ST. ALOYSIUS COLLEGE (AUTONOMOUS) JABALPUR

DEPARTMENT OF CHEMISTRY

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DISHA

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MESSAGE FROM VICE-PRINCIPAL (DISCIPLINE)

"The sense of well-being lies in feeling good while performing physical tasks as well in accomplishing mentally challenging responsibilities and the entire diaspora of complex day to day psychological interactions.

We list three Neurotransmitters/Hormones: Dopamine, Serotonin and Endorphin which play crucial roles in physical movement, mood, mental health, sleep, digestion etc.

1. Dopamine gives a sense of satisfaction, pleasure when something is achieved. We feel good when there is a rush of dopamine to the brain. Enough amino acid l-tyrosine provide the basic building blocks for synthesis of dopamine. A brief food chart is given below for reference.
2. Serotonin is a known as a mood stabilizer as it gives happiness. The majority of serotonin is found in the intestinal tract with only a small fraction being produced in the brain. It also helps in the process of digestion. Serotonin is formed out of essential amino acid tryptophan.
3. Endorphin are neuropeptides and bring about the well-known "runners high". Higher endorphin levels are seen to reduce pain and increase pleasure. Endorphins are produced by *the hypothalamus and pituitary gland* in response to pain or stress. Exercising is an almost certain way of producing endorphins.

Dr. KALLOL DAS

MESSAGE FROM VICE-PRINCIPAL (ACADEMICS)

"We think there is colour, we think there is sweet, we think there is bitter, but in reality, there are atoms and a void"

-DEMOCRITUS, C. 460 – C. 370 BC

Chemistry influences all spheres of life; we do not even realize that we come across chemicals at every step; that we are beautiful chemical creations and all activities of our body and mind are controlled by chemicals. Chemistry has its roots well-settled in almost every aspect of our lives. It is so intricately involved in various processes; we fail to notice them at times. We human beings are knowingly or unknowingly surrounded by chemistry. Morning to evening, life to death, it is a big aspect of our day-to-day life. One may think that it is a branch of science that deals with chemicals in the lab only but unknowingly we are applying it in daily works.

The foods we eat consist of organic compounds like carbohydrates starch and sugar, protein, and lipids, vitamins and minerals and water are all important chemical compounds. Respiration, Digestion, Response, Relationships, and other phenomena of the human body are related to chemistry. Plants carry out photosynthesis which is also a chemical process. The drugs people use are all extracted from plants or synthesized in laboratories chemistry! Soaps, detergents, household cleaners are all chemicals made in a lab. The art of cooking is a chemical reaction. The makeup and anti-wrinkle creams, the sunscreen, all chemical products devised in labs and sold on the market place. Hence human life is inseparable from Chemistry. Therefore, whether we like or dislike Chemistry it will always be an integral part of us and so let us accept it and relate to it..

Dr. ANJALI D'SOUZA

GLIMPSES OF INDUSTRIAL VISIT (21 JAN, 2023) & LAB VISIT (2 FEB, 2023)

INVENTION

THIS 12- YEARS-OLD DESIGNED A WATER BOTTLE YOU CAN EAT.

After seeing plastic polluting her favourite beaches year after year, Madison Checketts decided it was time to do something about it. After learning more about plastic pollution and ways to reduce it, she designed what she calls the ECO-HERO. The gelatinous water bottle is edible.

Plastic pollution devastates marine environment and poses a specific threat to marine wildlife. Depending on environmental conditions and chemical properties, plastics can also leach toxic chemicals and contaminates into the ocean. Checketts approach was based on further internet research about reverse spherification method. She relied on a chemical reaction between two common food additives - a salt called calcium lactate and a natural polymer found in brown algae called sodium alginate. When mixed, the chemicals form a cross link resulting in a gel membrane that traps liquid.

Checketts stumbled upon a website focussed on reverse spherification - a method of enclosing a liquid in gel membrane - and wondered if she could make an edible water bottle using this process. Compared to basic spherification, reverse spherification allows for the liquid encased in membrane to remain a liquid for longer. The sphere itself can be bigger, too. She tested various concentration of the calcium lactate, sodium alginate and Xanthium gum to achieve the best results. Adding Xanthium gum to the calcium lactate solution helped make the membrane stronger, but she says the outer layer and water tasted soapy.

SAKSHI NAMDEO
M. Sc. Chemistry 4th Sem

Poem – Hindi

पड़ गए हैं उनके प्यार के चक्कर में ऐसे, आर्बिट पर गोल गोल घूमते इलेक्ट्रान हो जैसे
उनको देखते ही हमारा दिल मचलता है ऐसे, पानी में रखने पर सोडियम जलता हो जैसे
कब उनके टोलेंस रिएजेंट से हमारा एल्डिहाइड रिएक्ट कर गया, मालूम ही नहीं पड़ा
लेकिन उनको देखकर हमारी हालत हो जाती है ऐसे जैसे मानो कोई बच्चा आर्गेनिक
केमिस्ट्री का वाइवा देने हो को हो खड़ा, उनके साथ हमें घूमना खूब पसंद आता है
नॉन रिएक्टिव से कब हम रिएक्टिव हो जाते हैं, यह हमें खुद ही नहीं पता चल पाता है
लैब में घंटों तक हम साथ में प्रेक्टिकल करते रह जाते हैं
पर हमारे टेस्ट के रिजल्ट कभी पॉजिटिव नहीं आते हैं, उन्हीं के सपने आते हैं जब भी हम हैं सोते
शायद इसलिए आजकल हमें इन आर्गेनिक के एक्सेप्शन याद नहीं होते
उनकी तरफ से प्यार भी नहीं रहा कोई कसर,
उनकी निगाहों को देखते ही ऐसा लगता है जैसे चढ़ने लगा हो एल्कोहल का असर
उनके प्यार में आकर हो गया हूं हर दर्द से आबाद
महसूस कर रहा हूं ऐसे जैसे एक बच्चे को हो गया हो पीरियोडिक टेबल याद

SIKHA RAJE BUNDELA
M. Sc. Chemistry 2nd Sem

Poem – English

Chemistry, a Science of delight,
A mixture of Element and Light.
With Reaction so fast and so slow,
It helps us understand the world below.
From the smallest particle to the grand scheme,
Chemistry reveals the world unseen.
It brings to Life the colour and hue,
And explains the mysteries of what is true.
With atoms and molecules as in game,
Chemistry helps us explain and gain.
A deeper understanding of Life,
And in secrets, so full of strife.
Chemistry, oh how its flow.
With reaction, compounds, and compounds that glows.
It's the science of the element that unite,
A symphony of atoms, everything in sight.
From the smallest particle to the biggest chunk,
It's the study of matter, how it reacts and how it sunk.
With equation that balance and laws that explain,
Chemistry helps us understand the world in its refrain.
The element they combine, with bonds that they make,
Creativity new substances, in beakers they bake.
Acids and bases, they have a special place,
In the world of Chemistry, with properties to trace.
With experiments and research, the unknown is unveiled,
From medicine to fuels, its impact is hailed.
Chemistry is everywhere, in everything we see,
It is the magic that makes life as it should be.

ASHITA TIWARI
M. Sc. Chemistry 2nd Sem

RIDDLES

1. Shiny like a silver denser than lead, pricer than gold, could stop a bullet, if I wanted to what am I?
2. I may not be gold but I make look gold more beautiful. I help you fly and even though am not popular, my prices run high what am I??
3. I am in your kitchen pantry waiting for you to wrap me over something, what am I??
4. I catch fire easily but protect cars in cold you can use me as a fuel and yet I am every distiller's goal??
5. I can protect you from sun's strong rays, you can apply me on your skin to protect sunburns. what am I??
6. You take me when you have a stomach-ache, I am known to speeding up your body processes. Who am I???
7. I am the element which a dead chemist or grave diggers must deal with. What am I???

ANSWERS: -

(1) Osmium (2) Rhodium (3) Aluminium (4) Ethanol (5) Zinc (6) Magnesium (7) Barium

ADITI SHRIVASTAVA & REENA RANA
M. Sc. Chemistry 4th Sem

AUTO-BIOGRAPHY - Asima Chatterjee (1917 - 2006)

Asima Chatterjee is the 3rd most famous Indian Chemist. Her biography has been translated into 43 different languages.

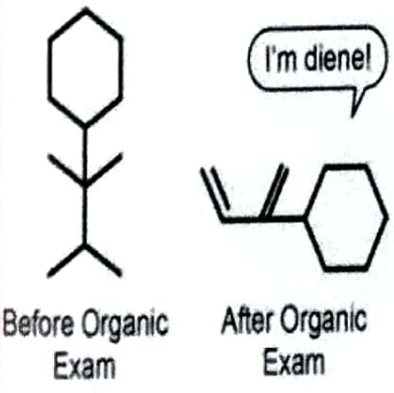
Asima Chatterjee (23 September 1917 – 22 November 2006) was an Indian organic chemist noted for her work in the fields of organic chemistry and phytomedicine. Her most notable work includes research on vinca alkaloids, the development of anti-epileptic drugs, and development of anti-malarial drugs. She also authored a considerable volume of work on medicinal plants of the Indian subcontinent.

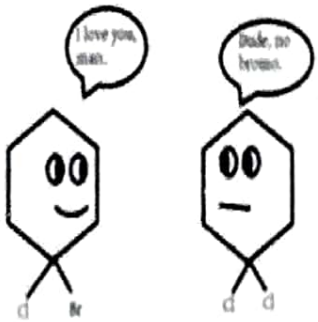
She was a Premchand Roychand Scholar of the University of Calcutta. From 1962 to 1982, she was the Kharia Professor of Chemistry, one of the converted chairs of the University of Calcutta. In 1972, she was appointed as the Honorary Coordinator of the Special Assistance Programme to intensify teaching and research in natural product chemistry, sanctioned by the Indian University Grants Commission. In 1961 she received the Shanti Swaroop Bhatnagar Awards in chemical Science, becoming the first female recipient of this award. In 1975 she was conferred the Padma Bhushan and became the first female scientist to be elected the general president of the Indian Science Congress Association.

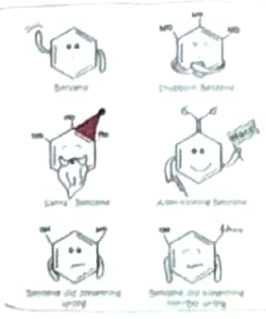
She was conferred the D. Sc. (honoris causa) degree by several universities. She was nominated by the President of India as a member of the Rajya Sabha from February 1982 to May 1990. She won the C.V Raman award, P.C Ray Award, and the S.S Bhatnagar award.

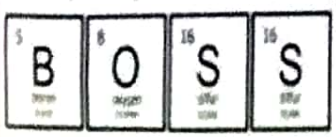
KANISHKA KUKAL
B.Sc (CBZ) III Year

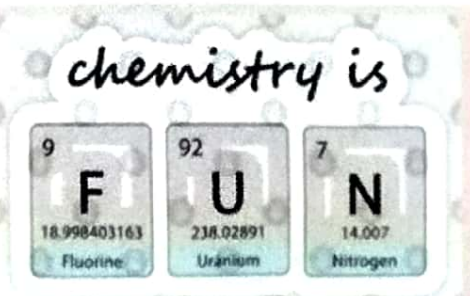
JOKES







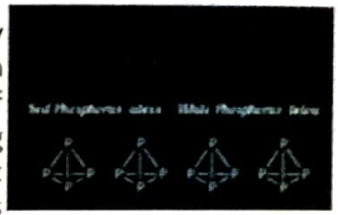




SAKSHI SHRIVASTAVA & ARCHANA SINGH
M. Sc. Chemistry 4th Sem

CHEMISTRY BEHIND THE MATCHBOX

THE HISTORY OF MATCHES: The first matches were developed by the English Chemist ,John Walker ,in1826.His matches involved a mixture of potassium chlorate antimany (III) sulfide,gum,and starch which ignited when struck on sand paper
In 1830 ,Charles Sauria, a French Chemist invented the first phosphorus-based match,by replacing the antimony sulfide in walker's matches with white phosphorus.



HOW MATCHES WORK: The composition of matches varies depending on type, but safety matches are the most commonly used. They contain a strong oxidising agent in the match head, and red phosphorus in the striking surface. Striking the match causes small amounts of the oxidiser and phosphorus to combine, and the heat generated by the friction of the striking causes them to ignite. Prior to the 1990s,white phosphorus was active ingredient in most matches, but this could causes"phossy jaw"and bone disorders and was also toxic so was replaced.

THE MATCH:- (i)Potassium Chlorate- main ingredient(45-55%) in heads of safety matches.
(ii)Phosphorus Sesquisulfide-component in the heads of 'strike anywhere'matchs.
(iii) Antimony (III)Sulphide-added to some matches to make them butn more vigorously. Additionally the matches contain ammonium phosphates to prevent "after glow", glue to bind materials and paraffin wax for ease of burning.

THE MATCH BOX:-The striking surface of safety match boxes Contains red phosphorus and an abrasive Substance. When struck a small amount of White phosphorus is produced, which ignites

POOJA BINDU PRADHAN
M. Sc. Chemistry 4th Sem

FACTS

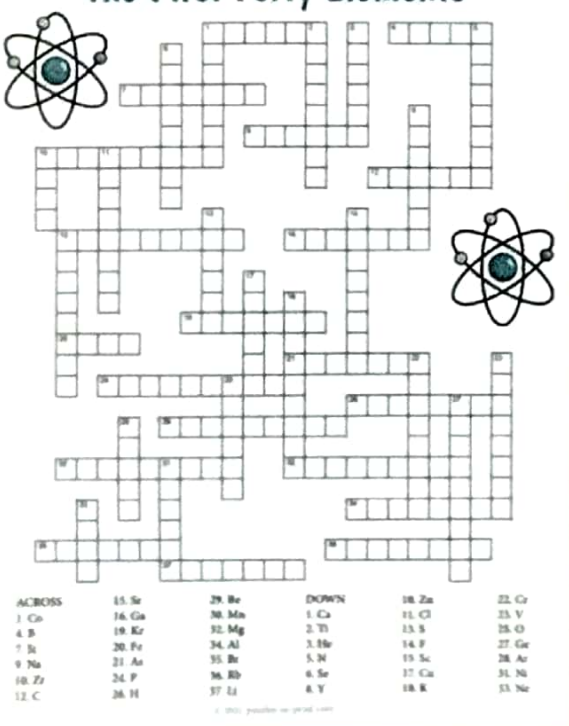
1. When you mix 1/2 L water (H_2O) with 1/2 L Alcohol (C_2H_5OH) the combined solution is less than 1L.
2. J is the only letter that is not present in periodic table.
3. Astatine is the rarest element that occur naturally in Earth's crust. Probably just 28g of Astatine is in existence.
4. Water expands on freezing. The volume of 1 ice cube is 9% more than the liquid used to form it.
5. There is large amount of rust or iron oxide on Mars, so it appears red.
6. Apple seeds are extremely poisonous. It contains Amygdalin if turn into cyanide if chewed.
7. Rainwater holds Vitamin B_{12}
8. DNA present in our body is a flame retardant.

SHUBH RATHOD & MAYANK MAURYA
M. Sc. Chemistry 2nd Sem

CROSSWORD PUZZLE

Name: _____ Date: _____

The First Forty Elements



ACROSS
1. Co
4. B
7. Si
9. Na
10. Zr
12. C
15. Se
16. Ga
19. Kr
20. Fe
21. As
24. P
26. H
29. Be
30. Mn
32. Mg
34. Al
35. Br
36. Rb
37. Li

DOWN
1. Ca
2. Ti
3. He
5. N
6. Se
8. Y
18. Zn
11. Cl
13. S
14. F
15. Sc
17. Cu
18. K
22. Cr
23. V
25. O
27. Ge
28. Ar
31. Ni
33. Ne

SUSHMITA PATEL
M. Sc. Chemistry 4th Sem

STARS OF DEPARTMENT

Ms. Anam Fatima, Ms. Anjali Patel, Mr. Abin Thomas, and Mr Chetan Bhatia of B. Sc. II Semester (Chemistry Major) bagged the Second position in Poster competition in the International Conference on Plastics held on 25th - 26th February 2023, Saturday, and Sunday, at Hitkarini Women College, Jabalpur, M.P.

MSc Chemistry sem IV students participated in international conference **"International Conference on Multidisciplinary Research Perspective"** at BSS College Bhopal held on 16-17 February, 2023 and presented review and research papers. Ms Disha Bhagtiani received the Best presentation award in the international conference.