

Jan-June 2022

OZONE



EDITION -7.0



DEPARTMENT OF CHEMICAL ENGINEERING
GAYATRI VIDYA PARISHAD COLLEGE OF ENGINEERING
(AUTONOMOUS)



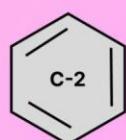
IICHE STUDENT- CHAPTER

TECHNICAL TEAM

- **G.Srinivas(Technical-Coordinator)** (4th year)
- **R.kusaraju** (3rd year)
- **V.Neelima** (3rd year)
- **P.Harshitha** (3rd year)

OZONE TEAM

- **Y.Sharmila(Ozone Head)** (4th year)
- **K.Manikanta Ashritha** (3rd year)
- **U.Chandana devi**(3rd year)
- **S.Nanditha** (3rd year)



-OFFICE BEARERS-

For Academic Year 2023-2024

OZONE FACULTY COORDINATORS:

- Dr.B.Srinivas,Professor
- Dr.B.Srinivasulu Professor&Head of the Department

FACULTY CO-ORDINATORS:

- Dr.C.V.NageswaraRao,Associate Professor
- Mr.G.Naga Chaitanya,Assistant Professor

EXECUTIVE COMMITTEE:

- 1.Yamuna Lanka-President (4th year)
- 2.Sharmila Yanapu-Secretary(4th year)
- 3.Md.sahid afrid-Treasurer (4th year)
- 4.K.Sandeep- Vice President (3rd year)
- 5.V.Ramya-Joint secretary (3rd year)

TECHNICAL TEAM:

A. POSTER MAKING:

- G.Srinivas-tech team head (4th year)
- R.Kusa raju (3rd year)
- P.Harshitha (3rd year)
- V.Neelima(3rd year)

B. WEBSITE HANDLING:

- Charanvedu—website handling head (4th year)
- G.Pradeep (3rd year)
- V.Priya (3rd year)



LITERARY TEAM:

A. NEWS LETTER :

- M.Deepak –newsleter head(4th year)
- B.Deeksha(4th year)

B.OZONE:

- K.Ashrita (3rd year)
- U.Chandana (3rd year)
- S.Nanditha (3rd year)

C.ARTICLE CONTRIBUTORS:

- S.Sravani (3rd year)
- K.Rishika (3rd year)
- Vijay (3rd year)

D.EVENT MANAGEMENT TEAM:

- M.Sahithi–event coordinator (3rd year)
- M.Yashaswini –creative head (3rd year)
- V.Bharath–creative head (3rd year)



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<https://www.linkedin.com/groups/14290903/>

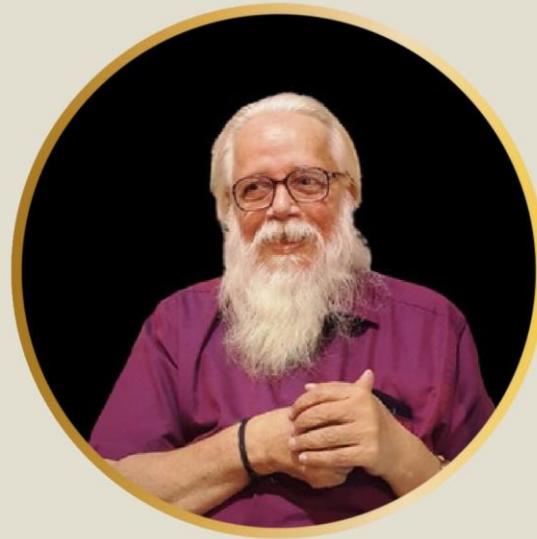


Sasthravetha

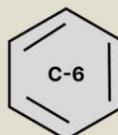
Nambi Narayanan

A Living Legend!

Nambi Narayanan was born on 12 December 1941 in the house of Tamil Hindu parents in Tamil Nadu. After studying mechanical engineering in Madurai, Narayanan started his career in 1966 at ISRO as a technical assistant at the Thumba Equatorial Rocket Launching Station. He was sent to Princeton University on deputation at Government of India's expense in 1969. He completed his master's program there in chemical rocket propulsion under professor Luigi Crocco. He returned to India with expertise in liquid propulsion at a time when Indian rocketry was still solely dependent on solid propellants.



Narayanan is an Indian aerospace scientist who worked for the Indian Space Research Organisation (ISRO) and contributed significantly to the Indian space program by developing the Vikas rocket engine. Nambi Narayanan is often referred to as the "father of India's space program." He played a crucial role in the development of the Indian space program and was one of the key scientists behind the successful development of the Polar Satellite Launch Vehicle (PSLV).





Nambi Narayanan was a leading aerospace engineer and worked at the Indian Space Research Organisation (ISRO). His contributions and achievements have been significant in advancing India's space research and satellite technology. Nambi Narayanan is renowned for his significant contributions to India's space research and satellite technology. Some of his notable contributions include: Development of the Vikas Engine, Successful PSLV Program Satellite Projects, Role in the Cryogenic Technology.

Nambi Narayanan's contributions have not only advanced India's space program but also inspired countless young scientists and engineers to pursue careers in space research and technology. His perseverance, vision, and technical expertise have been crucial in elevating India's status in the global space community.

FUEL CELL

Fuel cells are electrochemical systems that turn chemical reaction energy directly into electrical energy. They are dependable, tidy, and effective. Several fuels, including hydrogen, natural gas, and methanol, can be used to power fuel cells. They are being created for a variety of uses, such as transportation, permanent power generating, and portable electricity.

MERITS

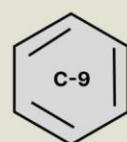
For lowering greenhouse gas emissions and enhancing energy security, fuel cells are regarded as a promising technology. They are being developed for a variety of uses, including the propulsion of automobiles, buses, and trains as well as the provision of electricity for residences, commercial buildings, and even entire towns. The efficiency of fuel cells is far higher than that of conventional internal combustion engines, yet they only emit water.



Fuel used in chandrayaan-3



- Chandrayaan-3, the third mission of the Indian Space Research Organisation (ISRO) which was successfully launched on 14th July 2023, from Sriharikota.
- The three-stage rocket has two solid fuel boosters, which initially thrust rocket forward. Then, the liquid fuel core stage takes over, maintaining the thrust and helping the rocket achieve its desired orbit. This fuel, called propellant, is an essential component in space missions .
- Both solid and liquid fuels were used in the rocket carrying Chandrayaan-3. The first stage utilizes solid fuel, while the second stage employs liquid fuel. For the final stage, a cryogenic engine is used, running on liquid hydrogen and oxygen.
- The rocket's fuel capacity is more than 27,000kg.
- The heart of this remarkable rocket is the CE-2 cryogenic engine, specially designed by ISRO for Chandrayaan-3. It powers the cryogenic upper stage of the LVM-3 launch vehicle. The engine is equipped with a sophisticated system that propels the rocket and consists of several crucial components, including igniters, combustion chambers, cryo pumps, and the rocket engine nozzle.
- As the rocket launches, you might have noticed a large amount of smoke being emitted. This is a normal occurrence during rocket launches, caused by the burning of the rocket's fuel or propellant. The exhaust of hot gas and smoke generates an upward force known as thrust, propelling the rocket upwards. This thrust is what enables the rocket to fly at high speeds, reaching approximately 17,800 miles per hour to achieve its elliptical path around the Earth.



KNOW YOUR INDUSTRY

BEHIND THE WALL

Introduction :

Soap, an essential part of our daily lives, plays a significant role in maintaining personal hygiene and cleanliness. Have you ever wondered how this ubiquitous commodity is made in industries? Join us on a journey to explore the fascinating world of soap manufacturing, where the blend of art and science results in the creation of the bars and liquids that we use every day.



INGREDIENT SELECTION:

In modern soap manufacturing, choosing the right ingredients is crucial. High-quality oils and fats, such as coconut oil, palm oil, and olive oil, are commonly used for their cleansing properties. The selection of the oils can determine the soap's lathering, moisturizing, and scent characteristics.

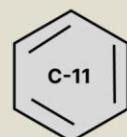
EXTRUSION AND CUTTING

Once the soap has reached the desired consistency, it is extruded into large blocks. These blocks are then cut into smaller bars or pellets using specialized cutting machines, which vary depending on the desired shape and size of the soap.



SAPONIFICATION

The soap base is then subjected to the saponification process. In large industrial settings, this occurs in massive stainless-steel vats known as saponification reactors. The fats or oils are heated, and the alkaline solution is carefully added to initiate the reaction. This step requires precise temperature and time control to ensure complete saponification.



PACKAGING:

Finally, the soap is packaged and prepared for distribution. At this stage, fragrances, colours, and additional ingredients may be added to create different varieties of soap tailored to specific consumer preferences.

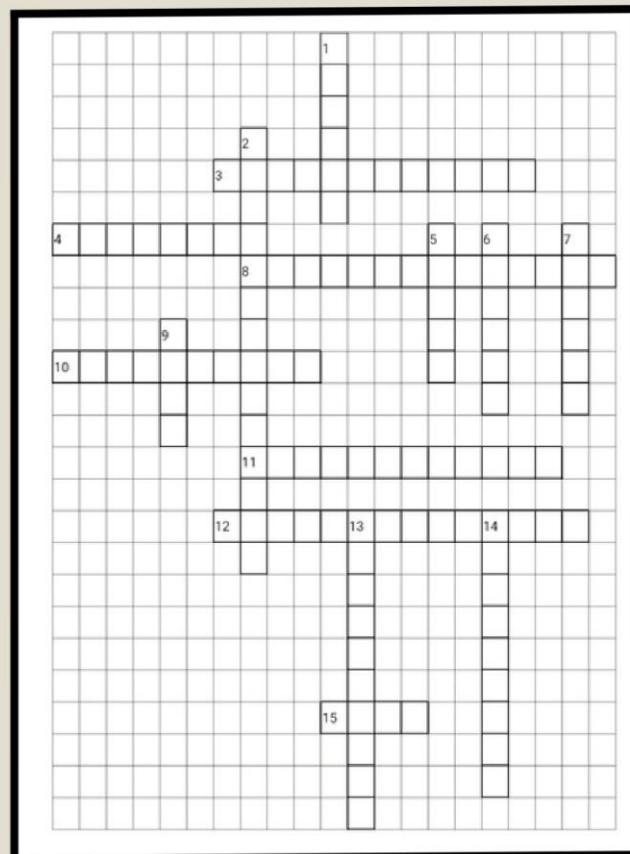


CONCLUSION:

The process of soap manufacturing is an intricate dance of art and science. The careful selection of ingredients, precise mixing, saponification, and subsequent curing all contribute to the final product that we use daily. As we appreciate the ingenuity and dedication of the soap making industry, we must also commend those who bring this essential product to our homes and help maintain the health and hygiene of communities worldwide.



CROSS WORD

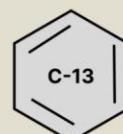


ACROSS:

- 3. THE INSTRUMENT USED TO MEASURE THE FLOW RATE(12)
- 4. WHICH INCREASES THE RATE OF REACTION(8)
- 8. RATIO OF INERTIAL FORCE TO VISCOUS FORCE(14)
- 10. THE MASS TRANSFER OPERATION BETWEEN GAS AND LIQUID USING EXTERNAL SOLVENT (10)
- 11. INSTRUMENT USED IN INDUSTRIES FOR MEASURING HIGH TEMPERATURE RANGE (12)
- 12. $C_2H_3Cl \dots (C_2H_3Cl)_n$ IS WHICH TYPE OF REACTION (14)
- 15. A COMPONENT FORMED BY THE REACTION OF AMMONIA AND CO_2 (4)

DOWN:

- 1. RETURN BACK OF A MIXTURE OF MORE VOLATILE PRODUCTS(6)
- 2. A REACTION WHICH PRODUCES SALT AND WATER BY THE REACTION OF ACID AND BASE(14)
- 5. A SIMULATION SOFTWARE USED TO DESIGN CHEMICAL ENGINEERING OPERATION(5)
- 6. A HYDRO CARBON COMPOUND THAT CONTAINS 8 CARBONS ARRANGED AT THE CORNERS (6)
- 7. A SMALL MOLECULE MADE UP OF ONE CARBON AND THREE HYDROGEN ATOMS (6)
- 9. FORCE EXERTED BY THE FLUID ON THE BODY IN THE DIRECTION OF FLOW OF FLUID(4)
- 13. TYPE OF REACTION IN AMMONIATION PROCESS IN SOLVAY PROCESS(10)
- 14. MINIMUM ENERGY REQUIRED BY THE REACTANTS TO TAKE PART IN REACTION(9)



A TALK WITH

-M.Ganesh

2005-2009



? **Sir can we know about your schooling?**

I have done my schooling In a government school (telugu medium) till my 10th standard .Then I completed my Diploma in chemical engineering at GICE Visakhapatnam.But there is a sudden change of language from telugu to English is a bit difficult but I had managed as I got good support from my teachers and staff.

? **Sir what made you to choose electro chemistry area for research?**

When I was doing my masters I always believe in choosing emerging areas for research that's the way we get more opportunities.During my masters I thought renewable energy is something which will lead the future. So I have chosen electro chemistry. And it is interesting for me at that point of time.

? **Sir can you share your memories during Btech days?**

Actually, its just not only in academics but also in all aspects GVP is best in Andhra Pradesh for chemical engineering. our college has a special standards and faculty are very friendly and I also used to have many friends during my Btech but I am sure that after Btech its all about individual development so,I think my Btech days the enjoyment I had done was the best.

? **Sir can we know which software is better for to learn for entering simulation background jobs?**

COMSOL Multi physics is one of the best software in my field , Matlab is used in some of the companies if we have experience in it will be useful and also python, for safety analysis. these software are very useful not only in Btech but also for developing software in future too.

? **Sir what was the path you have chosen for All India Rank of 16 in Gate Examination?**

.first of all I planned well when I joined Btech I chosen to go for higher studies so for that I have decided to go for Gate examination. I used to complete 2 subjects in each semester thoroughly so for ex: 2-1,FM and MEB and 2-2,TD and MTO like that I used to complete the subjects and I used to focus on 2 subjects. I am not a Topper of my class I was just like that and I majorly used to study the text books rather than using the ready made materials and very focused on two subjects per semester and at the end it had accumulated and it was easier for me at the end. As it worked and I got a good Rank in Gate.

❓ Sir what are the difficulties you have faced while entering into electro chemistry field?

I didn't feel any difficulty. GVP college has given enough background to understand. My basics are good and I applied my basics to my problems and I thought it wasn't any difficulty for me in my electro chemistry field as it was my choice and I had done it in a better way as I hoped. I am sure as I was Chemical Engineer I know what's happening inside the Lithium Battery so it was easy for me to understand what's happening inside the batteries in my company if any one come and ask me about anything being a Chemical engineer it was easy for me to understand.

❓ Sir your route from India to UK,London what were the thoughts you use to have during that time?

I used to have curiosity what's special about them and I wanted to learn something from United Kingdom which would be helpful for me when I come back to my country and later I would want to take up a job in my carrier like ASST.professor or something else.I thought after my PHD and I went there it was not that they are smarter than us but how we manage our time,resources and majorly collaborations. Generally in India we focus on Our selves and our work I think we must focus on collaboration and we must communicate our problems and we can solve any problems easily.so I think that's the only difference.

❓ Sir what is the best experience of your life till now?

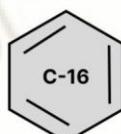
For me journey is very important instead of the Goal. I received several job offers after my Btech,Masters and PHD and I was happy, but I think getting into IISc is one of the best experience of my life.

❓ Sir finally what you want to suggest us for our future?

I think we must plan everything perfectly as I have planned for my Gate examination we must have goal weather we must go for Gate or GRE or any other campus jobs or others its important to plan and put your energies and focus on the things and that's the strategy. I followed that and I think I am in a successful position. I think there are many things a person can do but it's the time ,your goal and the efforts you keep are most important .So be focused on your goals and the success will be followed.

❓ Sir how is the atmosphere of IISc banglore please share your experience and about culture?

That was an interesting question actually when I went there I have seen everyone were Intelligent who ever you talk he is expert in any one of the concept. Everyone is used to have work ethics and higher standards professors and are like a role models.And it was very competitive there was used to be a talk of getting into this institute was something easier than leaving this institution.Gate exam is one of the challenges but getting out of IISc is quite difficult. It used to be a challenge we have to focus.we used to have open book examinations .It Was quite intensive and at the same time we used to have cultural activities .





QUIZ TIME

OZONE MAGAZINE QUIZ

1. Two iron pipes of the same nominal diameter but different schedule number will have.
 - (a) the same inside diameter
 - (b) the same outside diameter
 - (c) the same wall thickness
 - (d) none of the above

2. The refractory bricks in common use are composed of mixtures of
 - (a) carbon and alumina
 - (b) silica and carbon
 - (c) silica and alumina
 - (d) Iron and carbon

3. A flapper nozzle device has a _____ gain.
 - (a) high
 - (b) low
 - (c) zero
 - (d) infinity

4. Gas chromatography is used for measurement of

- (a) temperature
- (b) pressure
- (c) concentration
- (d) flow rate

5. For the reaction $A+B \rightarrow 2B+C$

- (a) $r_A = r_B$
- (b) $r_A = -r_B$
- (c) $r_A = 2r_B$
- (d) $r_A = r_B/2$

6. Arrhenius equation describes the effect of _____ on rate constant

- (a) Composition
- (b) pressure
- (c) temperature
- (d) temperature, pressure and concentration of reactants

7. The units of permeability are _____

- (a) m^2/s
- (b) $kmol/m^2 s$
- (c) kPa/m
- (d) $m^3/m^2 s$

8. The relative volatility of a binary mixture at the azeotropic composition is

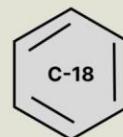
- (a) Zero
- (b) Infinity
- (c) Unity
- (d) Either less than or more than 1

9. The product of Grashoff number and Prandtl number is called _____

- (a) Rayleigh number
- (b) Peclet number
- (c) Lewis number
- (d) Graetz number.

10. Heat transfer coefficients for liquid metals are high due to their high

- (a) Viscosity
- (b) Density
- (c) Specific heat
- (d) Thermal conductivity





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IICHE Student Chapter-GVPCE(A)

