adding a coefficient of 4 to H2 O on the right balances the hydrogen atom. C3 H8 + O2 3CO2 + 4H2 O .... (9) Finally, look at the number of oxygen atoms. There are two on the left but 10 on the right, but oxygen atoms are balanced by adding a coefficient of 5 to O2 on the left. C3 H8 + 5O2 3CO2 + 4H2 O ... (10) Step 3: Make the coefficient shrink to the smallest total number value. In fact, the equation (10) is already the smallest number of coefficients. It is not necessary to reduce the coefficients, but they may not be achieved in each chemical reaction. 2C3 H8 + 10O2 6CO2 + 8H2 O .... (11) • Is the equation balanced according to the rules? • How do I say it? The equation (11) is balanced, but the coefficient is not the smallest overall number. To reach the final equation, it is necessary to divide all equation coefficients by 2. C3 H8 + 5O2 3CO2 + 4H2 O .... (12) Step 4: Check the answer. Calculate the number and type of atoms on both sides of the equation to make them the same. Eg-2: Iron oxide reacts with aluminum to form iron and aluminum trioxide. Create chemical equations to show reactions and balance them. 36. Chemical ReactionssandEquations26 X Class 1: Create equations using the correct chemical symbols and formulate them for all reactants and products. Fe2 O3 + Al Fe + Al2 O3 .... (13) Step 2: Find the right coefficient for the reactor and product to equate the number of atoms in the two-sided angle element. i. Examine the number of atoms in each element present in the equation (13) on either side. In the equation 13, the number of oxygen atoms is the same on both sides. We have to balance the rest of the atoms. ii. On the left is a 2 Fe atom (on the reaction surface). On the right is a Fe atom (product side). To equate fe atomic numbers, multiply Fe by 2 in terms of products. Now the partially balanced equation is: Fe2 O3 + Al 2Fe + Al2 O3 ... (14) iii. The number of aluminum atoms in the equation (14) is still unbalanced. To balance one 'al' atom on the left, two 'al' atoms of 'al 2 O3' on the right, and 'al'. The side multiplies 'Al'by 2 to the left of the arrow mark. Now a partially balanced equation: Fe2 O3 + 2Al 2Fe + Al2 O3 .... 15, the equation 15 is the number of atoms of each element is the same on both sides of the arrow mark. This is a balanced chemical equation. Step 3: The equation (15) above is balanced, and the coefficient is also the smallest total number. Step4: Finally, to determine the accuracy of a balanced equation, calculate the number of atoms for each element on either side of the equation. Fe2 O3 + 2Al 2Fe + Al2 O3 .... (16) No. of atoms in the element number reactant. Product Fe 2 (Fe2 O3) 1 (Fe2 O3) 1 (Fe2 O3) 3 (inAl2 O3) Al 1 (inAl) 2 (inAl2 O3) 2 (inAl2 O3) 2 (inAl2 O3) Elementless reactor, no atoms. Product Fe 2 (Fe2 O3) 2 (inFe) O 3 (Fe2 O3) 3 (inAl2 O3) Al 2 (in2Al) 2 (inAl2 O3) 37. Free worship. P.Government 27 (note: The above method of balancing is called trial-and-error method, sometimes more attention may need to be taken to balance the equations)Make the chemical equation more beneficial: Chemical equations can be more beneficial by expressing the following characteristics of reactants and products: i. Physical State II. Thermal changes (sedimentary or bendermic changes) iii.Gas (if any) iv-jinning. (If any) the precipitate i formed. Expressing physical states: To make chemical equations more beneficial, the physical state of a substance can be mentioned along with chemical formulas. Other states that are gaseous, liquid and solid states are represented by notations (g), (l) and (s), respectively. If the substance is present in water as a solution, the word 'water-ing' is recorded. Written in short form (aq). A balanced equation (16) is written with the following physical state: Fe2 O3(s) + 2Al(s) 2Fe(s) + Al2 O3(s) ...... (17) ; Δ indicates heating. ii. Thermal change expression: Heat is freed from aspiration reaction and heat is absorbed in body reaction. See the following example: 1.C(s) + O2 (g) CO2 (g) + Q (external reaction) 2. N2 (g) + O2 (g) 2NO (g) - Q (bendermic reaction) fig-3 (b): iron epidermy-3 (a): aluminum Δ 38 in solid state. Chemical reaction 28 X class 'Q' is the thermal energy represented by the plus '+' symbol on the product-side forex reactions and minus '-'signonproductsideforendothermic reactions'. iii. Expressing an evolved gas: when the gas evolves in the reaction, the rising arrow 'or (g) for example: Zn(s) + H2 SO4 (aq) ZnSO4 (aq) + H2 (g) is indicated by iv. To express the formed precipitation: When a precipitate is formed in the reaction, it is displayed as a downward arrow. For example, AgNO3 (aq) + NaCl (aq) + NaNO3 (aq) + NaNO3 (aq) Sometimes reaction conditions such as temperature, pressure, catalyst, etc. are displayed above and/or below the arrows in the equation. For example, sunlight 2AgCl(s) 2Ag (s) + Cl2 (g) Sunlight 6CO2 (g) + 6 H2 O (l) – C6 H12 O6 (s) + 6O2 (g) Chlorophyll Glucose Analysis Balance Chemical Equation i. Chemical equations provide information about reactants and products through symbols and formulas. ii. It provides the ratio of molecules of reactants and products. iii. As the molecular mass is expressed as an 'integrated mass' (U), the relative mass of the reactant and the product is known in the equation. iv. When the mass is expressed in grams, the equation also provides the ratio of the reactant to the product's dorsion. v. If gas is involved, we can equate the mass with their amount and calculate the volume or gas freed under a given condition of temperature and pressure using the dosing volume and the dosing volume relationship. vi. Using the number of the dorsae mass and the abath, we can calculate the number of molecules and atoms of different substances in the equation. It provides information about the relative mass of the reactant and the product. In the equation we get, a) mass-mass relationship b) mass-volume relationship c) volume-volume relationship d) mass-volume-molecular relationship, etc., 39. Free DistributionbyA.P.Government 29 Eg-1: Al(s) + Fe2 O3 (s) Al2 O3 (s) + Fe (s) (s) (al = 27U, Fe = 56U, And O = 16U) 2Al (s) + Fe2 O3 (s) Al2 O3 (s) + 2Fe (s) + 2Fe (s) + 2Fe (s) + 2Fe (s) + 2Fe (s) + 2Fe (s) + 2Fe (s) + 2Fe (s) + 2Fe (s) + 2Fe (s) + 2Fe (s) + 2Fe (s) (2x27) U + (2x56 + 3x16) U (2x27 + 3x16) U + (2x56)U 54 U + 160 U 102 U + 112 U or 2 mol + 1 mol 1 Assuming you were asked to calculate aluminum response 10 of mol + 2 mol 54 g + 160 g 102 g + 112 g. Solution: Balanced equation according to aluminum iron 54 g 112 g x? (1120 x 1000)g (1120x1000)g (1120x1000)g x 54 g ∴ x g = –∴ – Eg-2: Calculates the volume, mass, and number of hydrogen minutes freed when reacting with excessive water in STP. (i = 23U, O = 16U and H = 1U atomic mass) is a balanced equation for the above reaction, 2Na(s) + 2H2 O (l) 2NaOH (aq) + H2 (g) (2x23)U + 2 (2x1 + 1x16)U 2 (23 +16 +1)U + (23 +1)U + 2x1)U 46 U + 36 U 80 U + 2 U or 46 g + 36 g 80 g + 2 g Solution: According to a balanced equation: I 46 g gives me 2 grams of hydrogen of 230 g __? Hydrogen g. 230 g x 2 g – = STP that is, the standard temperature of 273K and the standard pressure of all gases at 1 bar accounts for 46 g 1 gram of hydrogen mass 10 g, standard temperature 273K and standard pressure 1 bar, 22.4 liters known as grammots. ∴ 2.0g of hydrogen, which is 22.4 liters in STP. It is a 10.0g of hydrogen. Liters from STP. 40. Chemical reactions and equations30 X class 10.0g x 22.4 liters –=112 liters 2.0g 2 g hydrogen eye, 1 mole of H2 6.02x1023 (NO) 10g of hydrogen.... 10.0g x 6.02x1023 molecules – chemical reactions are usually processes in which the starting material (reactant) is characterized by different chemical changes from the product. Chemical reactions occur with the formation and destruction of chemical bonds. (You will learn about chemical bonding in chapters...) Some common reaction models are explained below. Chemical combination activity 4 (this activity requires the help of a teacher) - take a small piece of magnesium ribbon (about 3 cm long). - Rub sand paper and magnesium ribbons. - Grab it with a pair of tonning. - Can be burned with a spirit lamp or burner. • What do you observe? Magnesium produces a dazzling white flame, which can be found to burn in oxygen and turn into a white powder. White powder is magnesium oxide. 2Mg (s) + O2 (g) 2MgO(s) ...... (18) When magnesium oxide oxygen magnesium reacts, magnesium and oxygen are combined to form a new magnesium material. The reaction in which a single product is formed from two or more reacting ies is known as a chemical combination reaction. You can see that when magnesium is burned in the air, a huge amount of thermal energy is released. Fig-4: Magnesium Ribbon 41 Baking. Let's discuss some more examples of free distributionyA.P.Government 31 combination reactions. i. Coal burning: When coal is burned with oxygen, carbon dioxide is produced. C(s) + O2 (g) CO2 (g) + Q (thermal energy).... (19) ii. Slake lime is prepared by adding water to the quick lime. Ca O (s) + H2 0 (l) Ca (OH) 2 (aq) + Q (thermal energy)..... (20) a large amount of thermal energy is released in the reaction of water with CaO (s). If you touch the wall of the container you will feel hot. These reactions are called exothers reactions. Slake lime solution generated in the reaction equation 20 is used to wash the wall white. Calcium hydroxide reacts slowly with carbon dioxide in the air, forming a thin layer of calcium carbonate on the walls. It gives a glowing finish to the walls. Ca (OH)2 (aq) + CO2 (g) CaCO3 (s) + H2 O (l) The chemical formula of marble is CaCO3 decomposition reaction activity 5 - take a pinch of calcium carbonate (lime stone) in a boiling tube. - Heat the boiling tube over the flame of the spirit lamp or burner. - Now bring a burning matching stick near the evolved gas as shown in the picture. - What do you observe? You'll find that the matching stick will be postponed. Fig-5: Formation of slake lime by reaction of water beaker water CaO fig -6CaO: heating of calcium carbonate and burning match stick stand Bunsen burner clamp delivery tube boiling tube tested for evolving gas with calcium Fiery Match Stick Putoff Match Stick 42. Chemical reaction 32 X class decomposes calcium oxide and carbon dioxide in calcium carbonate heating. Thermal CaCO3(s) – CaO (s) + CO2 (g) ... (21) Limestone quick lime is a thermal decomposition reaction. When a decomposition reaction is performed by heating, it is called a thermal decomposition reaction. Activity 6 - Consume about 0.5 g of lead nitrate powder in a boiling test tube. - Test tube holder and to be held boiling tube. - Heat the boiling tube over the flame. (see figure) - Note the changes. - What do you observe? Heating of lead nitrate and nitrogen dioxide emission heating heating to heating lead nitrate hydroxlycoxide, oxygen and

nitrogen dioxide. You observe the brown smoke freed from the boiling tube. This brown smoke is nitrogen dioxide (NO2). Column 2Pb (NO3)2(s) – 2PbO (s) + 4NO2 (g) + O2 (g) ..... (22) Lead nitrate lead nitric oxide oxygen This is also a thermal decomposition reaction. Let's perform some more decomposition reaction activity activity 7 - take a plastic mug. Drill two holes in the base. - Fit two 'one hole rubber stoppers' in this hole. - Insert two carbon electrodes into this rubber stopper. - Connect the electrode to the 9V battery like a fig. - Fill the mug with water and ensure that the electrodes are immersion. - Add a few drops of diluted sulfuric acid to the water. - Take two-to-the-last tube-bonded water & dynverstevertuducarbon electrode. - Turn on the current and leave the device undisturbed for a while. • What do you observe in the test hall? Fig-7: Heating of lead nitrate and release of nitrogen dioxide stand clamp delivery tube NO2 gas collection jar lead nitrate boiling tube excant burner 43. Free-to-usebyA.P.Gov. 33 You can tell the liberation of gas bubbles from both electrodes. These bubbles replace water in the test pipe. Is the amount of gas collected in both test cases the same? When the test tube is filled with gas, carefully remove it. A burning candle is brought near the mouth of each test pipe to test the gas separately. • What do you observe in each case? Can you predict the gas present in each test tube? In the above activity of delivering electricity, water is disso dissoed into hydrogen and oxygen. Electrolyte 2H2 O (l) – 2 H2 (g) + O2 (g) .... (23) Activity 8 - Take some amount of silver bromide in the watch glass. - Observe the color of the silver bromide. - Place the watch glass in the sunlight for several hours. - Now observe the color of the silver bromide. • What changes are found? • Has the silver bromide changed color? Silver bromide breaks down silver and bromine in the sun. Bright yellow silver bromides turn gray due to sunlight. Fig-8: Water O2 H2 + Electrolysis Anode Cathode 9V Battery Plastic Mug Test Tube Switch Graphite Rod Acid Water Fig-9 (a): Silver Bromide (Light Yellow Color) Fig-9 (b) When Exposed to Sunlight (Gray Color) Silver Metal (44) Chemical Reaction34 X Class Sunlight 2AgBr(s) – 2 Ag(s) + Br2 (g) .... (24) This decomposition reaction occurs in the situation of sunlight, which is called photo chemical reaction. All of the above decomposition reactions require energy in the form of heat, light or electricity to convert the reacting product into a product. All these reactions are adesses. Next activity: i) Pinch AgCl2 on the watch glass. Keep in the sun for a while and observe the changes. ii) Take iron sulphate carbonate in a boiling tube. Heat over the spirit lamp. iii) Take about 2 gm of barium hydroxydride in a test pipe. Add about 1 g of ammonium chloride and mix with the glass bars. Touch the test tube with the palm of your hand. What do you observe? Displacement response. In displacement reactions, one element displaces the other in the compound and takes its place. Displacement of hydrogen from acids by metals: Metals that are generally more active than hydrogen replace it in acids. Let's observe the reaction in the following activities: Activity 9 - Take a small amount of zinc dust in a cone flask. - Slowly add diluted lysic acid. - Now take a balloon and tie it to the mouth of a cone flask. - Closely observe changes in cone flasks and balloons. - What do you know? You can see gas bubbles coming out of the solution and the balloons swell out (Figure 10b). Zinc fragments react with diluted hydroxy acid and release hydrogen gas as shown below. Zn(s) + 2HCl (aq) ZnCl2 (aq) + H2 (g) .... 25, the elemental zinc in the reaction 25 was displaced hydrogen from hydrochloric acid. This is a displacement reaction. 45. FreedistributionbyA.P.Government 35 Activity 10 - Take two iron nails and rub them with sand paper to clean them. Take about 10ml of copper sulfate solution from each test tube - take two test tubes and mark them as Aand B. Dip one iron nail in the copper sulfate solution in the test tube Aand to prevent it from being disturbed for 20 minutes. - Keep other iron nails separate. - Now take the iron nails out of the copper sulphate solution and compare them with other iron nails that have been set aside. (see fig11-a) - Compare the solution colors in the test center. (see fig11-b) - What changes do you comply with? You will find that the re-nails dipped in a copper sulfate solution become brown. Blue in copper sulfate solution in test tube 'A' fade. Fig-10 (a) Fig-10 (b) Dil.HCl Conque Zinc Dust Consk Zinc Dust Balloon H2 Gas Dil.HCl Fig-11 (a): Re-nail fig 111(b) dipped in copper sulfate solution: iron nails and copper sulfate A B (46) was compared before and after the experiment. Chemical reaction==36 X class The chemical reactions of this activity are: Fe (s) + CuSO4 (arc) FeSO4 (aq) + Cu(s) ... (26) Iron replaces copper in copper sulfate because it is more reactive than copper. This is another example of a displacement reaction. Other examples of displacement reactions include: i) Zn (s) + 2AgNO3 (aq) Zn (NO3)2 (aq) + 2 Ag(s) ... (27) ii) Pb(s) + CuCl2 (arc) PbCl2 (aq) + Cu (s) ... (28) Double displacement reaction activity 11 - take a little lead nitrate and dissolve in 5.0 ml of distilled water in a test. - Take a little potassium iodine in the test and dissolve it in distilled water. - Mix lead nitrate solution with potassium iodine solution. - What do you observe? Yellow-colored substances that are insoluble in water are formed into sediments. Precipitation is lead iodine. Pb (NO3) 2 (aq) + 2KI (arc) PbI2 (s) + 2KNO3 (aq) ... (29) Lead potassium nitrate iodine nitrate reacts twice as reactively. Iftworeactants chemically exchange their components and form two products, and the reaction is referred to as a double displacement reaction. Other examples of double displacement reactions are: 1) sodium sulfate solution in mixing with barium chloride solution forms a white prepitate of hydrochloride barium and soluble sodium chloride. Na2 SO4 (aq) + BaCl2 (Arc) BaSO4(s) + 2 NaCl (aq) ... (30) Fig-12: the formation of potassium 2 KI lead iodide KNO 3 47 potassium 3 (NO3). Free-to-use babyA.P.Government 37 2) Sodium hydroxide reacts with hydrochloric acid to form sodium chloride and water. NaOH (arc) + HCl (arc) NaCl (aq) + H2 O (l) .... (31) 3) Sodium chloride is voluntarily combined with the oxyate to provide a settling tax on the carbonate. NaCl (aq) +AgNO3 (aq) AgCl(s) + NaNO3 (aq) .... (32) Oxidation and reduction 'oxidation' isareactionthat related. [Oxygenation of hydrogen] 'Reduction' is a reaction that includes the addition of hydrogen or oxygen removal. Let's try to understand this experiment more clearly. Activity 12 - Consume about 1.0 g of copper powder in Chinese cuisine. - Store Chinese dishes on a tripod stand containing wire gauges. - Heat with ahausen burner or spirit lamp. - Is there a change in copper color? You can see that the surface layer of copper becomes black. • Why is the color of copper changing? • What are the black products formed on the copper surface? Reacts with oxygen in the atmosphere to form copper oxide in the activity for copper heating. The reaction is as follows: Heat Cu (s) + O2 (g) – 2 CuO (S) ..... (33) Fig-13 (b) Chinese cooking fig-13 (a): Black copper oxide fig-13 (c): oxidation of copper Oxide chin plate containing copper powder wire gauze tripod stand Gunzen burner 48. Chemical reaction38 X class copper combines with oxygen to form copper oxide. Oxygen is obtained here and the process is called oxidation. Now the suso gas scotrotrotcooxide gets a gaseoth action and observes the change. • What do you know? • Is there a change in the black color of copper oxide? You can see that the black coating of copper turns brown because copper oxide loses oxygen to form copper. In this process, oxygen is lost and the process is called reduction. Heat CuO (s) + H2 (g) -cu) + H2 O (g) hydrogen is obtained from the reaction; These reactions are called reduced reactions. In general, oxidation and reduction occur in the same reaction. When one reactant is oxidized, the other is reduced. These reactions are called oxidative reduction reactions or redox reactions. In CuO, the H2 reaction CuO is reduced and H2 is oxidized. Some other examples of redox reactions include: i) 2 Fe2 O3 (s) + 3C (s) 4 Fe (s) + 3CO2 (g) ..... (34) ii) 2 PbO (3) + C (s) 2Pb (s) + CO2 (g) ..... (35) Have you observed the effects of oxidation reactions in your daily life: You should observe freshly cut apples turning brown after some time. The glowing iron gradually becomes reddish-brown when left for a while. the flaming white smoke of crackers and produced a dazzling glow. Fig-14: Copper H2 gas H2 O(g) gungen burner stand glass tube black copper oxide cork 49 to decrease in copper oxide. Free-to-tradebyA.P.Government 39 • How does this change happen? They are all examples of a process called oxidation. How do you let me know? Oxidation can come into contact with the reaction of oxygen molecules with other substances, from metals to living tissues. Apple pears, bananas, potatoes, etc. contain an enzyme called polyphenol oxidase or tyrosinase that reacts with oxygen and changes color on the cutting surface of the fruit. Iron brown, when left in moist air someday, is a commonly known process rustingofiron. This process is basically an oxidative reaction that requires both oxygen and water. Rust does not occur in oxygen-free water or dry air. The burning of crackers is also a process of oxidation with a variety of chemicals. • Have you found color coatings for silver and copper items? When some metals are exposed to moisture, acids, etc., each metal oxide is formed on the surface and discolored. This process is called corrosion. Let's look at the following example: Silver (see figure -16) 4Ag + 2H2 S + O2 2Ag2 S + 2H2 O .... (37) Black Fig-15: Rusting of iron fig-16: 50 discolorations of silverware (before and after). Do you know the chemical reaction==40 X class? One of the most valuable of the gold elements has since been cherished For its beauty and resistance to corrosion. ii. Green coating on copper (see Figure -17) 2Cu + O2 2CuO.... (38) Corrosion is oxidative becoming of metal. Corrosion damages body structures, bridges, iron railings, ships, etc. and damages all other objects made of metal. Corrosion of iron in particular is a serious problem. Corrosion protects the metal surface from oxygen and moisture, preventing or at least minimizing it. It can be prevented by painting, greasy, greasy, galvanized, chrome plategorminking alloy. It is a method of protecting iron from rust by coating a thin layer of zinc. Alloys are also a very good way to improve the properties of metals. In general, iron in its pure form is very soft and easily stretched when hot. Iron is mixed with carbon, nickel and chromium to obtain alloy stainless steel. Stainless steel is hard and rust-less. Metal materials made by mixing two or more metals or metals and non-metals are known as alloys to obtain preferred quality such as hardness, lightness and strength. Examples: brass, bronze and steel. Fig-17: Copper 51 corrosion. Free-worship. P.Government 41 key words Reactants, products, appearance reactions, appearance reactions, chemical combinations, chemical decomposition, displacement reactions, double displacement reactions, oxidation, reduction, corrosion, rotting, antioxidants. • Burning is the most common example for oxidative reactions as there are several more effects of oxidation on daily life. Example: Burning ofwood contains carbon dioxide, water vapor with a huge amount of energy. • The rise of yeast and dough depends on the oxidation of carbon dioxide and sugar in water. • Bleaching of colored objects using moist chlorine Cl2 + H2 O HOCl + HCl..... (39) HOCl HCl + (O) ..... (40) Color object + (O) colorless object. During the rainy season, the power supply from the telephone pole to our house is interrupted by the formation of a metal oxide layer on the wire. This metal oxide is an electrical insulator. Metal oxide layer formedwire and acid-shaped, the electricity supply can be restored to the removal. Semi-repeating • Have you tasted or melted fats/oils containing leftover ingredients for a long time? • When fats and oils are oxidized, they rot. Their smell and taste change. Therefore, we can say that the oxidation reaction of food ingredients, which has been left for a long time, is responsible for the spoiling of food. Lancity is an oxidation reaction. • How can we prevent the spoiling of food? Decay of food can be prevented by the addition of preservatives such as vitamin C and vitamin E. Storing food in a close container can help slow down the oxidation process. Do you know Potato chip manufacturers flush bags of chips with nitrogen gas to prevent chips from oxidizing. 52. Chemical reactions and cleaning 42 X classes • Permanent changes in chemical changes. • AChemical expression expression chemical reaction. • Complete chemical equations indicate reactants, products, and physical states. • AChemical formula is balanced, when both water and tomthorpe small device on the reaction side and on the product side. • Chemical equations must always be balanced. • In combination reactions, two or more materials combine to form a new single material. • In a decomposition reaction, a single material is decomposed to provide more than one substance. • The reaction in which thermal energy is absorbed by the reactant is an indefusion reaction. • In the external reaction, the thermal energy is released by the reaction. • Displacement reactions, when the element replaces other elementfromits compounds. • Two different steps are doubly responsive. • Water-in-heavy water when oxidized. • Loss of sanso and other suso-desensitization. • Corrosion damages iron appliances. • When fats and oils are oxidized, they rot. • Precipitating substances. 1. What is a balanced chemical equation? Why balance chemical equations? (AS1) 2. Balance chemical equations. (AS1) A) NaOH + H2 SO4 Na2 SO4 + H2 O b) Hg (NO3)2 + KI Hg I2 + KNO3 c) H2 + O2 H2 O d) KClO3 KCl + O2 e) C3 H8 + O2 CO2 + H2 O 3. Write Homogenized Chemicals (AS1) a) Zinc + Silver Nitrate Zinc Nitrate + Silver. b) Aluminum + copper chloride aluminum chloride + copper. c) Hydrogen + chlorine. Hydrochloride. d) Ammonium nitrate nitrogen + carbon dioxide + water. 4. Write bacteriophysics, neophylactic (AS1) a) calcium hydroxide (aq) + acid (aq) water (l) + calciumxide (aq) improve learning what we have learned 53. Free distributionbyA.P.Gov 43 b) magnesium(s) + iodine (g) iodine magnesium iodine. (s) c) magnesium (s) + magnesium chloride (aq) + hydrogen (g) d) zinc (s) + calcium chloride (aq) zinc chloride (aq) + Ca(s) 5. Create an energy-supplied decomposition reaction formula in the form of heat/light/electricity. (AS1) 6. What does it mean by precipitation reaction? (AS1) 7. How is chemical displacement reaction different from chemically-ed reaction? An example of each. (AS1) 8. Name the reaction that occurs in the sun? (AS1) 9. Why is breathing considered an obscene reaction? Description. (AS1) 10. Is there one difference between overdoses being faceted and responding to double that? Write equations for these responses? (AS1) 11. In the equation above MnO2 + 4HCl MnCl2 + 2H2 O + Cl2, which compounds are oxidized and which compounds are reduced? (AS1) 12. 13. Inderejipin person silver, silver nitetheate by copper metal to the reaction associated with the reaction. (AS1) 14. What is the meaning of corrosion? How can I prevent it? (AS1) 15. explained. (AS1) 16. Balance The following chemical formulas are included in the 2016 study. (AS1) C6 H12 O6 –Fe2 O3 c) NH3 + Cl2 –N2 H4 +NH4 Cl d) Na + H2 O —NaOH +H2 17. Balancing chemical equations includephysical statesofthematerials, such as the following reactions. (AS1) a) salt chloride barium sulfate and sodium sulfate water-based solution reacts to administer insoluble barium sulfate salt. b) Sodium hydroxide reacts with hydrochloric acid to produce sodium chloride and water. c) Zinc fragments react with diluted hydrochloric acid to free up hydrogen gas and form zinc chloride 18. The shiny brown element 'X'o n becomes black in the heating air. Can you predict the element 'X' and the formed black matter? How do you support forecasting? (AS2) 19. Why apply paint to iron? (AS7) 20. What is the use of keeping food in an airy container? (AS7) 54. The Chemical Reaction44 X class fills in space 1. Breaking down vegetables into compost _ 2. Thechemicalreactionsinwhichenergyisabsorbedtoformanewcompoundiscalled_____ 3. Reaction 2N2 O 2N2 + O2 _ 4. Reaction Ca + 2H2 O Ca (OH)2 + H2 is __ 5. The material present on the left side of the chemical equation is called __. 6. The arrow mark between the product and the reactor in the chemical equation displays the __ of the reaction. 7. Match: 1) 2AgNO3 + Na2 CrO4 Ag2 CrO4 + 2NaNO3 (a) Combination reaction 2) 2 NH3 N2 + 3H2 () Decomposition reaction 3) C2 H4 + H2 O C2 H6 O (c) displacement reaction 4) Fe2 O3 + 3CO 2F2 reaction (22 F) + 22 F2 + 22 Fis reaction (12) Fe2 O3 + 2Al Al2 O3 + 2 Fe. [] The reaction is an example of the following: a) combination reaction b) decomposition reaction c) displacement reaction d) two-parting reaction 2. What does happen. What is hydrochloric acidic acid? Selection. a) Hydrogen gas and iron chloride are produced. []b) Chlorine gas and iron hydroxidation are produced. c) No reaction occurs. d) Iron salt and water are produced. 3. 2 PbO(s) + C(s) 2Pb (s) + CO2 (g) [ ] What ofofthefollowingstatementsarefortheabovechemicalreaction? a) lead reduction b) carbon dioxide is oxidized c) carbon oxidation d) lead oxidation is reduced. i) (a) and (b) ii) (a) and (c) iii) (a), (b) and (c) iv). 4. The chemical equation BaCl2 + Na2 SO4 BaSO4 + 2NaCl indicates the following types of chemical reactions: [] i)Displacement ii)+) Decomposition 5. The reactive water lysate chloride and chloride-displaced media reaction [] i) decomposition ii) displacement iii) + double displacement audience question 55. FreedistributionbyA.P.Government 45 Class 6 learned about shadows, conducted many experiments with beams, and also discussed straight waves of light. In 7th grade, we learned the law of reflection. Let's remember some of them. - A source of light, opaque objects and a screen is required to form shadows. − The light moves in a straight line. − When light is reflected off the surface, the reflection angle is the same as the angle at which it occurred. − The event rays, the top of the occurrence point, and the reflective rays all lie on the same plane. You need to observe shadows and images in your daily life. Sme questions may come to mind while observing these shadows or images. • Why do our images appear thin or bloated in some mirrors? • Why is there a right-left invert (side reversal) when looking into the mirror? • Can I use a mirror instead of a magnifying glass to focus sunlight on the point? • Why is the reflection angle the same as the occurrence angle when a ray is reflected from the surface? • Is the reflection angle the same as the reflection by the surface? Reflection of light by other surfaces 3 chapter 56. Reflection of light by different surfaces46 X class in this lesson we will learn about the reflection of light in detail so that we can answer the above questions. Let's start with a few activities based on our previous knowledge. Activity 1 Image formation by pinhole cameras recalls how images are formed on pinhole cameras learned in Class 6. Draw a ray diagram of image formation from a pinhole camera. What happens when you increase the hole size of a pinhole camera. You can observe the flame of the candle with a pinhole camera that creates a large hole. Try drawing a ray diagram of image formation from a pinhole camera with a large hole. Look at Figure 1. By observing the picture, we can understand that the rays from the top of the candle flame fall from different points on the screen. Similarly, rays from the bottom of the candle fall to other points on the screen. Therefore, we get blurry images on the screen due to the large holes in the camera, as shown in Figure 1. Now think about the reflection of light, and solve the task given below. The Activity 2 Asmart Crow is found in a tree at point 'A' as shown in Figure-2. Some grains are on the ground. If the crow wants to take the grain and reach the point 'B' of another tree as soon as possible (at least the time), where the crow should pick up the grain? • Think and discuss fig-1 The explanation matches your observations? • What if the hole is the same size as the flame? • If so, can I get an image of a flame on the screen of a pinhole camera? For what? • What if I observe the same flame with the same pinhole camera over long distances? Think and answer. Experiment and see the answers. Answer.