

The background of the entire cover is a deep red color, overlaid with a complex network of white chemical structures. These include various hexagonal and pentagonal rings, some with double bonds, and several functional groups such as hydroxyl groups (HO-) and carbonyl groups (C=O). The structures are interconnected, creating a dense, molecular-like pattern.

Volume 5  
2020-2021

# CHEMIST'S MIND

ST. EDMUND'S COLLEGE|DEPARTMENT OF CHEMISTRY





# DEPARTMENT OF CHEMISTRY



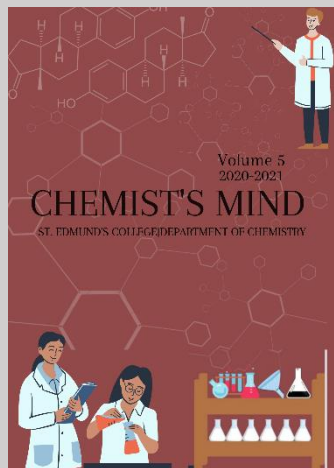
**ST. EDMUND'S COLLEGE,  
SHILLONG**

**VOLUME 5**  
**CHEMIST'S MIND**  
**2020-2021**



**DEPARTMENT OF CHEMISTRY**  
**ST. EDMUND'S COLLEGE, SHILLONG**





## CHEMIST'S MIND

### VOLUME 5: 2020-2021

ANNUAL PUBLICATION OF DEPARTMENT OF CHEMISTRY  
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(Affiliated to North-Eastern Hill University, Shillong)

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## **MESSAGE FROM** **THE PRINCIPAL'S DESK**

“The Chemist’s Mind” is a Departmental Magazine of the Chemistry Department in our College. The magazine has been in circulation for a number of years, and it was through the initiative of the staff and students of the Department. I often wonder how different is the mind of a chemist from others; I could understand it by looking at the explanation, “Every single existing thing known to us is made up of some smaller elements. The study of these small elements which are cells in living things and atoms in non-living things is called chemistry. As this subject can explain the structure of everything, hence it is called the mother of all sciences.” The Chemist’s Mind is a collection of views and reviews contributed by students, which documents their experiences with the subject they have opted to study and to research in latter days.

To publish a Departmental Magazine, requires patience, commitment and the willingness to walk an extra mile. I congratulate the students in the editorial team for taking the initiative under the guidance of their teachers. It will be a matter of pride to be able to tell the future generation that they have been responsible for the publication of “The Chemist’s Mind 2021”. As we move forward, may the efforts you have put in be rewarded, and may the people who read “The Chemist’s Mind 2021” find it useful and informative.

God bless you,

Sd/-

Dr Sylvanus Lamare,

Principal, SEC



## **MESSAGE FROM** **THE VICE PRINCIPAL'S DESK**

I am happy to learn that the Chemistry Department is proposing to publish another volume of the **Chemist's Mind**, the department magazine. Given the limitations imposed by the pandemic related lockdown, it is indeed an achievement to put together all the materials for a publication like this. I would like to congratulate all involved, particularly the students, who have left no stones unturned while ensuring the successful publication of the **Chemist's Mind**. The title, however, makes me mildly curious. It will be fascinating to learn what sort of a mind a chemist would possess!

I congratulate each member of the team responsible for this publication, particularly the teachers and their students for having made this effort to record the scientific temper and creative urge in black and white for everyone to ponder. I am particularly happy that the department has entrusted the students with the responsibility of working independently to ensure the successful publication of the magazine and in the process allowing them to think and act responsibly.

Best wishes always!

Thank you

Sd/-

**Monotosh Chakravarty,**

**Vice Principal, SEC**



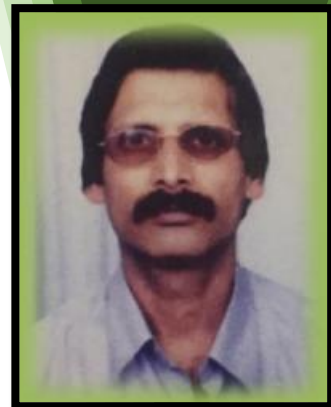


## ST. EDMUND'S COLLEGE, SHILLONG

### DEPARTMENT OF CHEMISTRY

#### **MESSAGE FROM**

#### **THE HEAD OF THE DEPARTMENT**



It is indeed a privilege to be part of highly motivated, focused and intelligent group of Students (2021 chemistry honours and present fifth semester batch) who in spite of many adversities and forced obstacles volunteered to conceive- design and bring out the latest version of “**Chemist’s Mind**”, the annual departmental magazine.

Students have been our greatest assets and each one of you deserves accolades in upholding The virtues, tradition and values of the department. Let our roots go deeper in the soil of humanism, tolerance and acceptance and we pledge to be the torch bearer .....

I also extend my heartfelt thanks to my colleagues who contributed and helped in giving final shape to the magazine.

Be the gamechanger. The world is already full of players!

Yours sincerely,

**Sumit Deb,**

**Associate Professor,**

**Head of the Department of Chemistry**

## **EDITOR'S NOTE**

With great pleasure, we have come up with another edition of the “Chemist’s Mind”. As you flip through the pages of this magazine, you will come across a variety of articles, some blissful poems, delightful arts, and a gallery full of love and reminiscences of the year.

Chemistry has brought about a great advancement in the world, and we are hoping for more positive reactions around the globe.

Working with this magazine was a great experience, accompanied by a mixture of emotions. I give my heartfelt thanks to the whole team and the wonderful teachers for their guidance and constant support for making this magazine a successful one.

We thank the readers for being an inspiration throughout the previous volumes, and we hope the readers find this magazine interesting and encouraging.

Yours sincerely,

**Joanna Jessica Thabah,**

**Editor,**

**Department of Chemistry**





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**“Chemistry ought to be not for  
chemists alone.”**

***-Miguel de Unamuno***

## **INTERNATIONAL SPACE STATION**

The International Space Station (ISS) is a modular space station in low Earth orbit. It is a multinational collaborative project involving five participating space agencies. NASA (United States), Roscosmos (Russia), JAXA (Japan), ESA (Europe), and CSA (Canada).

The ownership and use of the space station is established by intergovernmental treaties and agreements. The station is divided into two sections, the Russian Orbital Segment (ROS) is operated by Russia while the United States Orbital segment (USOS) is run by the United States as well as many other nations. The ISS is the largest artificial object in space and the largest satellite in low earth orbit, regularly visible to the naked eye from Earth's surface. It maintains an orbit with an average altitude of 400 kilometres. The ISS circles the earth in roughly 93 minutes, completing 15.5 orbits per day. Its orbital speed is 7.66 km/s. The first ISS component was launched in 1998 and the first long term residents arrived on 2 November 2000 after being launched from the Baikonur Cosmodrome on 31 October 2000. The station has since been continuously occupied for 20 years and 240 days, the longest continuous human presence in low earth orbit having surpassed the previous record of 9 years and 357 days held by the Mir Space Station.

The ISS consists of pressurized habitation modules, structural trusses, photovoltaic solar arrays, thermal radiators, docking ports, experiment bays and robotic arms. Major ISS modules have been launched by Russian Proton and Soyuz rockets and US space shuttles. The station is serviced by a variety of visiting spacecrafts, such as the Russian Soyuz and Progress, the Space X Dragon 2, the Japanese H-2 transfer vehicle etc. As of November 2020, 242 astronauts, cosmonauts and space tourists from 19 different nations have visited the space station, many of them multiple times, this includes 152 Americans, 49 Russians, 9 Japanese, 8 Canadians and 5 Italians. We all know that the human body tends to lose muscle and bone mass in zero gravity environments, so all astronauts aboard the ISS must work out at least two hours a day to maintain normal Earth-based bodily health.

The ISS has been described as the most expensive single item ever constructed. It was originally intended to be a laboratory, observatory and factory while providing transportation, maintenance and a low earth orbit staging base for possible future missions to the Moon, Mars and asteroids.

However not all of the uses envisioned in the initial memorandum of understanding between NASA and Roscosmos have been realised. In the 2010 United States National Space Policy, the ISS was given additional roles of serving commercial, diplomatic and educational purposes. The ISS provides a platform to conduct scientific research, with power, data, cooling and crew available to support experiments. Research is conducted in a wide variety of fields, including astrobiology, astronomy, physical sciences, material science, space weather, meteorology and human research including space medicine and the life sciences. Scientists on earth have timely access to the data and can suggest experimental modification to the crew. The atmosphere on board the ISS is similar to that of earth. Normal air pressure on the ISS is 101.3 KPa, the same as at sea level on earth. An earth-like atmosphere offers benefits for crew comfort and is much safer than a pure oxygen atmosphere, because of the increased risk of a fire. The Environmental control and Life Support System provides clean air and water to the International Space Station crew and laboratory animals through artificial means. The Environmental Control and Life Support System consists of two key components, the Water Recovery Systems (WRS) and the Oxygen Generation System (OGS). The WRS provides clean water by recycling crewmembers urine, cabin humidity condensate and Extra Vehicular Activity (EVA) wastes. The reclaimed water must meet stringent purity standards before it can be utilized to support the crew, laboratory animals.

Laishram Ganashyam

4<sup>th</sup> Semester (2021)



## **A BALANCED MIND**

The word Yoga is derived from a Sanskrit word 'Yuj', which means to integrate. Yoga is the most favourable method to connect to the nature by balancing the mind-body connection. It is a type of exercise which performed through the balanced body and need to get control over diet, breathing, and physical postures. It is associated with the meditation of body and mind through the relaxation of body. It is very useful to control over mind and body as well as getting proper health of body and mind by reducing the stress and anxiety. It helps in easily accomplishing the connection between body, mind and nature. The ultimate aim of Yoga is to attain ultimate freedom-the breaking free from the shackles of cause and effect which tie us to continual reincarnation. Yoga is principally a way of life. It is not the abandonment of action but it is the correct performance in the correct spirit. It is actually the shaping of one's attitude to home and society at large with a new understanding. All the yoga exercises are in reality meant to aim at control, purification, and coordination of nervous system. Hence, it is true that "Yoga is a Way of Life".

Deepanjali Bhattacharjee

6<sup>th</sup> Semester (2021)

## **THE SCIENCE BEHIND SLEEP**

Sleep is one of the strangest things we do each day. An average person spends about 36% of his/her life asleep.

The first purpose of sleep is restoration. The brain accumulates metabolic wastes by going through its normal neural activities each day. Sleep plays a crucial role in cleaning out brain each night. The second purpose is memory consolidation. Sleep is crucial for memory consolidation, which is the process that maintains and strengthens the long-term memories. Finally, sleep is necessary for metabolic health. Sleep is the best source of recovery for the muscles. Less sleep can lead to fat gain and muscle loss.

Thus, better sleep is necessary for both mental and physical health.

So, ever wondered why do we sleep? What's the science behind it? Basically, everything revolves around the term called Circadian Rhythm. Our bodies release chemicals in a 24-hour cycle. Each of these cycles is called a circadian rhythm. One of the most important chemicals involved in this process is melatonin, a hormone that makes us feel sleepy. The amount of melatonin in our bodies starts increasing in the evening, peaks at the middle of the night and decreases by morning letting us know the time of sleeping and waking up respectively.

When our eye's retina is exposed to light, a signal is sent from the retina to an area of the brain called the suprachiasmatic nucleus. The suprachiasmatic nucleus in turn sends signals to other parts of the brain that controls hormones and body temperature. The signal travels from the brain, down the spinal cord and back up to the pineal gland of the brain where melatonin production takes place. Exposure to light prevents melatonin release which keeps us awake and less exposure causes its release which makes us feel sleepy.

Now how is melatonin synthesized in our body? Melatonin is actually derived from an amino acid known as tryptophan. Melatonin synthesis is a multistep process. At first, tryptophan is converted to another amino acid, 5-hydroxytryptophan, through action of enzyme tryptophan hydroxylase and then to serotonin by action of enzyme called

aromatic amino acid decarboxylase. Now the serotonin is converted to N-acetyl serotonin by enzyme, Serotonin-N-acetyl-transferase (SNAT) and then its finally converted to melatonin by the enzyme Hydroxy indole-O-methyltransferase (HIOMT).

The amount of melatonin produced depends on activity of SNAT, which peaks when its dark outside and decreases when its morning time.

It has been observed that it's really harder for teens to wake up early. In teens, melatonin is released about three hours later in the 24-hour sleep cycle as compared to children and adults. This makes them sleep late and when they wake up in the morning, SNAT is still active which makes them feel sleepy.

Rishab Biswas

4<sup>th</sup> Semester (2021)

## **‘AURUM’, FROM THE CHEMIST PERSPECTIVE!**

So how to describe gold rather than being the most valuable metal which we people get arrested by the lustrous shine in it. But from a chemist point of view, it is nothing but a reddish yellow color element belonging to the group 11. The concentration of free electrons in gold metal is  $5.91 \times 10^{22} \text{ cm}^{-3}$ . This information reminds me of a famous aphorism “Everything that glitters may not be gold but at least contains free electrons”. On the contrary, for alchemist metals were not unique substances that populate the periodic table. Its practitioners sought to turn lead into gold, a quest that has captured the imaginations of people. However, the goals of alchemy went far beyond simply creating some golden nuggets.

Talking about golden, how did ‘Aurum’ get the name ‘gold’ and why is it even golden in color. Maybe if it was some other color it wouldn’t have caught people’s attention. Nevertheless, coming to the point Gold absorbs blue light more than it absorbs other visible wavelengths of light, the reflecting light reaching the eye is therefore lacking in blue compared to the incident light. Since yellow is complementary to blue, this makes a piece of gold under white light appear yellow to human eye. Gold got its English name from Anglo-Saxon word ‘geolo’ meaning yellow and from the German word ‘gulpa’ meaning gold.

Let’s talk about some intrigue facts. Recently we all enjoyed watching Tokyo Olympics 2020 and the felicitation ceremony where first position winners were awarded a gold medal. But interesting fact is the medal is not pure gold. It only contains 1% gold the rest roughly comprises of 92% silver and 6% copper. The last time solid gold medal was handed out at the Olympics was 1912. Gold like most heavy metals is believed to be forged inside stars through a process called nuclear fusion. On earth gold finally reached about 200 million years after the formation of the planet when meteorites packed with gold and other metals bombarded its surface. Gold is unreactive with water oxygen and alkali. Gold is highly conductive to electricity and has been used for electrical wiring in some high energy application. Gold has the advantage of corrosion resistance. There has been utilization of gold wiring during the Manhattan projects of atomic experiment. You can very well imagine the cost and expenditure.

Talking about price let's move on and have a look at the stock market who more or less influences the rise and inflation of gold's current value (fluctuation). Financial consultants always recommend to invest in assets such as gold during tough financial situations and economic downturns. In India gold is traded at the Multi commodity Exchange (MCX) where its rate changes every second during market hours. The closing price of the previous day is fixed as the purchase price of gold in the local market. It greatly hampers the economy of a county too.

Coming to the functional aspects of gold rather jewellery and economy, gold salts and radioisotopes of gold are of pharmacological value since elemental gold is inert to all chemicals encountered inside the body (that is ingested gold cannot be attacked by stomach acids). Gold salts also have anti-inflammatory properties and used in treatment of arthritis, tuberculosis.

Let's conclude by saying that, "May it be gold, silver, platinum or steel the finest metal always has to go through the hottest fire".

Rupsikha Choudhury

6<sup>th</sup> Semester (2021)



## GAMING IMPACTS

Video gaming is clearly a popular form of entertainment enjoyed by all. It has become a day-to-day activity for children, teenager, and even among adults. Be it for coping with stress for exam, fun, relaxation etc. And some for earning money through social media like YouTube etc.

Video gaming sales has continued to increased year on year. First person shooter or action-adventure genre are the most popular games like GTA, call of duty, Battlefield, PUBG are some of the most addicting games. This arises the question of positive and negative effects of gaming. So, how does gaming affect us?

Studies have shown that video gaming affects the brain, playing video games also helps children problem solving skills, games like strategic guide game (COC, warcraft) enhanced their creativity.

It also has some serious drawbacks of video gaming which include addiction, depression, and obviously aggression. But video game is also an effective tool for learning resilience in the face of failure. Playing games too often, especially with gratuitous violence causes serious psychological problem and could lead to **gaming disorder**, which impair the control over gaming, increasing priority given over other activities to the extent that gaming takes precedence over other interest and daily activities and continuation of gaming despite the occurrence of negative consequence. Excessive gaming among gamer creates loneliness, anxiety, depression, insomnia and social problem. Because of excessive gaming it leads to risk of health problem

Playing more video games only pushes people deeper into the cycle of gaming disorder, sitting long hours looking at the screen could lead to health problem, to avoid unnecessary health issues, set time limit to play, do other activities including exercise, this will lower health risks and will improve mood, and overall being. The energy a person spent playing on games could be directed on work, sports or somewhere else, listening to music also helps.

Irungbam Karankumar

4<sup>th</sup> Semester (2021)

## THE TRAGIC HISTORY OF ANTOINE-LAURENT LAVOISIER.



Antoine-Laurent Lavoisier, the father of Modern Chemistry, was born to a wealthy family of the nobility in Paris, on 26 August 1743. His father was Jean-Antoine Lavoisier, a lawyer in the Paris Parliament. His mother was Émilie Punctis, whose family wealth had come from a butchery business. She died when Antoine was five years old. Lavoisier grew up under the doting care of his mother's sister following the early death of his mother, Jeanne Lavoisier. He was five years old and became the recipient of both his aunt's nurturing and a large fortune after her death.

He established the law of conservation of mass, determined that combustion and respiration are caused by chemical reactions with what he named “oxygen,” and helped systematize chemical nomenclature, among many other accomplishments. He improved upon the works of scientists like Joseph Black and Joseph Priestley, especially contributing to the experiments conducted by the latter. In addition to his scientific research, Lavoisier was industrious in other fields. At the age of 26 he bought into a company that gathered tax for the French government. Having done this, he tried to reform tax law to help poorer taxpayers. He also served on the government's gunpowder commission, improving the quality of French gunpowder productions.

Lavoisier married Marie-Anne Pierrette Paulze in 1771. He was 28 and she was just 13. In marrying Marie-Anne so young, he was acting at the request of her father, who was a senior member of the tax company Lavoisier had bought into. The Count d'Amerval, who was about 40, had made a proposal of marriage to Marie-Anne and her father had been threatened with dismissal from the tax company if she did not say yes. Lavoisier stepped in and married her to provide Marie-Anne and her father with a suitable excuse for her not marrying The Count. Marie-Anne was a skilled artist and well-educated. She helped Lavoisier considerably with his work, translating scientific papers from English into French, adding her own notes and scientific criticisms of papers, helping with laboratory work, making accurate drawings of laboratory apparatus for Lavoisier's scientific publications, and keeping accurate written records of Lavoisier's experiments.

During the French Revolution, which began in 1789, wealthy people and anyone who had worked for the government were under threat. In 1793 the revolutionaries put an end to the French Academy of Sciences and other academic societies. At the end of 1793,

the arrest was decreed for all the leaders of the *Ferme Générale* (an outsourced customs, excise and indirect tax operation. It collected duties on behalf of the King plus hefty bonus fees for themselves, under renewable six-year contracts). Lavoisier tried in vain to prove that he had not collaborated with the *Ferme* for over three years.

Relying on his popularity, and having nothing to hide, he spontaneously presented himself to the magistrate and entrusted himself to justice. However, Antoine Lavoisier was accused of treason. According to a widespread legend, Judge Jean-Baptiste Coffinhal, president of the revolutionary court, replied to those who pointed out to him that Lavoisier was a scientist: “La République n’a pas besoin de savants” (“The republic is in no need of genius”). It seems that among his accusers there was also the revolutionary and chemical amateur Jean-Paul Marat (1743-1793), to whom Lavoisier had previously rejected the application for access to the French Academy of Sciences. He was also unpopular with revolutionaries because he had supported foreign scientists whom the revolutionaries wished to strip of their assets.

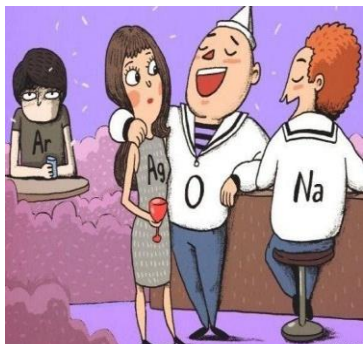
Antoine Lavoisier died by the guillotine, at the age of 50, on May 8, 1794 in Paris. Marie-Anne’s father and 26 other people were executed on the same occasion. At the end of 1795, in a U-turn, the French government found Lavoisier innocent of all charges. By then, of course, it was too late: he was just another innocent victim of the revolution’s Reign of Terror. Lavoisier’s accusers are long forgotten. Lavoisier was a scientist until the end: he seems to have asked one of his servants to check whether the death on the guillotine was instantaneous or not. He tried to blink until he could, and the servant noted that the last blink of his eye was fifteen seconds after the beheading. This episode could only be an anecdote, as it does not appear that the original notes were received, however it caused a series of successive experimental checks that substantially confirmed that the brain and facial muscles remain active for some time after detachment from the body.

Wanlamsuk Kyndiah

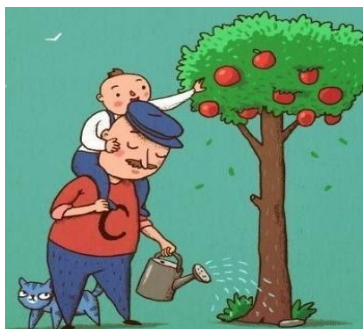
6<sup>th</sup> Semester (2021)

## WHAT CHEMICAL ELEMENTS WOULD LOOK LIKE IF THEY WERE PEOPLE

**Oxygen:** It is the most sociable element. It interacts with everything apart from inert gases



**Carbon:** Everything alive on Earth relies on carbon. He's irreplaceable



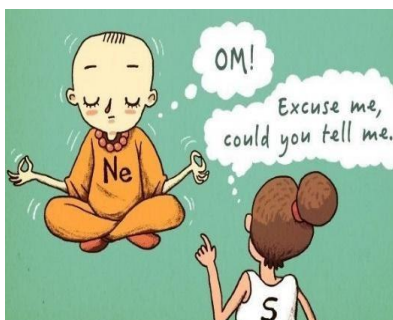
**Hydrogen:** It needs a lot of space. It's the most widespread element in the universe



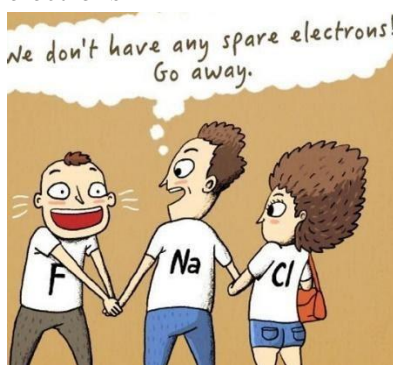
**Nitrogen:** It is the main component of the air we breathe



**Neon:** Is an inert gas. He's self-reliant. Harmonious. And doesn't react to anything



**Fluorine:** Wants to be friends with other elements, but he's too intrusive- he takes their electrons



**Sulphur:** Don't condemn sulphur for her pungent smell. She's great- she helps us make fire





**Gold:** It is very beautiful but not very responsive metal. It doesn't react to anything



Chelsia Rosetta Mawroh

2<sup>nd</sup> Semester (2021)

## CHEMISTRY “THE CENTRAL OF SCIENCE”

Chemistry is often called the central of science because of its role in connecting the physical science which include chemistry with the life sciences and applied sciences such as medicine, engineering astronomy, material sciences and many others.

Chemistry is also built on an understanding of laws of physics, that govern particles such as atoms, protons, neutrons, electrons, thermodynamic etc. In the same way biology cannot be fully reduced to chemistry, although the machinery that is responsible for life is composed of molecules. For instance, the machinery of evolution may be described in terms of chemistry by understanding that it is a mutation in the order of genetic base pairs in the DNA of an organism. However, it cannot be described fully since it does not contain concept such as natural selection that are responsible for driving evolution. Chemistry is fundamental to biology since it provides a methodology for studying and understanding the molecules that compose cells.

Another field that is based on chemistry is geology. Rocks are made up of atoms, and the chemical composition of stone and soil determines the hardness, erosion, and other physical quantities that shape the landscape. In archaeology as well as many other fields, the gradual chemical changes that occur in radioactive elements enable carbon dating techniques that have revolutionized our understanding of the past.

In the fields of medicine and biochemistry, chemistry plays a central role. Finely balanced chemical reactions, such as hormone synthesis and other processes, regulate the health of our bodies. Treatment of diseases and many other health issues depends on chemical understanding of what is occurring in the body. From bandage to mental health, from medications to blood plasma, chemistry is critical to medicine and biochemistry.

Moreover, all the matter is made up of chemistry. Hence, chemistry also means study of everything. Thus, chemistry is very important in our daily life, because everything on earth is almost made up of chemistry. For example, the most important is breathing which is a result of chemical reaction.



When we breathe in oxygen molecules combines with glucose in each and every living all of the body and the water and carbon dioxide and energy is released. Even the food we consume is made up of several chemical reactions and processes.

Thus, Chemistry helps us to understand the world around.

Rishanmi I Lamare

4<sup>th</sup> Semester (2021)

## **ENGINEER VS MANAGER**

Once a man was flying high in hot air balloon and realized that he is lost. He reduced height of his hot balloon to see if he can find someone. At a distance he saw a man down below.

Seeing that man, he lowered his balloon more near the ground level and shouted, "Excuse me, can you help me?? I had promised my friend to reach his place half hour ago but now I don't know where I am going".

Man standing below replied, "Yes I can help. I see that you are in hot air balloon, approximately 30 feet above ground. You positioning is about 40-degree latitude and 60-degree longitude."

Man in balloon interrupted and questioned " You must be an engineer...??"

Man on ground replied, " Yes, I am but how do you know?".

Man in balloon replied with a smirk on his face, " Well. Everything you said was technically correct but I don't know what to do with that information as it is not going to get me know how I can find my way. More over Fact is that I am still lost."

Man, below questioned, " You must be a manager...". Man in balloon was surprised and said, "Well. Yes, I am, but how do you know that I am a manager? "

Man on ground replied, " See... You were lost. You don't know where you are and where you going. You made a promise that you have no idea how to keep.

Now when you need help and you expect me solve your problem. The fact was that you were lost and you are still lost but now it is somehow my fault."

Laishram Ganashyam

4<sup>th</sup> semester (2021)

## **DID I JUST END UP IN THE WRONG CLASS?????**

.....A real-life incident.

It was late June 2018, our first semester classes had just begun, the corridors were packed with students entering their classrooms, some were leaving, some were still confused about the rooms and some were just hanging out in the corridors. That day, a week after we started our classes, we had Chemistry class (or so I thought) on the first period at 10.20am. I entered the college and went directly to Room -18 and sat on the third last bench from the corner. I haven't known my classmates well since two -three departments were combined for the Chemistry class which makes it a full classroom. As we sat there waiting for the bell to start the class, I noticed that not many students were present as there were yesterday. I thought maybe I was early since even my friends haven't come yet. After a few minutes the bell rang and soon after, a teacher came; thinking that he was from the Chemistry Department I took my notebook from my bag to scribble down the notes. He was teaching something about light and to my opinion it was a revision for what we had done in class 12. BUT.....As the class went on ....it struck me; this was actually an introduction to start that particular topic. Then slowly everything came to places, I looked around the class. ... Why was a chemistry class who had a full packed classroom yesterday has less students? Why were my friends not in this class? Why haven't I saw the teacher taking a class last week? It's obviously because I attended a wrong subject!!!!!!...I just sat there staring at the teacher, frozen by the situation in front of me. I tried to be as attentive as possible hoping that the teacher won't caught on me. After a while the class was over, I quickly went out and was so glad that I made it without anyone aware of my mistake. I met my friends on the next room since we're having Zoology and they asked me why was I absent for the Botany class, I laughed and told them the whole story and they started laughing hysterically. Later, I found out that the students I assume were my Chemistry mates, they were actually PCM students (Physics, Chemistry, Math). It happened to be that I misread the class routine and attended a Physics class instead of my Botany class. It was one of those memories that I had in the college and still remembers as if it was yesterday.

Wanlamsuk Kyndiah

6<sup>th</sup> Semester (2021)

## WORD SEARCH

S	M	A	R	I	E	L	E	D	Z	C	H
O	A	C	O	P	P	E	R	W	T	A	E
I	R	O	N	O	E	A	O	L	R	H	L
O	I	R	T	Y	N	D	P	R	J	L	I
D	E	U	G	Z	O	P	H	S	B	I	U
I	C	H	R	U	E	E	Y	E	N	T	M
N	U	P	A	J	N	F	D	N	S	H	I
E	R	L	Z	I	N	C	R	N	I	I	H
J	I	U	U	Y	G	F	O	I	L	U	B
L	E	S	R	A	I	H	G	N	V	M	A
K	H	I	N	I	C	K	E	L	E	D	G
N	E	G	O	R	T	I	N	F	R	A	W

### HINTS:

ENIDOI	REPPOC	NORI	DEAL	CNIZ	REVLIS
MUILEH	NEGORTIN	NOEN	NEGORDYH	RUHPLUS	MUIHTIL
LEKCIN	EIRUCEIRAM	SUINEHRRRA			

Joanna Jessica Thabah

4<sup>th</sup> Semester (2021)

## EUNOIA

Death is strong, but life is stronger  
Stronger than the dark, the light,  
Stronger than the wrong, the right;  
Faith and hope triumphant say

You did well!

Snow drop, lift your timid head,  
All the earth is waking,  
Field and forest, brown and dead,  
Into life are breaking,  
Snowdrop, rise and tell the story  
You were born with the strength to rise.

Phidarisuk Wanniang  
2<sup>nd</sup> Semester (2021)



## **“LOVE IN THE MOMENT”**

When there's no forever !

Be the shooting star passing by !

Showering that instance with whole hearted glee;

With no regrets left,

Accompanying the everlasting ease

When there's no ray of hope

Under subfusc era's supremacy,

Be the warmth that pleases one !!

Neither explanation be given

Nor the sorting thing taking place.

Be the adorable silence that comforts one.

Be the calmness one desires.

Be the gayness one begs for.

Be the special feeling one incites !

Electra Kashyap

2<sup>nd</sup> Semester (2021)

## **“LOST IN THE WILD”**

Lost in the wild; where my toes?  
Couldn't find them; trampled by my foes  
Reluctant and strong I stand,  
But how long  
Till when?  
Lost in the streets; but my heart races fast  
To a station of infants of love,  
Who tragically lost their hearts!  
Gleeful a time,  
Broken the other.  
Now those fear their smiles  
The way the aftermath makes them wither!  
Lost in those lies;  
How pretty can they be!  
Amazed: The way you seduce  
But isn't the real you!  
Lost in the wild;  
Abandoned, unloved  
But not to forget  
We will...  
Will be loved  
Some day!!  
Electra Kashyap,  
2<sup>nd</sup> Semester (2021)

## **“STILL WE RISE”**

The world came to an eerie halt,  
In the silence of the pandemic;  
Belittled by an invisible foe,  
But still we rise again.

In silence we remember our comrades,  
Who have put up a brave fight;  
Shaken to our very core,  
But still we rise again.

Amidst the pain we have endured  
Hope became our strongest suit;  
To find the strength to carry on  
In the world we call our home

Badamutjanai Diengdoh

6<sup>th</sup> Semester (2021)

## DEAR STRANGER

I know how you feel,  
to those who say  
this is a generation  
of confused minds  
lonely hearts  
and broken people,

I ask  
which one was not?

so don't worry about us,  
we too will find our ways  
to live, love and heal.

Deekshia Bhattachan

4<sup>th</sup> Semester (2021)

## SCENERY

In the streets full of flowers  
I see you today too  
Will it be in me

In the park of the early morning  
I have my feelings now  
Towards this old yellow

Illuminated by the moon  
Listen to the film

I still wonder wonder beautiful story  
Still wonder wonder best part  
I still wander wander next story  
I want to make you mine

If you leave footprints  
I will keep in warm  
I will stay in black and white.

Loitongbam Gunarani Devi

6<sup>th</sup> Semester (2021)

## CHERRY BLOSSOM

I stare outside the window,  
And wait for the chilly winter and wonder-  
When will the pretty tree shed its leaves and blossom  
I love to admire its beauty,  
And it reminds and promises me that home is near  
When the colourful butterflies rests on its branches,  
When the warm sunlight kisses its petals  
No sight is better.  
Its uniqueness mesmerises me.  
I love the sunset and the sunrise  
above the cheerful cherry blossom  
I wonder how it feels to stand imposingly,  
In the cold winter weather.  
Every time i gaze at it,  
A thought always crosses my mind,  
If such beauty is seen on earth,  
How beautiful will it be in heaven.

Deekshia Bhattachan

4<sup>th</sup> Semester (2021)



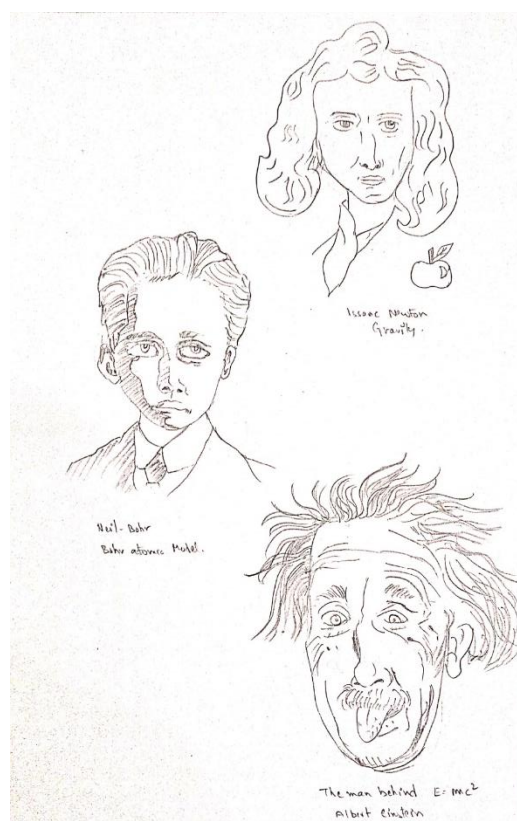
Lakhamti Badwar

4<sup>th</sup> Semester (2021)



Ravi Shankar Yadav

2<sup>nd</sup> Semester (2021)



Irungbam Karan Kumar

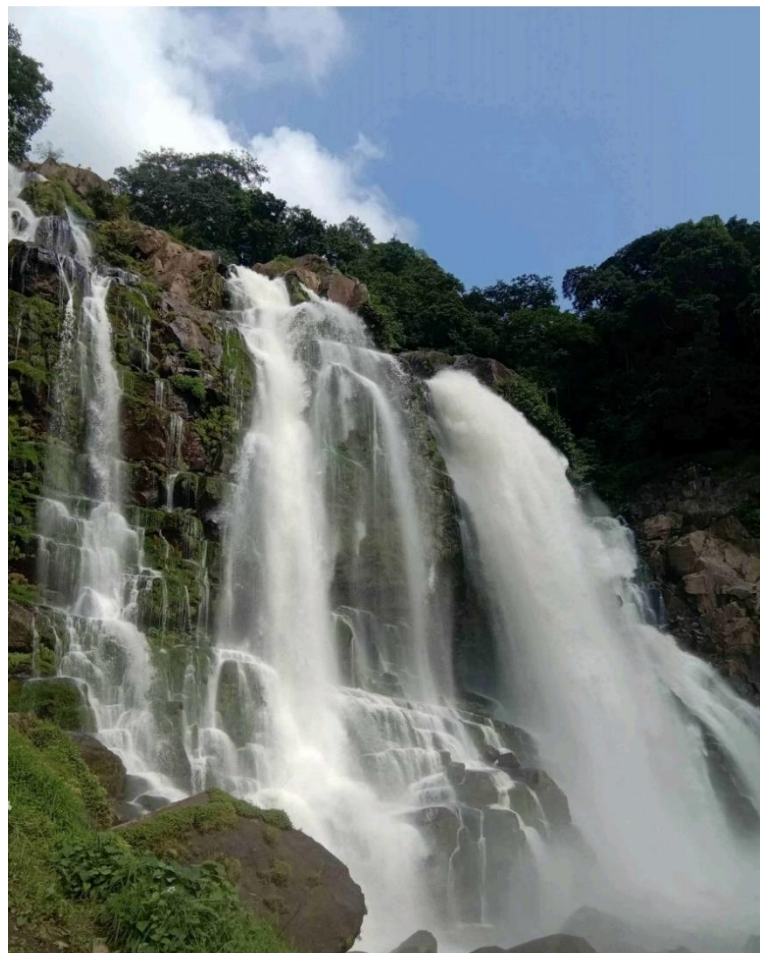
4<sup>th</sup> Semester  
(2021)





Rishab Biswas

4<sup>th</sup> Semester (2021)



Jarvis B Marak

4<sup>th</sup> Semester (2021)



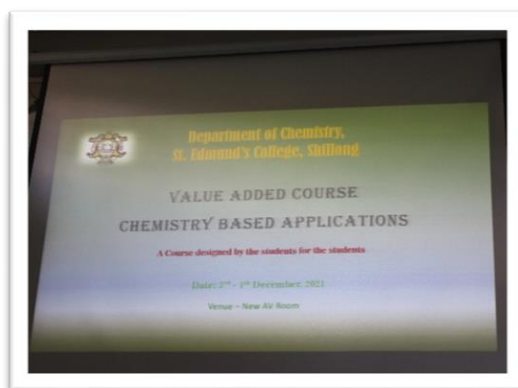


Kyrshanskhem Rynjah  
4<sup>th</sup> Semester (2021)

Laishram Ganashyam  
4<sup>th</sup> Semester (2021)



## **VALUE ADDED COURSE (FOR THE STUDENTS, BY THE STUDENTS)**



To bridge the gap between the academic and industrial need, the Value-Added Course was conducted in our department. It is important for higher education institutions to supplement the curriculum to make students better prepared to meet industrial demands as well as develop their own interests and aptitudes.

The Value-Added Course (VAC) on Candle making, Soap making and hand- sanitizer making was held on the 3rd of December 2021 at the AV room. It was organised by the 5th semester students headed by our very own CR Joanna Thabah.

It was a two-day program. On the first day, the course on candle making and soap making was being presented. Whereas on the second day the third course i.e., the making of hand sanitizer was presented and all the three courses were being demonstrated. The second day was delightful being able to watch how all the three products were made.

The whole program was a complete success and it was a pleasure in being able to take part on it, as it also boosted my confidence. Apart from learning how the products were made, I also learned the importance of how a teamwork makes the dream work.

Lakhamti Badwar  
5<sup>th</sup> Semester (2021)





## **SCIENCE MELA (EDSCIENTIA) 2021**

After a pandemic gap year, the famous Science Mela (EdScientia) of our college finally made a comeback. It was conducted by the Science Club, St Edmund's College on 10th and 11th of December 2021.

Many students of our department participated in this 2-day programme. Starting with model making competition, a group of our 5th semester students, Laishram Ganashyam, Jarvis B Marak, Dawanshisha Kharryngki, Kyrshanskhem Rynjah and Rishanmi I Lamare prepared a model on 'Earthquake alarm at home'. Moving on to Chart preparation, two of our third semester students, Pampi Sonowal and Dipankar Das made a chart on 'Air Ink' which fetched them 3rd position in the category. In the debate competition whose theme was 'Online education will render classroom teaching obsolete', a third semester student, Chelsia Rossetta Mawroh bagged the 2nd position speaking in favour of the motion. Last but not the least, representing the department in the Interdepartment Science Seminar, I got the 2nd position on the theme 'Recent trends in science for a sustainable future' where I presented on the topic 'Nature's response to plastic havoc - Plastic Eating Bacteria'.

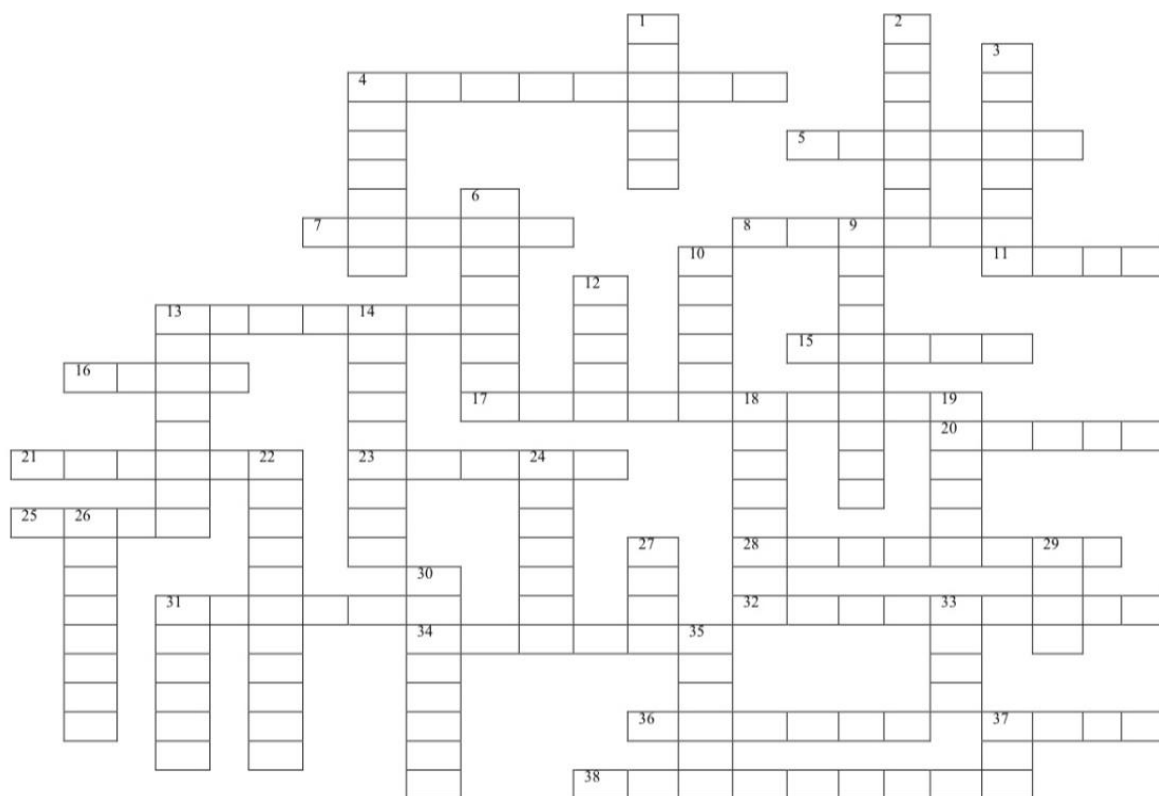
Overall, the programme was a huge success and the department performed really well. The students got a great exposure and gained a lot of experience. On behalf of all the participants, I thank all the teachers for their constant support and guidance and I hope the department keeps on doing great in the future editions of Science Mela.

Rishab Biswas

5<sup>th</sup> Semester (2021)



# CROSSWORD



## Across

4. A disease that causes high blood sugar
5. Acid derived from citrus fruits
7. A type of tree
8. A breakfast
11. Not quick in motion
13. Sour liquid
15. Opposite of cis
16. Relative speed
17. A dressing used on salads
20. Sweetens a drink
21. Positively charged ion
23. Insignificant
25. Insects known for pollination
28. Dispersing fat in water
31. An essential nutrient
32. Unsaturated fats
34. Colourless, odourless gas
36. Carbohydrate
37. Swift
38. First reported radical anion

## Down

1. Methylene group has this character
2. Substance added to enhance flavour or shelf life
3. Chemically reactive species
4. An adhesive
6. A dessert
9. Capable of returning to the original state
10. Protein found in wheat
12. Viscous sweet liquid
13. Organic molecules essential for metabolism
14. A common additive
18. Building blocks for growth and repair
19. Sweet smelling organic compounds
22. Electron rich species
24. Disorder involving excessive fat accumulation
26. Organic anions/metal salt of enol form
29. A colloidal system
30. Amino acids are the building blocks
30. A zodiac sign
33. Not a hard acid
35. Sweet liquid secreted by flowers
37. Oil and greasy compound



## ACTIVITIES OF THE DEPARTMENT

Sl No	Programme	Date	Resource Person (s)
1	International Webinar - Next Gen Covid Vaccine with Receptor Binding Domain – Smart Plug and Play for future variants & Why some probes don't light up in Multiplex RT PCR	22nd August, 2020	Dr Debayan Ghosh Founder & President Epygen Biotech Ltd, Dubai, UAE
2	International Webinar on Understanding Basic Concepts in Chemistry	28th & 29th August, 2020	i. Mr. Randhir Rai, Research Scholar at IIT Madras ii. Dr. Binoyargha Dam, Guest Faculty, North Eastern Hill University, Shillong. iii. Dr. Debojit Kumar Deb, Assistant Professor William Carey University, Shillong. Mr. Ashim Nandi, PhD Candidate, Ben Gurion University, Israel.
3	National Webinar on “Supramolecular Chemistry with special emphasis on Biominerals; their synthesis, characterization and applications in various fields”.	8th September, 2020	Mr. D. Paul, PhD Candidate, IIT - Guwahati
4	International Webinar on “Role of Digital and Cloud Model in delivering Education during Pandemic and Beyond”.	15th September, 2020	Mr. K. Nath, CEO, SIFY
5	International Webinar on Understanding Basic Concepts in Chemistry – “The Chemistry Behind Transition of a Sand Particle into Glass”	18th September, 2020	Mr S. Ghosh, Float LLC Abu Dhabi, UAE
6	National Webinar on “Career Paths in Chemistry”	26th November, 2020	Dr. P. Ghosh, Professor, IIT-Bombay
7	International Webinar on Understanding Basic Concepts in Chemistry – Series 3	10th April, 2021	i. Nikita Das, M Sc Polymer Sc Technology, CIPET, Ahmedabad Inspired Fellow, GATE 21 ii. Roopjyoti Misra M Sc Chemistry, NEHU, Shillong CSIR - NET 21 & GATE 21 iii. Jupitora Thakuria M Sc Organic Chemistry, Bangalore University
8	National Webinar on Understanding Basic Concepts in Chemistry – Series 3	9th July, 2021	Alka Karn, (Ex-Edmundian, 2012-2015) Ph.D Candidate, Department of Chemistry, IIT, Kanpur. Research Associate (Jun, 2017-Aug, 2018), Jacobs University Bremen, Germany.
9	Value Added Courses – Chemistry Based Applications	3rd – 4th December, 2021	Bsc 5th Semester Students (Chemistry Honours)



**National Webinar on "Understanding Basic Concepts in Chemistry" Series-4**  
 Organized by  
 The Department of Chemistry in collaboration with IQAC, St. Edmund's College, Shillong

**Topic: Organocatalysis of aldol reaction and porous organic polymers for asymmetric catalysis**

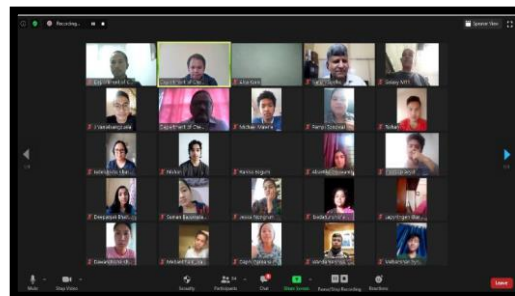
**Mike Marx, (Ex-Edmundian, 2012-2015)**  
 > Ph.D Candidate, Department of Chemistry, IIT, Kanpur.  
 > Research Associate (Jun, 2017- Aug, 2018), Jacobs University Bremen, Germany.

**Instructions:**  
 • Open to all students with Chemistry as elective paper.  
 • No Registration Fee.  
 • Zoom Platform.  
 • Registration - online via Google form link, latest by 08<sup>th</sup> July, 2021.  
 • e-Certificate will be provided to registered participants subject to submission of feedback form after active participation in the webinar.

**Program Coordinator:**  
 Mr. Basanta Loughshai  
 Assistant Professor  
 Department of Chemistry,  
 St. Edmund's College, Shillong  
 chemist18@gmail.com

**Date:** 09<sup>th</sup> July, 2021  
**Time:** 3:00 pm (IST)

<https://forms.gle/400Jhgmtd6vCRNA>



**Doghhouse**

**VIDEO 1**

**SUPRAMOLECULAR CHEMISTRY with special emphasis on BIOMINERALS; their synthesis, characterization and applications in various fields**

**Presented by**  
**DEBOJIT PAUL**  
 Department of Chemistry, Indian Institute of Technology Guwahati,  
 Assam-781039, India

2020-09-08 15:18:00

**Chemistry Influences every aspect of human life**

Good Morning!!! Good Night!!!

2020-09-08 15:01:10

**WORKING PRINCIPLE OF FTIR**

❑ In an infrared spectrophotometer, infrared radiation of successively increasing wavelength is passed through the sample of the compound and the percent transmittance is measured.

❑ Constructive Interference are observed when the phase difference (PD) between the waves coming from the stationary and moving mirrors are in phase and are integral number of wavelengths.  $(PD=0, \lambda, 2\lambda, 3\lambda, \dots)$

❑ Destructive Interference are observed when phase difference (PD) between the waves coming from the stationary and moving mirrors are out of phase and are half integral number of wavelengths.  $(PD=\lambda/2, 3\lambda/2, 5\lambda/2, \dots)$

2020-09-08 09:58:18

## CLASS PHOTOS



**VI SEMESTER**

**IV SEMESTER**



**II SEMESTER**





## PHOTO GALLERY





