TIRESIA

Volume 13, Issue 2

The Editorial Board

-Beckoning Creati'wit'y

May Issue

Eternally Equitable

#World Telecommunication Day

Interviewing

Dr. Brij Singh

Regional Manager, Deere & Company, USA

CONTENTS

Message From
The Editorial Board

As the summer tenses its arms over the ending spring, and the warm wind starts to hurdle over the clueless sky, all of nature's weaponry points towards the onset of May. May acts as the bridge between spring and summer, hinting at warmer weather for those still stuck in spring's grasp while heating things for those already well on their way. As May's birth flowers, Hawthorn and Lily-of-the-Valley begin to bloom, symbolizing sweetness and the return of happiness, Malaviyans march forward on the path of challenges and risks to emerge as a victor in the face of setbacks.

Uplifting the budding startups, the Indian government endorsed a World Bank-backed programme for supporting the operation of Micro, Small, and Medium Enterprises (MSMEs) in the country. The Indian government and Pfizer followed the pace of sorting foreign issues. They are close to achieving a breakthrough in their negotiations over the controversial issue of indemnifying the US company against future liabilities arising out of adverse effects from the use of its COVID-19 vaccine in India. Giving a technical boost to the Technological sector, the theme for this year's World Telecommunication Day, observed on May 17, 2022, was "Digital Technologies for Older Persons and Healthy Ageing", which emphasizes the importance of using telecommunication, information and communication technologies to stay healthy, connected and independent on a physical, emotional and financial level.

With the regular offline mode escorting way for excitement and enthusiasm, a myriad of students' skills were evaluated with the Annual Debate Competition 2022, conducted by **The Editorial Board** and HEATS by Cultural Synod. Owing to the well-being and fitness of the students, the annual sports meet- Aayaas 2022, was organized in a two-day succession. Abhyudaya 2022, the annual Art, Literary and Cultural fest, served the students with oodles of vibrant and enthralling events. NSS MMMUT, organized a donation drive named 'Pararth' to collect clothes, books, and toys for the needy. TechSrijan 2022, the annual techno-management fest of the university was conducted by IEEE-Student Branch in collaboration with SAE Collegiate Club, which instigated technophilia among the students. The Induction Drive for **The Editorial Board** and various student bodies was conducted for the freshmen to equip them with practical knowledge and self-efficacy.

An ingenious person is encouraged by the desire to attain and not by the desire to trounce others. When this intense feeling of procurement gets an adequate amount of determination and commitment, mixed with persistent pursuit of excellence, it can conquer anything. Start with the self-belief to get the best out of yourself and try to put dedication and constant toiling into your endeavours. With the message to ignite the flame of exuberance in young minds, **The Editorial Board** is glad to present the new edition of Tiresia, wishing everyone a wonderful time ahead.

bienvenidos!

Our Team

Final Year Members: Aditi Khare, Eshan Mishra, Harsh Gujrati, Jay Kumar, Kayoor Mishra, Pratyush Mishra, Saumyadeep Tripathi, Shatakshi Srivastava, Shipra Pathak, Shivam Ojha, Snehil Pal

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MESSAGE FROM *Faculty Advisor*

Dr. S. N. Singh
Faculty Advisor

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Gorakhpur - 273010

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It is an honor for me to deliver this message for the May issue of Tiresia. The months of March and April were packed with profuse activities and learning opportunities, full of rigorous work and anticipation as the students buckled up for their respective examinations. A feather in the cap of our university was added when the students of SAE Collegiate Club participated in BAJA SAEINDIA 2022, organized in NATRAX, Pithampur from April 5, 2022 to April 10, 2022 where they secured AIR 26 in endurance test and AIR 47 overall.

Continuing the legacy of our university, **The Editorial Board** and Cultural Synod organized the annual Art, Literary and Cultural extravaganza under the banner of Abhyudaya. It served as an outlet for the students to prove that as engineers they are not restricted to solving equations and problems, but can also possess artistic expressions. The multitude of the mega event included various competitions like Literati, Quiz, House of Commons, Farmaiye Huzur, Scribbles, Splash, and many other events followed by Open Mic, EDM night, and Hermosa.

Functioning as the Faculty Advisor of **The Editorial Board** and the Vice-Chairperson of the Council of Student Activities, I express my heartiest indebtedness to the keen students who worked round the clock and made the fest an impressive spectacle. Kudos to the efforts of **The Editorial Board** and Cultural Synod. I also extend my heartfelt gratitude to former Chairman, CSA, Prof. B. K. Pandey, and the Faculty Advisor, Cultural Sub-Council, Dr. Harish Chandra. A special note of gratitude to the hon'ble Vice Chancellor and all the sponsors of the fest.

The techno-management fest of the university, TechSrijan was organized by IEEE in collaboration with SAE, which was ebullient and ineffaceable. A plethora of events were conducted under the umbrella of TechSrijan including Robokriti, World Parliament, Incognito, Bridgekriti, TechPrastuti and many others. The three-day gala ended with the prize distribution ceremony marked by the cordial presence of hon'ble Vice-chancellor and other faculty members. I would also take this opportunity to applaud the efforts of **The Editorial Board** for coming up with the colorful pages of Tiresia.

With best regards
Dr. Sudhir Narayan Singh
Faculty Advisor,
The Editorial Board
MMMUT

Tête-à-tête

A talk with Dr. Brij Singh

Dr. Brij Singh is a 1989 graduate from MMMEC, Gorakhpur in Electrical Engineering. He went on to get his master's degree from IIT Roorkee and then with an outstanding publication record, he received a Ph.D. from IIT Delhi. He then joined Yale University and is currently working as a Regional Manager in Deere & Company, USA. He has 28 US patents, trade secret and significant leadership experience in Power Electronics Product and Technology Design, development and commercialization. Recently, he has been elevated to an IEEE Fellow, a 'rare award' in the engineering field. **The Editorial Board** got a golden opportunity to converse with him. Here are the excerpts from the same.

Q How would you describe your journey as a Malaviyan?

A This itinerary has been very satisfying, successful and along the way has impacted many lives and society, including contribution to the evolutions of new knowledge in industry and academia. These gains came with a lot of awards such as IEEE Fellow, John Deere Technical Fellow in Power Electronics Engineering, 2020 IEEE Power Electronics Emerging Technology Award, and IEEE Power Electronics Distinguished Lecturer for term 2021-2022. Additionally, I have 28 awarded US patents, one trade secret, and over dozen pending patents. I have published over 90 research articles and these articles and patent write-ups have been cited over 5,800 times. Till date, I have brought multi-million dollar research funding from US government to develop advanced technologies in Deere & Company, USA.

Q How did you maintain the trajectory of your career, from MMMUT to IIT and then to the USA?

A I have always followed a hard, unconventional path that brought more challenges for me to overcome. Human life is like a metallurgical process. If someone goes through challenges, it ultimately adds up to amelioration. Work on skillset growth and promptly adapt to the needs of the hour. Be receptive and never look for short term gains. Initially, you may feel discouraged or disappointed but have patience and perseverance and make persistent efforts towards your aim. Your plan to go above and beyond should be a lockstep, but in small steps so that you don't burn out. Maintain low-profile but be proud of what you do. Always remember your roots and upbringing.

Q Your job profile includes supervision of R&D work in your firm. Where do you see India in this field? What reforms do you think it needs to level up?

A India lags behind in basic science and engineering research. Industry hardly works with academia and government policies don't help either. R&D taxes credit those industries which carry them out but then turn research into products. I suggest the government, industries and academia should go hand in hand as this will initiate the rooting in, appreciation and development of innovative ideas. As of now, India has the potential to gain world leadership in pharma industry, food industry and healthcare sector. India has a huge market, for this matter, any industry in India could gain eminence, provided right efforts are put in place with lots of incentives.

Q How did you choose your career? Was it always a plan to study further after B. Tech. or did you go through a bend in the road?

A I always wanted to pursue master's, but when I got into Roorkee University (now IIT-Roorkee), I was impressed by the obliging professors. They worked side by side with the freshmen. The same attitude was dominant among the senior professors of Yale University. These gestures push the students to work harder, learn better and put in all their efforts. During my stay at Roorkee, my professors motivated me to pursue R&D and that naturally led me to join Ph.D. in IIT-Delhi. It was also to fulfill my father's wish. Therefore, despite having many job offers along the way, I did my Ph.D. with an outstanding publication and research record that opened the doors to Canada. I would quote again, "Life is a metallurgical process." And to all the students out there, "Never go for selective study, be broad".

Human life is like a metallurgical process. Challenges and hardships ultimately adds up to amelioration.

Q What is the most important piece of advice that you would like to give to your 20-year-old self?

A Never plan for short term gains, always challenge yourself to do better, and never equate yourself with anyone rather compare yourself with your past records and performance. You are a unique person so strive to maintain that uniqueness. Plan and execute and always have plan B and C in place. Be honest, work hard, have the right attitude and try to help people in need in whatever manner you could. Respect your parents, elders and teachers and have empathy for those who are not as resourceful as you may be. Also, be a part of activities beyond the confines of classroom.

Q Your work requires meeting up with new people frequently and establishing business relations. How important of a role do you think one's personality plays in such a case?

A Knowing whom you are meeting is a must. Listen, listen, and listen and then ask the right questions. If you meet people with great intelligence and ask right questions, you could download tons of knowledge that is otherwise not possible to collect by reading literature. Building trustworthy relations and nurturing them will always prove very helpful. Humbleness and an exciting attitude always helps. When you meet new people, be focused, be warm and do not multi-task even when you are not face to face.

Q Since you have excelled in the technology innovation field, in what skills do you think our youth should specialize?

A The young generation should earn basic engineering knowledge. Apart from this, writing skills, habit to read something new everyday from and beyond your field, teamwork, ability to contribute on individual basis are the skills that top the list if you're striving for excellence. Stay miles away from the habit of procrastination, and do your work in a timely manner.

Q What kind of co-curricular activities happened during your college days; how they were useful in the later stages of your life?

A I had no interest in co-curricular. Also, I wasn't good at all in any sports, it may be due to my rural background and lack of facilities when I was in primary and junior high schools in my village in Fatehpur District, UP. And I repent not being a part of the co-curriculars during my college days. However, I had a great friend circle and we used to hang out together at restaurants, malls and other places. During breaks after semester exams, I used to read a lot of literature, especially the works by Munshi Premchand Ji. But, I would always promote an individual to be a part of the activities apart from the academics. They are extremely important and beneficial as well. Going beyond the classroom and having done something that you can talk about later is a good thing.

Q What advice would you like to convey to the young budding Malaviyans?

A Always be proud of your roots. Malaviyans have done extremely well, I expect you to keep flames of the success burning bright and even brighter than what it is now. Reach out for help to the seniors if need be, they are ever-willing to help. Never hesitate to ask questions and never lose faith in yourself.

Dr. Brij Singh showing an inverter, which was one of his two submissions for the IEEE Fellow

JAN 26 **73rd Republic Day** was celebrated in the university. A friendly cricket match was organized between Faculty XI and Staff XI.

JAN 27 **IIChE Student Chapter, MMMUT** conducted an online event, **Chemisch'graphy** from January 27, 2022 to February 6, 2022.

JAN 31 **Electronics and Communication Engineering Society** conducted a literary event, **Literario** from January 31, 2022 to February 28, 2022.

FEB 01 **SAE Collegiate Club, MMMUT** organized an online event, **Cherished Snaps** from February 01, 2022 to February 14, 2022, by inviting Malaviyans to share their college memories.

FEB 01 **Computer Engineer Society** conducted **Wield the Web** in three phases from February 01, 2022 to February 14, 2022.

FEB 01 Campus placement drive was conducted by **L&T Ltd.** for final year students (2022 Batch) of B.Tech. and M.Tech. under **Training and Placement Cell Student Body, MMMUT**.

FEB 01 Campus placement drive was conducted by **Amazon** for final year students (2022 Batch) of B.Tech. and M.Tech. under **Training and Placement Cell Student Body, MMMUT**.

FEB 05 **NSS, MMMUT** hosted an online quiz competition, **Swaraj** dedicated to the heroes of Indian Freedom Struggle on February 05, 2022 and February 12, 2022.

FEB 13 **IEEE Computer Society** conducted a live webinar on **GitHub**.

FEB 13 **The Editorial Board** conducted an Instagram Live session with **Mr. Anil Swarup**, retd. IAS (1981 Batch).

FEB 19 **The Editorial Board** conducted an Instagram Live session with popular Bollywood playback singer, **Mrs. Kavita Seth**.

FEB 27 **Cultural Synod** organized a pillar painting competition, **Pintura De Pilares**.

MAR 03 **The Editorial Board** conducted an interactive Live session on Google Meet with **Mr. Prashant Bhushan** (Senior Advocate, Supreme Court).

BUZZ

MAR 04 **The Editorial Board** conducted the preliminary round of the **Annual Debate Competition** on March 04, 2022 and the final round on March 11, 2022.

MAR 05 **Cultural Synod** conducted **HEATS** on March 05, 2022 and March 06, 2022.

MAR 12 **Sports Sub Council, MMMUT** organized the 58th Annual Sports Meet, **Aayaas 2022** on March 12, 2022 and March 13, 2022.

MAR 23 **Electrical Engineers' Legation** conducted a set of events under **Electra'22** on March 23, 2022 and March 24, 2022.

MAR 27 **The Editorial Board** and **Cultural Synod** jointly organized the annual art, literary and cultural fest **Abhyudaya'22** from March 27, 2022 to March 30, 2022.

APR 05 **Team Raptor 4.0** of **SAE Collegiate Club, MMMUT Chapter** participated in **BAJA SAEINDIA 2022** organized in **NATRAX, Pithampur** from April 05, 2022 to April 10, 2022 where they secured AIR 26 in endurance racing.

APR 14 **NSS, MMMUT** hosted a donation drive **PARARTH** from April 14, 2022 to May 14, 2022, where old clothes, stationery and sports items were collected and donated to those in need.

APR 15 **The Editorial Board** conducted an interactive Live session on Google Meet with **Maj. Gen. Harsha Kakar (Retd.)**.

APR 22 **Sports Sub Council, MMMUT** organized the **Interbranch Hockey Tournament** from April 22, 2022 to April 24, 2022.

MAY 14 **SAE Collegiate Club, MMMUT Chapter** in collaboration with **IEEE Student Branch, MMMUT** organized the annual technical fest **TechSrijan 2022** from May 14, 2022 to May 16, 2022.

MAY 17 **Sports Sub Council, MMMUT** organized the Interbranch Cricket tournament from May 17, 2022 to May 25, 2022.

MAY 28 **Electronics and Communication Engineering Society** organized **Explora 2022** from May 28, 2022 to May 30, 2022.

METAVERSE: FUTURE OF WEB?

> *The metaverse has become the newest macro-goal for many of the world's tech giants.*

Metaverse is a virtual-reality space that incorporates numerous leading edge technologies to create spaces for rich user interaction mimicking the real world. Perceive a world in which you can work remotely, join your fellow fans at a virtual show and visit your favourite destinations all from your home's convenience. The first notion of metaverse was marked out in a dystopian cyberpunk novel, 'Snow Crash' by Neal Stephenson, which was published in the year 1992, in which he envisioned an online world where people use their digital avatars to explore and breakout from the real world. Thenceforth, metaverse has made strides to progress from a mere science-fiction concept to today's reality.

In the early 2000s, Colored Coins was the first metaversal project that utilised the blockchain. The coins were realized as being a way for individuals to build, procure, trade, and own unique assets. CryptoPunks and CryptoKitties, among other NFT (Non Fungible Token) games, fueled the rise of the NFT art craze that saw one CryptoKitty sell for over $170,000 in 2018. Today, provably scarce assets arise on metaversal platforms like Decentraland, a decentralized virtual real estate game. The merging of blockchain and the metaverse opened a new chapter in the history of the online universe. People serve as the architects of open and interdependent worlds parallel to our physical ones. In the present scenario, the renaming of Facebook to Meta marks the conglomerate progressing to the world of metaverse.

The driving force of the Metaverse is getting as close to reality as possible in virtual space. AR (Augmented Reality), VR (Virtual Reality), Blockchain, Artificial Intelligence, 3D reconstruction, and Internet of Things (IoTs) are the key technologies that power the metaverse. With the advancement of these key technologies, the Metaverse can be constructed efficiently in the near future. Blockchain enables more secure management and storage of its user's

identity and data as it provides a decentralized way of functioning and enables a smooth governance process. Cryptocurrency allows users to buy, transfer and claim ownership of digital assets in a safe manner inside the metaverse. Virtual Reality provides the hardware for the user to have a mesmerizing experience. AR augments a user's real-world; VR creates an entirely separate virtual world: AI can help in the creation of Non-Player Characters (NPCs) and scenarios. It can scan 2D and 3D pictures to create realistic and accurate avatars. 3D reconstruction will substantially enable companies to build 3D models of real-life spaces and bring us closer to realness in virtual spaces. The IoT brings out specifications of the physical world to virtual spaces. Many developers and leading tech companies have shown their interest in metaverse and have made numerous superior software and projects for it. The most notable ones include:

- **Sandbox** is a virtual gaming world built on Ethereum, enabling its users to buy a plot of land, create what they want there, and sell their creations to other gamers.
- **Decentraland** offers its users to be a part of a shared virtual world through the virtual ecosystem on its platform where users can buy or sell digital property, play games, exchange collectibles, socialize, interact, and explore.
- **Roblox** is a game where users can create houses and role-play. It has partnered with major brands like Gucci and Vans to create parks and virtual skating rinks.

Wearing a Virtual Reality headset pitches you to high-quality representations. Traditional teaching approaches will never reach such a high level of effectiveness in highlighting concepts through visuals. With the implementation of this technology, students will be more motivated to learn. Real estate marketers may offer clients to ultimately see the property before

Metaverse can prove to be a valuable asset to the automotive sector

Metaverse is the future

making a choice. Clients may analyze the property and the surroundings in real-time through virtual reality tours and guided walkthroughs. It also saves time and money by avoiding costly showings and in-person meetings. Pop-ups may be customized to present comprehensive information, statistics, and space measurements. People learn faster and retain more, studying in a real-world setting. The manufacturer does not have to spend money or time educating a new employee since the VR training takes care of it. Employees can also learn about safety precautions and even experience a risky circumstance simulation. Thus, the possibility of an accident is minimized. These technologies assist in the development of better products. Each element of the product may be examined by using VR goggles.

The metaverse is a trending topic, and it will continue to change. In the future, we are going to witness some more technological innovation. The experience of human engagement in the real world will be seized away by a period of no physical interaction but by virtual connections and the virtual economy. Organizations like Microsoft and NVIDIA are already coming up with their blueprints, building the metaverse. Digital twins of objects will resemble our physical counterparts. Technology will take a significant turn in the upcoming decade when every business will be upgraded to a virtual space or metaverse. The metaverse is growing and encompassing more and more things under its gambit. A good way of understanding its growth potential is by comparing it to the internet. Initially, only a few accepted it, used it, and required it, but now every other thing we do is connected, and no one can escape it.

UNICORN BOOM

A great accomplishment shouldn't be the end of the road, just the starting point for the next leap forward.

Ancient Indian mythology talks of a nimble, fleet-footed horse-like creature called the Ekashringa, or Unicorn, taking its name from the only horn on its forehead. The horn is said to possess magical healing powers. Meanwhile, in today's business environment, unicorns refer to technology-driven, privately-owned startup companies valued at over $1 billion (Rs 7,430 crore).

Indian startup culture is usually perceived as a mirror image of the Schumpeterian shift as an embrace of 'creative destruction'. It is an important sign of progress in which antiquated objectives lead to new ones and come up with innovation in command of capital.

These unicorns have shown a rare immunity against the waves of the COVID-19 pandemic that has brought most of the other businesses down on their knees. Achieving the milestone of being labeled as a unicorn was once considered elusive, but India's example has shown that the term unicorn no longer holds hefty reputation as before. During a recovering year for startup funding, amidst an enfeebling second wave, India produced 11 new unicorns, taking the total to 48, the third-largest number in the world, after the US and China. Roughly speaking, from three unicorns a year pre-COVID, we have added four unicorns per month in 2021. India witnessed its first healthtech, social commerce, crypto, and e-pharmacy unicorn this year. The first startup to enter the Indian Unicorn Club in 2021 was a Bengaluru-based InsurTech startup, Digit Insurance. As the world got subdued with lockdown, healthcare gained maximal importance.

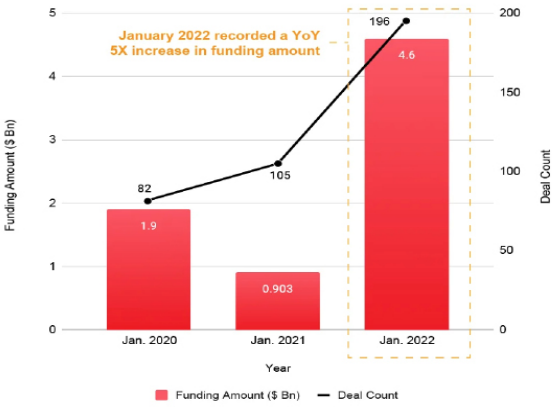
Innovaccer, one of the sparkling stars of the Indian

startup ecosystem, became the primary HealthTech unicorn in the country. Meesho's entry into the unicorn club was one of the biggest achievements. Meesho is a web reseller network for people with Small and Medium Businesses (SMBs), who sell products within their network on social channels. It was founded by IIT Delhi graduates Vidit Aatrey and Sanjeev Barnwal in 2015. Yet another startup, Groww, became India's second wealth management unicorn only eight months after bootstrapped Zerodha valued itself above $1 billion. Just like Zerodha, Groww allows users to invest in stocks, mutual funds, ETFs, IPOs, and gold using its terminal available via mobile application and web platform. ShareChat, founded by IIT Kanpur alumni Farid Ahsan, Bhanu Singh, and Ankush Sachdeva in 2015, started as a content-sharing tool for WhatsApp. It finally made its way to the unicorn club by capturing the attention of users across tier 2 and 3 cities of India. Founded in 2014, Gurugram-based hyperlocal service provider Urban Company, formerly referred to as UrbanClap is a home service company that focuses on beauty and massage, appliance repair, plumbing, carpentry, cleaning, and painting. It is the latest startup to hitch the unicorn club. In 2021, BharatPe became the fifth FinTech startup to enter the coveted unicorn club in India. Established in 2018 by Ashneer Grover and Shashvat Nakrani, BharatPe launched India's first UPI interoperable QR code for merchants, and it has expanded into other financial services. Mumbai-based startup, UpGrad became the third Indian ed-tech unicorn along with two crypto unicorns, CoinDCX and CoinSwitch Kuber.

Increasing investments don't ensure the success of a startup. The billions of dollars that are invested in startups represent the massive bets on distant outcomes and not value generation through revenues.

Establishing long term goals for a Startup and building a team

Indian Startups raised $4.6 Bn in January alone



Also, one cannot assume the high survival rate of those startups with such investments, as that could be measured by profits. India is a highly diverse country with a plethora of cultures, languages, ethnicities, and religions. Due to this, the understanding of startups is usually limited to certain regions and hence comparative advantages are linked to specific regions. The government of India has introduced policies that aim to ease the business environment for startups. However, this regulatory framework on which startups operate is widely seen as difficult, inefficient, and unpredictable. For instance, the government imposed the "Angel Tax" in 2012 intending to arrest the laundering of funds, but it also discourages investment in startups. The policy in favor has resulted in tax exemption for some time. But the taxation of stock options issued to workers is quite complex. Liability overlaps during a maze of tax rules allowing interpretations that permit officers to abuse their discretionary authority. We need tax reforms to finish obscurity. Top-position intervention is meant to assist.

In present times, startups in India are witnessing a golden chapter within the history of the country's entrepreneurship. Still, the government features a pivotal part in positioning India as the Tech Garage of the planet. It should act as a catalyst, and bring together the solidarity of the private sector to pioneer for India and therefore the world. The word 'unicorn' has come a long way from being a mythological creature to an everyday topic in business and finance conversations. Today, unicorn companies have attained recognition and established their foothold within the market. Hence, to achieve the status of an established business, the hustle must go on to reach new heights.

inSights

TECH

Mail your answers at literaryedb@mmmut.ac.in

A solid circular shaft of 10 m length is built-in at its ends and subjected to an externally applied torque of 75 kN-m at a distance of 3 m from left end. The reactive torques at the left end and right end will be?

CIVIL ENGINEERING

The gas acetylene is produced according to the following reaction by treating calcium carbide with water:

$CaC_2 + 2H_2O = C_2H_2 + Ca(OH)_2$

Calculate the number of hours of service that can be derived from 1.0 lb of carbide in an acetylene lamp burning 3 ft^3 of gas per hour at a temperature of 90° F and a pressure of 743 mm of Hg.

CHEMICAL ENGINEERING

What is the output of the following C program?

```
#include<stdio.h>
int main()
{
 int a=8;
 int *p=&a;
 int **q=&p;
 int ***m=&q;
printf("%d,%d,%d,%d,%d",***m,++(***m),(***m)++,
++a, a++);
 return 0;
}
```

INFORMATION TECHNOLOGY

The intrinsic carrier density at room temperature in Ge is 7.89 x 10^{19} m^3. If the electron and hole mobilities are 0.38 and 0.18 $m^2V^{-1}s^{-1}$ respectively, calculate the resistivity.

ELECTRONICS AND COMMUNICATION ENGINEERING

A dc shunt generator delivers 70 kW at 280 V when running at 600 rpm. The armature and field resistances are 0.09 ohm and 145 ohm respectively. Calculate the speed of the same machine and developed torque when running as a shunt motor and taking 70 kW at 280 V. Allow 1.5 volt per brush for contact drop.

ELECTRICAL ENGINEERING

Consider a domestic refrigerator containing food with its door closed. During a certain period, the machine consumes 3 kWh of energy and the internal energy of the system drops by 7500 kJ. Find the net heat transfer for the system.

MECHANICAL ENGINEERING

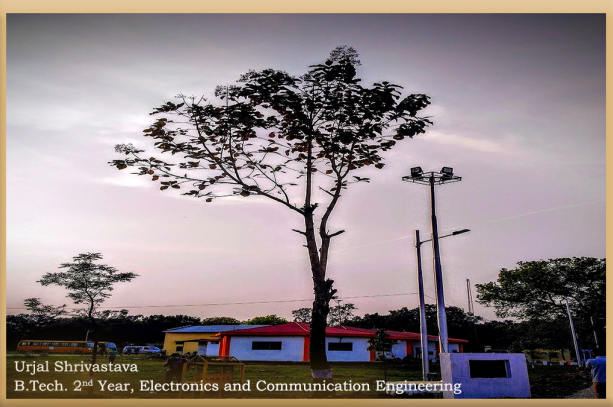
Find the output of the following program:

```
#include <stdio.h>
#include <string.h>
int main()
{
char str[20] = "ACEGIKMOQSU";
int s = strlen(str);

str[3] = '\0';
s += strlen(str);
strcpy(str,"ACEGIK");
s += strlen(str);
strcat(str,"ACE");
s += strlen(str);

printf("%d\n",s);
return 0;
}
```

COMPUTER SCIENCE AND ENGINEERING

Winners of the Tech inSights of Tiresia Volume 13, Issue 1 couldn't be decided as the answers received were either late or unsatisfactory.

Spiegel



Urjal Shrivastava
B.Tech. 2nd Year, Electronics and Communication Engineering

Awantika Krishna
B.Tech. 1st Year, Information Technology

Rishi Raj Upadhyay
B.Tech. 1st Year, Electronics and Communication Engineering

Jhanvi Siddhartha
B.Tech. 1st Year, Mechanical Engineering

Alpana Chaurasiya
B.Tech. 1st Year, Chemical Engineering

A photograph communicates thousands of feelings. Cogitating the worth of a photograph, we invite all the students to showcase their photography skills and send their clicks of the university on literaryedb@mmmut.ac.in (basic editing is allowed). Best ones will be published in the next issue of Tiresia.

रिवाज़

बिखरी हूँ उलझी हूँ समाज के जालों में,
जीवन भर बंधी रही परम्परा के तारों में;
बस अपने सपनों में मुस्काने की आदी हूँ,
रीति-रिवाज़ों से बंधकर चलने वाली आज़ादी हूँ।

जगत के प्रारम्भ से वर्तमान तक के मानव इतिहास की यात्रा रीति-रिवाज़ के सहारे अनवरत धारा स्वरूप आगे बढ़ती जा रही है। कहीं अवरोध होने पर जब यह प्रवाह कुछ हिस्सों में बँट जाता है, तो लोग उसके आकार-प्रकार और दिशा के आधार पर विभिन्न नामों के अवलम्ब उसे आगे बढ़ाते हैं। समय के साथ यह धारा कई बार विलुप्त भी हो जाती है। मानव जीवन में व्यक्तिवाद से समाजवाद के सृजन का मूल स्रोत यही है, जिसे हम रीति-रिवाज़, चलन, प्रथा आदि का नाम दे सकते हैं।

एक ओर जहाँ जीवन के प्रारम्भ में गीतों का चलन है, तो समाप्ति रूदन और मातम के रिवाज़ों में तब्दील होती रही है। मानव सभ्यता के इतिहास में कुछ रिवाज़ों का समावेश है जो उसके हर्ष, उल्लास या मैत्रीपूर्ण वातावरण को और भी परिष्कृत करता है। हमारे पर्वों में होली के रंग और दीपावली के दीप इन्हीं सभ्यताओं के रूप में दीप्तिमय हुए। हमारे वैदिक ग्रंथों में कुछ ऐसी परम्पराओं या रिवाज़ों के उदाहरण मिलते हैं, जिनके मूल में मानवता, संस्कृति या लिहाज़ का पोषण और संवर्धन निहित है। जब विवाह मण्डप में बैठी जानकी की उत्सुकता अपने प्रियतम राम के उस अलौकिक मुख-मंडल को पुनः निहारने की हुई, जिसका दर्शन उन्होंने सर्वप्रथम जनकपुर के बगीचे में किया था, तब मन में तनिक संकोच के साथ चारों ओर से समाज की दृष्टि से बचकर उन्होंने घूँघट प्रथा का सम्मान करते हुए उस मनोहर छवि के दर्शन अपनी रत्नजड़ित मुद्रिका में किया। माँ जानकी द्वारा ऐसा किया जाना यह दर्शाता है कि लोकलाज भी एक रिवाज़ है जो मानव को मानव बनाने में प्रमुख किरदार अदा करता है।

हमें हमारे इतिहास में कुछ ऐसे भी रिवाज़ों के दृष्टान्त मिल जाते हैं, जो संभवतः लोकलाज की रक्षा हेतु प्रारम्भ तो किए गए होंगे, परंतु वास्तविक अर्थों में वे मानव जीवन पर अभिशाप से अधिक कुछ भी नहीं हैं। बाल-विवाह, सती प्रथा आदि प्रथाओं के पीछे का कारण कुछ भी हो किंतु इन्हें किसी भी रूप में औचित्यपूर्ण नहीं कहा जा सकता। इन प्रथाओं का उन्मूलन अति आवश्यक था और इसी कारण इनके उत्सादन के लिए संघर्ष करने वालों को हम समाज सुधारक का दर्ज़ा प्रदान करते हैं। समय और अनिवार्यता के अनुसार व्यवस्थाओं में परिवर्तन या लचीलापन भी आवश्यक है, अन्यथा रिवाज़ों की रुढ़िवादिता हमारी उन्नति में बाधक नहीं होती अपितु हमें प्रगतिशील जगत से बहुत पीछे धकेल देती है।

आधुनिकता के मूल को समझने के लिए रिवाज़ों का ज्ञान होना उतना ही आवश्यक है, जितना किसी भूखे व्यक्ति के लिए भोजन। जिस प्रकार केवल परंपरा का ज्ञान रखने मात्र से व्यक्ति परंपरावादी नहीं कहलाता, उसी प्रकार आधुनिकता की सफलता को परंपरा से अलग रख कर देखना भी तर्कसंगत नहीं है। कोई प्रक्रिया कठोर और अनवरत प्रयोगों से गुज़रने के उपरांत परंपरा कहलाती है, और वह जग में परिवर्तन की सहूलियत भी लेकर चलती है। समय, प्रवाह एवं मूल्यांकन के अभाव में यदि कोई परंपरा जड़ हो जाए तो उसकी मौलिकता समाप्त हो जाती है, और वह प्रथा रूढ़ि स्वरूप बन जाती है। इन रूढ़ि-रिवाज़ों का अनुगमन आत्महत्या जैसा अकुंठित कार्य माना जाता है। किसी ने सही ही कहा है कि- "परम्पराओं को निभाना अच्छी बात है परंतु अनावश्यक ही उन्हें बोझ की भाँति ढोना मरने एवं मूर्खता के सिवाय कुछ भी नहीं है"।

परिवर्तन की प्रक्रिया रिवाज़ों का ही अंग है जो कि विलक्षणता को जन्म देती है, क्योंकि नवीनता का आरंभ शून्य से नहीं हो सकता। रिवाज़ों से हमें अक्षय अतीत नहीं प्राप्त होता, बल्कि उसका निरंतर बिखरता, छंटता एवं परिवर्तित रूप प्राप्त होता है। इन परिवर्तनों को आधार मानकर हम आगे की जीवन प्रणाली को रूप देते हैं। ऐसे अनुकूल वातावरण में जहाँ नेपथ्य का विकास हुआ हो, तो हमें रूढ़िवादी परम्पराओं का त्याग कर देना ही न्यायोचित लगता है। विचारों का जतन, भाषा की विलक्षणता और वातावरण की भिन्नता भी कभी-कभी नए रीति-रिवाज़ों को जन्म देती है। जैसे-जैसे मानव सभ्यता में बदलाव होता रहेगा, वैसे-वैसे कुछ रिवाज़ों का विलोपन तो कुछ रिवाज़ों का उदय होता रहेगा। यह सतत और सार्वभौमिक है।

हमारे रीति-रिवाज़ प्राचीन काल से ही अपने साथ महान जीवन धारा प्रवाहित करते हैं। इन रिवाज़ों से हमारी भारतीय संस्कृति स्थिर एवं अद्वितीय है जिसके संरक्षण का उत्तरदायित्व वर्तमान पीढ़ी पर है। जब हम अपनी परंपराओं और रिवाज़ों से अवगत होने का प्रयास करते हैं तो हमारा युगबोध सुदृढ़ होता जाता है। इसके परिणामस्वरूप आधुनिकता को भी यथार्थ मानकों के द्वारा मापने का कार्य संभव हो पाता है। आधुनिकता के नाम पर उचित और अनुचित का ज्ञान हुए बिना आगे बढ़ना, समस्याओं को बुलावा देना है जो पीढ़ी दर पीढ़ी परिलक्षित होता जाता है। हमारे परिवर्तन का अर्थ सकारात्मक होना चाहिए जो वर्तमान मानव पद्धति को उन्नति के मार्ग पर अग्रसर करे। आधुनिकता के वास्तविक दर्शन के लिए रिवाज़ों में परिवर्तन आवश्यक है, तभी एक ठोस निष्कर्ष तक पहुंचना संभव हो पाता है।

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