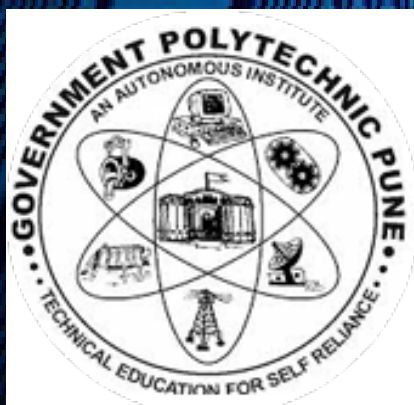# MIND SPLASH

2020-21

GOVERNMENT POLYTECHNIC,PUNE

INFORMATION TECHNOLOGY DEPARTMENT

GANESHKHIND , UNIVERCITY ROAD , SHIVAJINAGAR, PUNE-411016 , MAHARASHTRA , INDIA

INFORMATION TECHNOLOGY DEPATMENT

Department Of Information Technology

Government Polytechnic Pune is offering three years Diploma Program in Information Technology. Institute has academic Autonomy since1994. Department of IT is established in year 2000 with this autonomous institute. Well qualified and experienced faculty members and supporting staff, well equipped laboratories.

Vision

To develop competent, self-reliant and progressive Information Technology Engineers to cater to technological advancements and societal needs.

Mission

1. Design, develop and implement state-of-art curriculum with industry co-ordination to acquire knowledge and skill.

2. Provide competitive infrastructure with well-developed lab facilities and upgrade staff knowledge and skills.

3. Groom student personality and inculcate soft skills.

4. Expand IT based developments in institute.

PROGRAMME EDUCATION OBJECTIVES (PEOs)

PEO1. Adopt IT based techniques for software project

management, schedule & team management and work in multidisciplinary environment.

PEO2. Analyze, design, restructure and coordinate hardware, networking and information management system.

PEO3. Translate logical design to data model, employ tools and techniques for effective communication. Manage technical staff, operational staff and stakeholders.

PEO4. Preparedness of graduates to take up higher studies, engage in independent and life-long learning.

PPROGRAM OUTCOMES (POs)

1. Basic and Discipline specific knowledge: Apply knowledge of basic mathematics, science and engineering fundamentals and engineering specialization to solve the IT related engineering problems.
2. Problem analysis: Identify and analyse well-defined IT related engineering problems using codified standard methods.
3. Design/ development of solutions: Design IT solutions for well-defined technical problems and assist with the design of systems components or processes to meet specified needs.
4. Engineering Tools, Experimentation and Testing: Apply modern engineering tools and appropriate technique to conduct standard tests and measurements to IT related processes.
5. Engineering practices for society, sustainability and environment: Apply IT (automation) solutions in context of society, sustainability, environment and ethical

practices.

6. **Project Management:** Use engineering management principles individually, as a team member or a leader to manage projects and effectively communicate about well-defined engineering activities.

7. **Life-long learning:** Recognize and analyse individual need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes in IT industry.

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO 1.Hardware and Networking: Maintain, troubleshoot & provide hardware and networking support. Set up hardware and networking unit by applying IT related standards and principles.

PSO 2.Database Technologies: Manage database system by applying IT solutions.

PSO 3. Software Development: Develop, test and maintain software using IT technologies and tools.

OUR HEADS

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PRINCIPAL,

GOVERNMENT POLYTECHNIC ,PUNE

MRS.M.U.KOKATE,

HEAD OF DEPARTMENT,

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RADHIKA JOSH
THIRD YEAR IT

WHAT'S
INSIDE

- ❖ ARTICALS
- ❖ SMART INDIA HACKATHON
- ❖ POEMS
- ❖ DRAWINGS
- ❖ STUDENT CLICKS
- ❖ GROUP PICTURES
- ❖ DEPARTMENT AND EVENTS

EDIT SPEAKS

Have you ever had this feeling when you are trying really hard to write but the words just don't flow? It has happened many times to us through these years as engineering students. At the beginning of poem or the introduction to a scientific paper that want to publish, you may feel frustrated and trapped though you have lost your muse. You may have been starting at a blank piece of paper of your computer screen for hours. Don't worry ,you aren't alone,myfriend.It has happened to many when you are in examination hall, I'm sure many great writers and artist like Scott Fitzgerald and Herman Melville have gone through what is popularly known as Writer's Block. Writer's block is a condition in which author loses a ability to produce new work or experiences a creative slowdown. There are many techniques that writers have used to get over it, one technique that has so far proven is "feel safe" to me is sleep writing. You focus on concepts right before going to bed and let ideas form in sub-conscious mind .Start writing as soon as you woke up and let words flow freely onto paper. Mind Splash is a platform where your masterpiece will surely find a place. Our team is constantly working to gather the talent within each one of you and display it to all. Working for this magazine and being able to read a diverse variety of thoughts and emotions from different people has made us realize that people may have a flare for writing irrespective to areas of academic pursuit. We, the Information   Technology department is proud to present you this year's E-magazine"*MindSplash*". Turnover and Read on!

-EDITORIAL TEAM

ARTICLES

SPILL INK NOW, LEST THOU SPILL BLOOD LATER

-Radhika Joshi
(TYIT)

It should be hard to argue that we, so called evolutionarily advanced humans, are still no better than our good old ancestors - the apes, if we are downright incapable of diligent communication without being ripped apart to shreds by the demons we hold dear, that is our very own emotions and ego. It is then imperative that in order to complement our boundless intellect or at least to remain aloof of social disaster, we have to single out the best means of communication, which also translates to making headway towards the next step of humankind.

Let us first do ourselves a favor and not pretend that a bunch of random people can converse verbally, without it ending up in a skirmish of fistfights. Being direct yet dynamically diverse in fields like pace of presentation and assimilation of thoughts, one might as well put up a flashing beacon for our egos to contend (which stems from misunderstandings due to biased mind sets). Since this kind occurs in live time, it has all the capability to fester our loathing, thus spurring lethal consequences. Indeed we're all well acquainted of that one gregariously garrulous person who somehow single handedly suffices to obliterate the group discussion! So now that is out of question...

The next logical pit stop must then be the ever-engaging field of digital technology. Sure, the globalized world practically ordains texting, surfing the internet and transacting are to be the next necessities. Even though no apparent peril is in sight, one must not fail to discern that we have merely just grazed the tip of a vicious iceberg. Personally, breakthrough advances in this field seem to be unprecedented headway through unchartered jurisdiction, explosive potential, but well... explosive! And all the same narrow-sighted due to little concern to human health. The real culprit, dastardly low-profiled, called the deep web, is home to the widest mafia network thriving today. So the real question that begs is whether we really hold the reins on the cyber sphere; or is it the other way around?

Hence our pursuit finds its denouement in something that's a tad more static and hence compatible, assertive not to spur emotional violence, requiring no heavy interface to maneuver like digital tech does, profoundly old school, yet very contemporary. You guessed it - it's a primordial procedure fuelled by the modest fluid that flows out of your fountain pen - ink. Literature has prevailed throughout the ages as the prime source of documentation and enlightenment, the very force that sustains the cradle of life across the lineage. From providing material to researchers, to a haven for the bookworms, all the way to teach the way of life as in the Vedas, ink has been

The Blue Brain Project

One of the most noteworthy ongoing projects is the Project Blue Brain. This revolutionary finding has the potential to shape the future to Enormous extents.

IBM in partnership with scientists at Ecole Polytechnique Federal De Lausanne's (EPFL) Brain and Mind Institute will begin simulating the brain's biological system. It was founded by Henry Markram at the EPFL In May 2005 and is expected to near completion around 2023.

What is Blue Brain?

It is the name of the world's first virtual brain, which means a machine that can function entirely as a human brain. The scientists are in research to create an artificial brain that can think, respond, take decision and keep anything in the memory. After the death of the body the virtual brain can act as a man. Therefore, we will never lose the intelligence, knowledge, personality, feelings and memories of the person. The simulations of human brain in this project are carried out on a Blue Gene supercomputer built by IBM. Hence the name "Blue Brain".

There are three main steps to building the virtual brain:

1. Data acquisition- involves taking brain slices, placing them under a microscope and measuring the shape and electrical activity of individual neurons.
2. Simulation- The simulation step involves synthesising virtual cells using the algorithms that were found to describe real neurons. The algorithms and parameters are adjusted for the age, species, and disease stage of the animal being simulated.
3. Visualisation of results- RTNeuron is the primary application used by the BBP for visualisation of neural simulations. The software was developed internally by the BBP team. It is written in C++ and OpenGL.

What is the importance of this project?

One of the major goals of the project are to gain a complete understanding of the brain and to enable better and faster development of brain disease treatments.

The most important factors that lead to the development of this project are:

- <u>Brain disease treatments</u>- There are about 560 brain diseases. The success of this project can help cure diseases like Parkinson's, Alzheimers.

- <u>Scientific curiosity about consciousness and the human mind</u>- the study of the conscious and subconscious mind.

- <u>Integration of all neuroscientific research results worldwide</u>- the different results and developments can be added and summed up to reach several important conclusions.

- <u>Progress towards building thinking machines</u>- This is the bottom up approach. This will help to ease the human time and efforts.
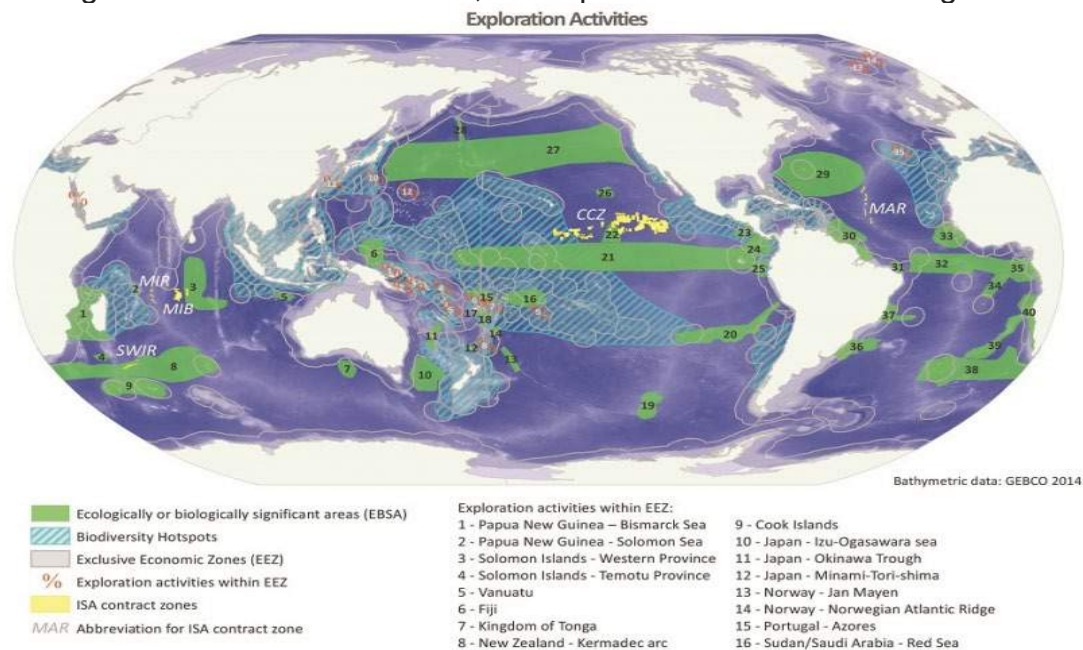
Jagruti D Shinde.

SY.IT

Deep-Sea Mining

- **Deep-sea mining is the process of retrieving mineral deposits from the deep sea** – the area of the ocean below 200 m.
- **Depleting terrestrial deposits** and **rising demand for metals** are stimulating interest in the deep sea, with commercial mining **imminent**.
- The scraping of the sea floor and pollution from mining processes can **wipe out entire species** – many yet to be discovered.
- **Environmental impact assessments, effective regulation and mitigation strategies** are needed to limit the impacts of deep-sea mining.
- **Comprehensive baseline studies** are needed to improve our understanding of the deep sea.

What is the issue?

Deep-sea mining is the process of retrieving mineral deposits from the deep sea – the area of the ocean below 200 m which covers about 65% of the Earth's surface. There is growing interest in the mineral deposits of the deep sea. This is largely due to depleting terrestrial deposits for metals such as copper, nickel, aluminium, manganese, zinc, lithium and cobalt, coupled with rising demand for these metals to produce high-tech applications such as smartphones and green technologies such as wind turbines, solar panels and electric storage batteries.

Exploration Activities

Bathymetric data: GEBCO 2014

Ecologically or biologically significant areas (EBSA)
Biodiversity Hotspots
Exclusive Economic Zones (EEZ)
% Exploration activities within EEZ
ISA contract zones
MAR Abbreviation for ISA contract zone

Exploration activities within EEZ:
1 - Papua New Guinea – Bismarck Sea
2 - Papua New Guinea - Solomon Sea
3 - Solomon Islands - Western Province
4 - Solomon Islands - Temotu Province
5 - Vanuatu
6 - Fiji
7 - Kingdom of Tonga
8 - New Zealand - Kermadec arc
9 - Cook Islands
10 - Japan - Izu-Ogasawara sea
11 - Japan - Okinawa Trough
12 - Japan - Minami-Tori-shima
13 - Norway - Jan Mayen
14 - Norway - Norwegian Atlantic Ridge
15 - Portugal - Azores
16 - Sudan/Saudi Arabia - Red Sea

So far, the focus has been on exploring the deep sea – assessing the size and extent of mineral deposits. By May 2018, the International Seabed Authority (ISA) – which regulates activities in areas beyond national jurisdiction – had issued 29 contracts for the exploration of deep-sea mineral deposits. More than 1.5 million km2 of international seabed – roughly the size of Mongolia – have been set aside for mineral exploration in the Pacific and Indian oceans, and along the Mid-Atlantic Ridge.

But exploration may soon give way to exploitation. Commercial mining in national waters of Papua New Guinea is predicted to begin by 2020. Mining in international waters is expected to commence in 2025.

Why is it important?

The seafloor contains an extensive array of geological features. These include abyssal plains 3,500–6,500 m below the sea surface, volcanic underwater mountains known as seamounts, hydrothermal vents with bursting water heated by volcanic activity, and deep trenches such as the Mariana Trench, which at almost 11,000 m is the greatest depth registered in the ocean. These remote areas support species that are uniquely adapted to harsh conditions such as lack of sunlight and high pressure. Many of these species are unknown to science.

As the deep sea remains understudied and poorly understood, there are many gaps in our understanding of its biodiversity and ecosystems. This makes it difficult to thoroughly assess the potential impacts of deep-sea mining and to put in place adequate safeguards to protect the marine environment.

Based on current knowledge of the deep sea, the following impacts of mining activities could affect its biodiversity and ecosystems:

Disturbance of the seafloor

The scraping of the ocean floor by machines can alter or destroy deep-sea habitats, leading to the loss of species and fragmentation or loss of ecosystem structure and function. Many species living in the deep sea are endemic – meaning they do not occur anywhere else on the planet – and physical disturbances in just one mining site can possibly wipe out an entire species. This is one of the biggest potential impacts from deep-sea mining.

Sediment plumes

Some forms of deep-sea mining will stir up fine sediments on the seafloor consisting of silt, clay and the remains of microorganisms, creating plumes of suspended particles. It is unclear how far these particles may disperse beyond the mining area, how long it would take for them to resettle on the seafloor, and to what extent they may affect ecosystems and species, for instance by smothering animals or harming filter-feeding species that depend on clear, clean water to feed, such as krill and whale sharks.

Pollution

Species such as whales, tuna and sharks could be affected by noise, vibrations and light pollution caused by mining equipment and surface vessels, as well as potential leaks and spills of fuel and toxic products.
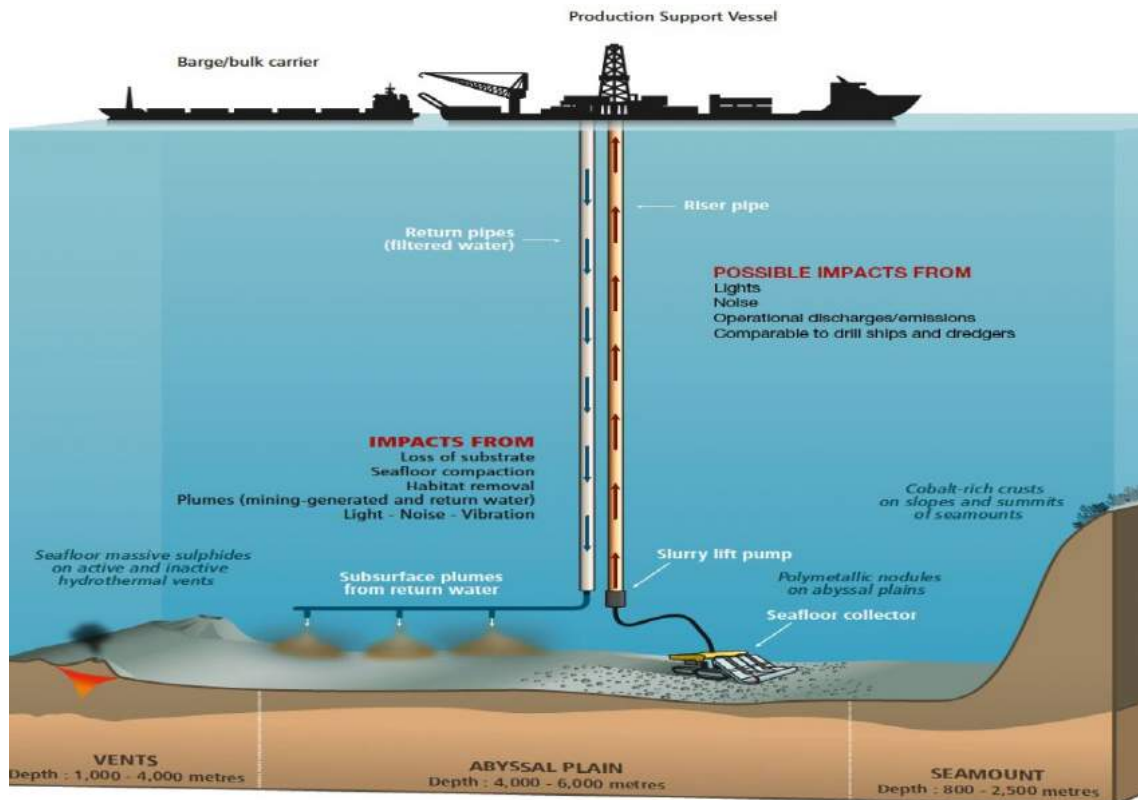
What can be done?

A better understanding of the deep sea is necessary to guide mitigation strategies and proper enforcement of regulations in order to limit the environmental impacts of mining activities.

Baseline studies:
Comprehensive baseline studies are needed to understand what species live in the deep sea, how they live, and how they could be affected by mining activities. More funds are needed for training and educational programmes focused on improving our understanding of the deep sea.

Environmental impact assessments:
High-quality environmental assessments are needed to assess the full range, extent and duration of environmental damage from deep-sea mining operations. These assessments are also needed to ensure that the loss of biodiversity as a result of mining operations is properly accounted for in mining regulations set by authorities, well before any decision to mine is approved. The costs to the marine environment should be included in the financial and economic assessments conducted by mining companies.

Mitigation:
Current technologies may not be sufficient to avoid serious and lasting harm to the environment, including the loss of biodiversity. Mining operations strategies will need to prioritise the avoidance of environmental impacts. This needs to include establishing protected area networks to keep large parts of the seabed

undisturbed as well as stringent and precautionary controls on the permissible extent and duration of mining operations. Minimising impacts should involve, among other things, improving mining equipment to reduce seafloor disturbance. Remedying environmental impacts has not yet been shown to be effective in practice.

Enhanced regulation:
The ISA is operating with the dual mandate of promoting the development of deep-sea minerals whilst ensuring that this development is not harmful to the environment. This challenging and conflicting mandate will require improved oversight by the international community – including government representatives and the general public – to ensure that marine life is adequately protected.
To avoid possible conflicts of interest due to the dual mandate of ISA, the organisation should consider divesting itself of some of its responsibilities, and placing them on independent entities.

Circular economy:
The repair, recycling and reuse of products should be encouraged to help reduce the demand for raw materials from the deep sea. Enhancing product design to make use of less or alternative materials can also reduce the demand.

Article By :-   Pavanraj Patil

SY.IT

LOCKDOWN

A lockdown is a requirement for people to stay where they are, usually due to specific risks to themselves or to others if they can move freely. The term "stay-at-home" or "shelter-in-place" is often used for lockdowns that affect an area, rather than specific locations.

Widespread lockdowns were issued in the COVID-19 pandemic.

The term is used for a prison protocol that usually prevents people, information or objects from leaving an area. The protocol can usually only be initiated by someone in a position of authority.

A lockdown can also be used to protect people inside a facility or, for example, a computing system, from a threat or other external event. In buildings doors leading outside are usually locked so that no person may enter or exit. A full lockdown usually means that people must stay where they are and may not enter or exit a building or rooms within it, needing to go to the nearest place designated safe if not already in such a place. A lockdown drill may be held in the absence of a threat, to familiarise people with what they must do.

Types

Procedures for using both emergency and preventive lockdowns must be planned.

Preventive lockdown

A preventive lockdown is a preemptive action plan implemented to address an unusual scenario or a weakness in system to preempt any danger to ensure the safety and security of people, organisation and system. The focus for preventive actions is to avoid dangers and risks arising from the nonconformances to the normal circumstances, but also commonly includes improvements in efficiency.

Preventive lockdowns are preemptive lockdowns to mitigate risk. Most organisations plan for the emergency lockdowns but fail to plan for other situations that might quickly degrade to dangerous levels. These protocols must be based on the type of threat, and should be kept simple and short for quick learning and implementation, and flexible enough to handle several scenarios.

This allows administrators more options to choose from which are easier to use in various scenarios. For example, in case of a loud scene by a parent or an unarmed petty thief being chased by the police through the school playground, this flexible procedure allows school administrators the flexibility to implement a more limited lockdown while teaching in school continues, thus eliminating need for complete emergency lockdown, disruption and delays in resumption of teaching, etc. The consequences of not having procedures to implement such lockdowns is that the situation might quickly escalate where there could be loss of human lives.

Emergency lockdown

Emergency lockdowns are implemented when there is imminent threat to the lives or risk of injury to humans, for example, a school's emergency lockdown procedures must be kept short and simple to make them easier to use under real life crisis conditions. Simple procedures can be easily taught with periodic lockdown drills instead of lengthy training.

Lockdowns can limit movements or activities in a community while allowing most organizations to function normally, or limit movements or activities such that only organizations supplying basic needs and services can function normally.

- Linisha Thakor
S.Y.I.T

Impact of the coronavirus on the Indian economy

After reporting its first case in late January 2020 in the southern state of Kerala, India introduced rigorous airport screenings for the coronavirus. The following weeks saw a quick succession of events leading to a cancelation of all travel in and out of the country by March 22.

That same day, prime minister Narendra Modi called for a 14-hour Janata Curfew, which some called a trial-run for the lockdown that was implemented later that week. While infections continued to increase during this period, Indians were now confined to their homes to contain the spread of the virus. The announcement did not come without chaos – it created widespread panic, specifically among lower classes of society including farmers and migrant workers who were left stranded and jobless overnight from their faraway homes and no mode of transport. Despite the government announcing a relief package of 1.7 trillion rupees, it was clear that a large portion of the country's population was going to be scouring for livelihoods. Additional support from state governments, and non-governmental organizations were expected to widen the radius of aid. This included the distribution of daily free food in some regions.

Economists slashed GDP rates for the foreseeable future due to the obvious impact of the lockdown. However, it was also estimated that the country might bounce back quickly because its industry composition, with unorganized markets being largely dominant. Losses from organized sectors amounted to an estimated nine trillion rupees in late March, projected to increase with the prolonging of the lockdown. Unsurprisingly, the most affected industries included services and manufacturing, specifically travel & tourism, financial services, mining and construction, with declining rates of up to 23 percent between April and June 2020.

The pandemic came with uncertainty and implications on all aspects of business across the world. Despite India being ahead of most countries in being able to implement work-from-home measures, specifically in white

collar work, job and earning deficits, along with instability in prices was expected. The months of the lockdown resulted in the free fall of employment, which slowly stabilized after the economy reopened in late May in most parts of the country. After zonal segmentation of districts, research showed that the worst affected areas included orange and red zones (districts with higher numbers of COVID-19 infections), and largely the urban economy. Maharashtra, Tamil Nadu and Gujarat were estimated to have the steepest decline in GSDP at an average of 15 percent for the following   year.

Segments including consumer retail expected to see sharp falls ranging between three and 23 percent depending on the market. For the big players across segments, this meant operating at less than full capacity to keep afloat. For small businesses, however, it depended on how long they could ride out the storm. Overall, the pandemic changed daily lifestyles drastically.

From a socio-economic standpoint, the pandemic exposed class and caste brutalities in determining who had access to basic healthcare. Even in the face of increasing infections and an economy inching feebly towards its pre-COVID-19 state, the Indian government was optimistic in fighting and containing the virus with minimal affects to the country.

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-Vaibhav Patil
S.Y.IT

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Careers in Vaccine Research

Scientist working in laboratory
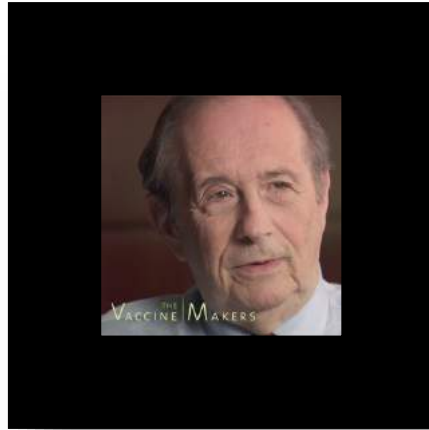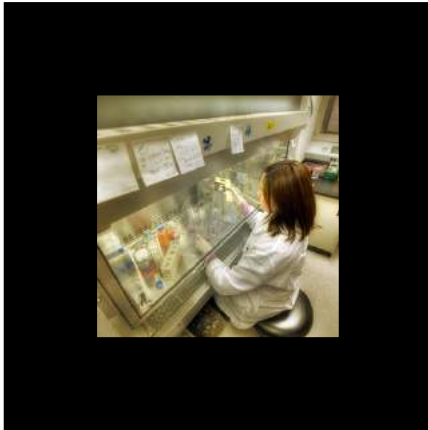
A variety of careers are available in basic vaccine research and development, clinical trials, production, and distribution of vaccine to the public. These jobs are available in universities, industry, government laboratories and agencies, hospitals, and on the front line of vaccine distribution all over the world.

Typically, most people start their career in vaccines with an undergraduate degree such as a Bachelor of Science (BS) in fields such as cellular or molecular biology, chemistry, biochemistry, or microbiology. It is helpful, before earning these degrees, to have had a combined strong background in high school science classes and a natural sense of curiosity. Many vaccine development jobs require masters and/or doctorate degrees (MS and/or PhD) that require several years of additional study beyond the BS degree.

Where to Find Vaccine-Related Jobs

Vaccine development research takes place in university, industry, government, and not-for-profit organization laboratories, and is funded in a number of different ways.

University research projects usually rely on federal grants from agencies such as the National Institutes of Health (NIH), and this money comes from the federal budget. Industry, which includes pharmaceutical and biotechnology companies, contract labs, and diagnostic testing facilities, has access to investor money, or in the case of successful companies, revenue from successful commercial products that can be put back into basic vaccine research.

The U.S. federal government funds research at many small startup companies that are often focused on specific projects such as those supporting the development of vaccines against potential biological warfare agents such as anthrax, or large public health issues such as the hepatitis C virus (HCV) and the human immunodeficiency virus (HIV).

Government vaccine development research jobs are also funded by the federal budget. The U.S. Army Medical Research Institute of Infectious Diseases works to develop vaccines "to protect our military service members from biological threats." Within the NIH, the National Institute of Allergy and Infectious Diseases (NIAID) supports and conducts basic and applied research to develop new vaccines.

The U.S. government's Food and Drug Administration (FDA) oversees all clinical trials assessing the safety and efficacy of vaccines; they have a staff of scientists and doctors that evaluates potential vaccines and approves and monitors the clinical studies. These positions usually require advanced degrees.

Public health careers, which can be found at the city, state, or federal levels, focus on getting vaccines to the public and may require getting advanced degrees in public health.

Not-for-profit vaccine development is conducted by organizations such as Global Vaccines, which works in collaboration with the Carolina Vaccine Institute at the University of North Carolina. Founded in 2002, its mission is to develop vaccines for diseases prevalent in developing countries. Other organizations such as Gavi and The World Health Organization (WHO) are focused on getting vaccines around the world to the people who need them. A large collection of vaccine-related jobs are available in these agencies, and they may range from laboratory research jobs to jobs in public policy and communications.

Basic Science Research

Basic research focuses on the biochemistry and physical properties that disease-causing microbes use to cause damage to the host. Such research also considers the biophysical characteristics of the microbes that might be used in vaccines or drugs to prevent or interrupt the disease process. This part of the vaccine development cycle is called *basic or preclinical research*.

Typically, a scientist with a doctorate degree in cellular and molecular biology, biochemistry, or microbiology leads these studies; however, a wide range of research functions are carried out by research assistants who might require only a BS degree in the same fields. In the case of vaccine development research, research associate jobs might involve growing cell lines in culture (a cell line is a clone or group of clones grown in a culture and derived from a single cell and which can proliferate indefinitely under strict lab conditions), cloning DNA, or performing assays (lab tests that look for, quantify, or measure some activity of proteins, viruses, and DNA). Basic research jobs might also offer opportunities to become an expert at operating specialized laboratory equipment such as flow cytometers that use lasers to evaluate cells.

All basic research requires a data analysis stage, which represents yet another field of expertise: data management and analysis. These are jobs that usually require a BS but not necessarily an advanced degree.

Most universities allow students to volunteer or be paid a small stipend to work in a lab—this provides valuable training and is excellent experience for getting a job after graduation. These student jobs can range from technician assistant, in which the student may be required to prepare chemical stock solutions, wash and sterilize glassware, and care for research animals, to senior technician, who maintains cell line stocks, tracks and breeds research animals, orders laboratory supplies, and may conduct experiments.

Once a vaccine looks like it is a serious candidate for therapeutic use, the project team moves it into the *development phase,* or *scale-up development phase*. In development, scientists, who likely have advanced degrees in manufacturing engineering, and their assistants work out the best methods for producing the vaccine on a large scale. Again, a PhD level scientist typically heads these experiments, but there are numerous jobs for individuals with BS degrees.

Clinical Trials

A candidate vaccine that successfully makes it through the preclinical research and scale-up development is eligible to become an *investigational vaccine*. The FDA decides whether or not the data on the vaccine warrant a clinical trial.

An investigational vaccine undergoes three phases of clinical trials before it can be licensed for public use. Phase I is a small trial to assess safety in humans; Phase II is slightly larger and monitors safety, immune response, and the desired protection; and Phase III involves testing the vaccine in larger group of people to prove that the vaccine is still safe and effective.

The clinical trial area encompasses a number of different careers and jobs. The trials are usually run by medical doctors (MDs) and team leaders with PhDs; however, trials also involve many opportunities for people with BS or MS degrees. For example, clinical associates might work with the clinical sites to ensure that the correct protocols are followed; workers in regulatory positions make sure the trial is in compliance with government regulations; statisticians work on the trial data; and medical writers produce the documents that detail the trial for the doctors and patients, as well as many documents for the FDA.

Meet the Scientists

A vaccine scientist at Pfizer Animal Health, Paul Dominowski, PhD, has developed several vaccines that are used for immunizing cattle against various highly contagious viral and bacterial agents. Most recently, he developed a vaccine that contains antigens against five viruses, all of which can cause bovine respiratory disease (BRD). By creating a multi-agent vaccine, he has eliminated the need for separate vaccinations and is saving farmers and the cattle industry millions of dollars each year. Dominowski holds a BS in microbiology and public health, and an MS and a PhD in immunology.

Dominowski says, "Even as a little kid I knew I wanted to be a scientist. A good scientist needs to be curious and want to know about the nuts and bolts of how things work. You need to have good problem solving skills and resiliency. Resilience is especially key—experiments rarely work the first time and you have to be prepared to go back to the

drawing board, figure out the problem, and try it again. Every failure is really a learning and problem solving experience." Once an experiment does work, you must demonstrate that it can be repeated, not just by yourself, but by other scientists.

For the kind of research he does, Dominowski thinks it is essential, both in industry and academia, to have a PhD; in fact, he went back to school after working industry for more than 10 years to get a PhD. He felt that the degree enabled him to delve into the science of vaccine development and express his creative, scientific side. He says, "It allowed me to get back to the roots of research." His advice to all young scientists at any institution is that it is critical to invent new approaches and technologies, patent your work, and publish your research in journals.

Like Dominowski, Deborah Farson, BS, knew from an early age that she loved science. "In high school I stumbled onto a book in the school library that had pictures of a tobacco mosaic virus taken with an electron microscope. I must have checked that book out a dozen times to look at those photos. Little did I know then how much of my career would be spent working with viruses."

Farson received her undergraduate degree in zoology at the University of California, Los Angeles, and her first job was as a research associate at UCLA assisting a professor who was studying how cells repair damaged DNA. Farson continued doing basic research at Lawrence Berkeley National Laboratory, where she learned cell culture and studied, among other things, how viruses transform cells.

Farson found that the lack of an advanced degree was a handicap in an academic setting but mattered less in a corporate setting. She explains that "without an advanced degree, research associates in academic settings are limited in their career options, so when I was recruited by a small biotechnology startup company I decided to make the change. What I found was that small companies need you to do a little bit of everything, and pretty soon you are able to show that you can handle bigger projects and more responsibility. I worked on a number of different projects over the years and loved the challenge of always learning something new. I was eventually promoted to scientist."

The company that hired Farson away from the academic sector was using cancer cells as vaccines to stimulate a cancer patient's immune system to help fight the disease. Farson's group was responsible for making and characterizing these cell lines for use in clinical trials. When the company closed in 2009, Farson was a Senior Director in Research and Development. She now works as a freelance consultant.

Both Farson and Dominowski worked in academic and industry labs and had similar observations about the experience. They point out that whereas basic vaccine research can be done at university, government, or industry sites, there are some differences in approach in each setting. In industry, teams can rely on large budgets, but they may have to adhere to strict timelines; for example, rather than spending the time to develop and set up an assay, the tendency in industry would be to spend the money on an already developed assay kit. In a university lab, money tends to be more restrictive, the timelines less strict, and so the lab might develop an in-house assay rather than purchase one.

The research demands of a company are more focused—if the vaccine does not work, a scientist moves on to another project, whereas an academic lab may have the time to look

at the problem in more detail. Dominowski thinks that a university setting might provide more freedom to think outside the box—that innovative creativity is almost expected of university scientists.

More teamwork is usually required in industry, in which different parts of a project are handled by different groups simultaneously, whereas a scientist in an academic lab could be a solitary worker handling all parts of a project. The challenge in either setting is the balance between creative science and all of the business management that goes with getting funding, managing a budget, and possibly supervising other scientists or assistants.

Rewarding Careers

Vaccine research offers scientists the opportunity to work on a project that could directly impact public health, whether it is working directly at the lab bench, on a production line, or to support a clinical trial. Farson loved working on projects that had the potential to prevent or cure diseases. As a scientist, Dominowski thinks his greatest achievement so far was helping to define and develop a drug that enhances the immune system in humans. This drug has proven to be clinically very relevant and has helped thousands of people lead healthier lives.

- Prerna Anil Divekar
  S.Y.IT

Smart India Hackathon

Smart India hackathon is an initiative by current government to engage engineering college students to solve problems stated by ministries on the smart India website. Students are required to submit idea and prototype. If selected, ministries will allow students to develop the product further. Thus this is mutually beneficial both to students and government. Former gets experience and hands on experience while later gets problem solved through technology free of cost. Government generates sense of competition by announcing best ideas with cash prize. Narendra Modi interacted with students through video conferencing whose ideas were selected and were developing prototypes at various parts of the companies.

Team "CoDicts" from IT department
-Winner of SIH 2020

- ### ***Success story of Team Codicts***
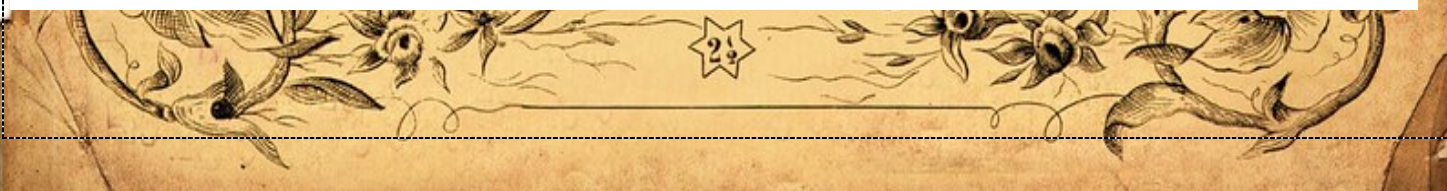
Team Members:

- Kishor Shivsharan
- Niketan Gulekar
- Sakshi Shinde
- Aditi Shinde
- Rohit Molawade
- Prashant Chavan

We CoDicts, never thought that we will be the winner of Smart India Hackathon 2020, but we had a strong ambition, a supportive team and teachers to guide and its been a fantastic journey from being an amateur diploma team to SIH2020 finalist and to be a winner of this competition. And it wasn't an overnight success for us, its a hard work of 7 months and more, spent day-night developing, designing ideas, fixing bugs. And like any success stories we also had some hardships and downfalls and this made us even stronger than ever.

POEMS

LIFE WITHOUT AN ENGINEER

No bulb will ever glow, there will be only Dark night.

no WhatsApp ,no more chats only latter Birds will persist..

No buildings no toilet seats to sit,

fields will be filled with only shit..

life without engineers, seriously doesn't exist,,,

No cars will ever move on roads,

And no dancing cars on empty roads..

No Instagram ,no more selfies ,

No FB, no friend request to beauties..

We are the future of world ,

we make a difference ,

we are the engineers Without us life doesn't exist..

We are cheaters but we don't cheat humanity!!

We hate study..but we love Technology

World can't change us ,

but we can change the world

we don't have books in hands ,

but we have a Revolutionary ideas in mind..!!" So

Life Without An Engineer, Doesn't Exist..

- Upasana Rawal

SYIT

RULER OF THE SKY

You think words can define you,

For you always believe what people say,

But don't let them fool you my dear,

Cause lies are what they keep at bay.

Let me tell you a secret,

You have a whole universe inside,

Your thoughts sewed into constellations,

Spread with the galaxies so far and wide.

You house the wildest of rivers,

And hold the Oceans and valleys and plains,

You are the warmth of the morning sunshine,

And the thunder of the stormy rains.

You are all the mysterious places

That people haven't seen yet,

You hold the essence of familiarity

Of all the strangers that you've ever met.

You are home to mighty mountains,

And a host to mocking birds that fly so high,

For you are born from the stars, my dear,

Destined to be the ruler of the sky.

-Sakshi Mahajan

SYIT

The Baffled Warrior

Think of a life,
Filled with disappointments
Only insults & fear
And from the eye
not dropping just a single tear

He was the greatest combatant
Yes he was the greatest archer,
Though all the life he lived
Filled with only & only torchers

A man with the greatest arm-strength
A man who had conquered the world
Lived his life in such a way that,
A broken stone was pearled

Just think he was the son of
The sun & a great Queen
But he was just an adopted son
The life was just a blank screen

A king of the largest kingdom
Passed his life only in insult
Fought his last fight so boldly
That he was seeming as an occult

No one was able to compare with him
For friendship he fought with his brothers
And ended his life on their shoulders

Yes he was a true friend & warrior
Yes it's the story of the great combatant
The **KARNA**....!

The Baffled Warrior

- Siddhant Sonawane

S.Y.IT

- मैत्री *-*

जन्माला येतो तेव्हा माहीत नसतं

सारं काही नवीनच दिसत असतं

काहीच समजत नसतं

पुढे काय होणार असतं

जन्म-मृत्यू चक्र चालूच असतं

आपण फक्त पुढे-पुढे चलायचं असतं

जेव्हा कळत जगणं हे मुश्किल असतं

तेव्हा कोणाच तरी सहाय्य हवं असतं

जगण्यासाठी फक्त आई-वडिलांचा प्रेम पुरेस नसतं
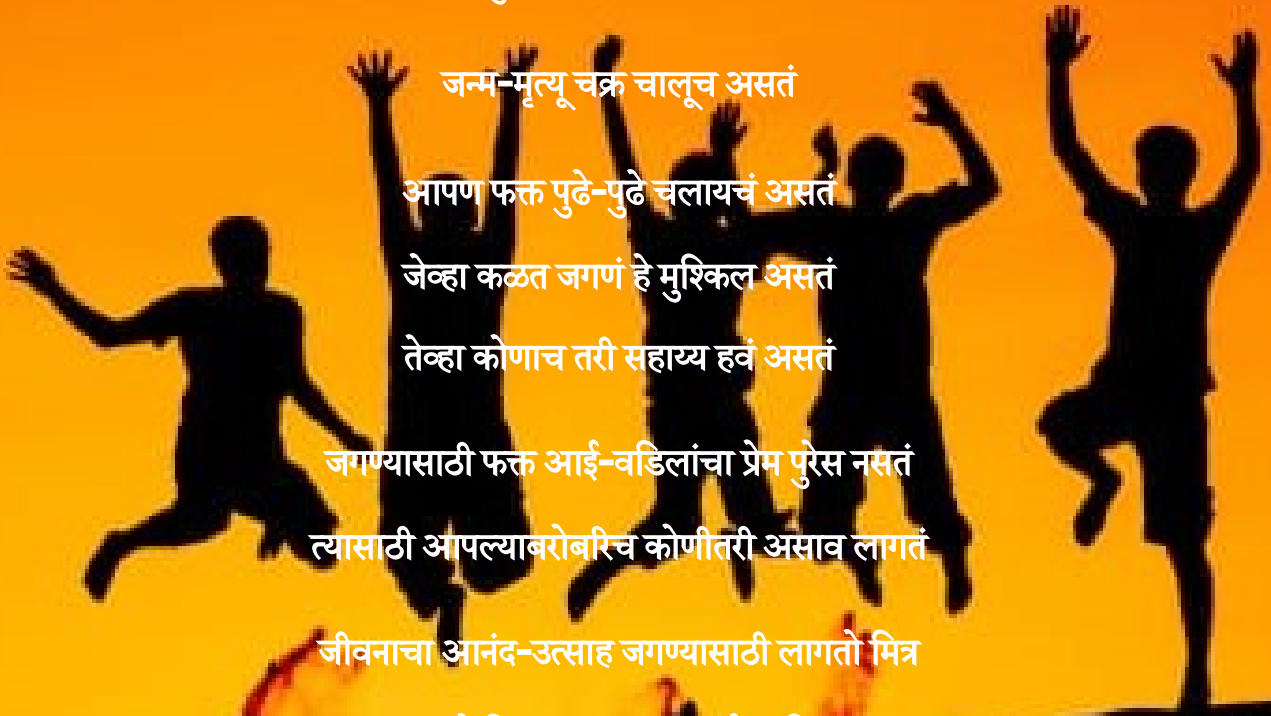
त्यासाठी आपल्याबरोबरिच कोणीतरी असाव लागतं

जीवनाचा आनंद-उत्साह जगण्यासाठी लागतो मित्र

ज्याचे विचार आसतात सर्वांत पवित्र

ज्या नात्याला नसते शत्रुत्व ते अमर नाते म्हणजे मित्रत्व

मैत्री करायची नसते फक्त दाखवायला

ती करायची नसते फक्त नावाला

ती करायची नसते फक्त टाईमपासला

तर ती असते जीवनभर साथ द्यायला

कधी जोडायची कधी तोडायची

याला का मैत्री म्हणायची ?

मैत्री म्हणजे फक्त लहानस नाव नसतं

त्यात विश्व सामावून घेण्याचं बळ असतं
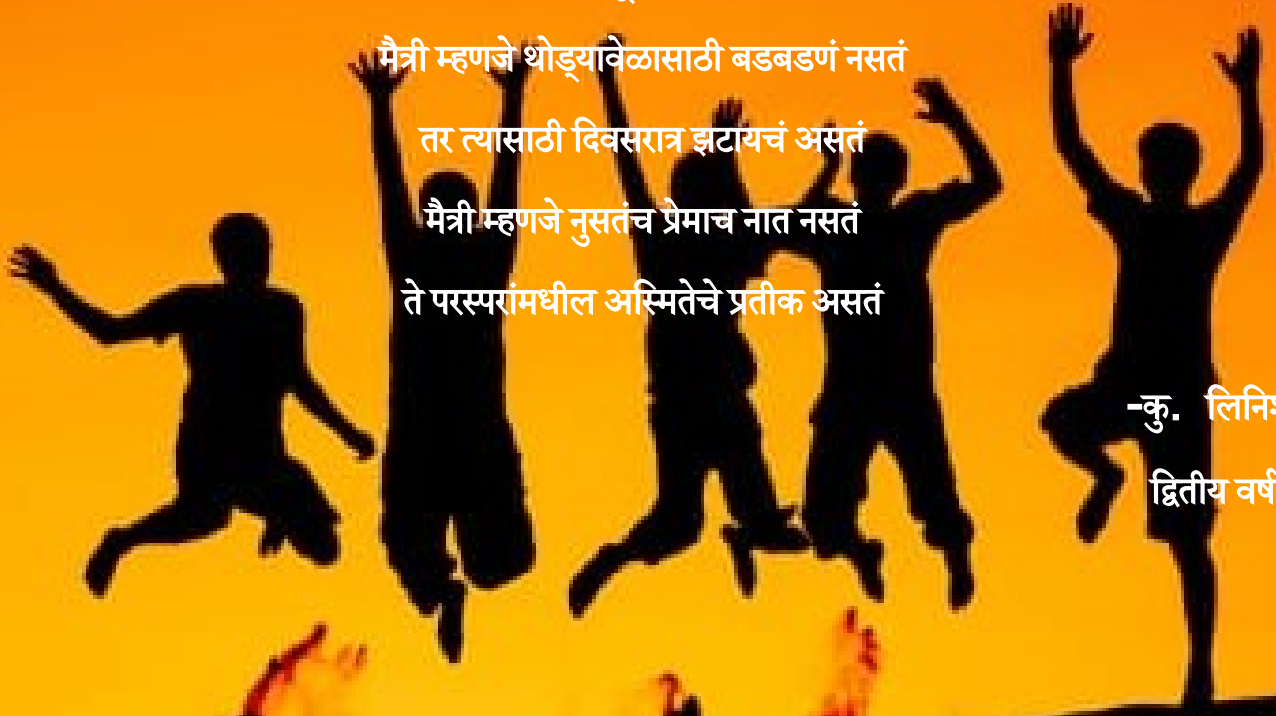
मैत्री म्हणजे थोड्यावेळासाठी बडबडणं नसतं

तर त्यासाठी दिवसरात्र झटायचं असतं

मैत्री म्हणजे नुसतंच प्रेमाच नात नसतं

ते परस्परांमधील अस्मितेचे प्रतीक असतं

-कु. लिनिशा ठाकोर

द्वितीय वर्ष डिप्लोमा

- साठवण *-*

मनातला एक कप्पा फक्त आपल्यासाठी ठेवावा

आपणच तो भरावा आणि आपणच रिक्त करावा

ऊन आणि सवलीचा खेळ

नेहमीच इथे चालणार आहे

सुखदु:खाने कप्पा नेहमीच भरणार आहे

अधून-मधून कधीतरी आवरायला काढावा

भूतकाळाचा जमाखर्च मांडून पाहावा

यातील एखादं सोनेरी पान जपून ठेवावं

खरंच बाकी सगळं काही तसंच कोपऱ्यात बंद ठेवावं!

-कु. लिनिशा ठाकोर

द्वितीय वर्ष डिप्लोमा

नुसत्यावाटण्यावर.....

आकांक्षाचे शंखशिंपले, अन्स्वप्नांचेमोती

सुखाचे शिंपण असू दे माझ्या अवती भवती

वाटते नको जगीया दुःखाचा लवलेश

सुखास भिऊनी, दूर पळूदे दुःख आणि व्देष

प्रत्येकाच्या मनात आशेने पालवावे

निराशेच्या तिमीराला दूर घालवावे

वाटते यशाने जावे प्रत्येकाने दारी,

जयघोषाचे शब्दफुलावे प्रत्येकाच्या अधरी.

असे वाटते मला 'वेदनांची' करावी होळी

प्रत्येकाच्या अंगणी घालावी सौख्याची रांगोळी

असे वाटते इथे झडावे चांदण्यांचे सडे

भवती हसरे तारे असता का पाहिल कोणी नभाकडे

असे वाटते स्वर्ग सुखाने यावे या भुवरी

संतोषाने सतत रहावे प्रत्येकाच्या घरी असे वाटते आधी

माणसाने माणूस व्हावे

दुर्भावाने दूर सारुनी पुढे-पुढे चालावे

आपण प्रयत्न केले, तरच होइल काही

नुसत्या वाटण्या वरी, काहीच होत नाही!

-कु. प्रेरणा अनिल दिवेकर.

व्दितीय वर्षडिप्लोमा.

" Midnight "
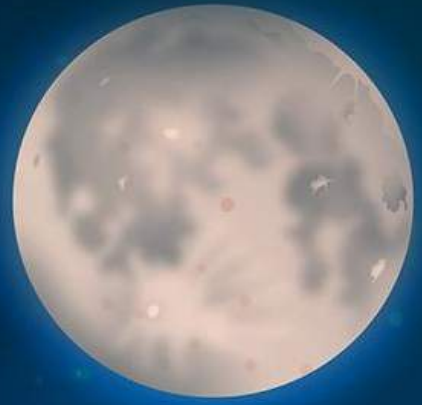
How faithful is the dark,

It is aware of my every thought...

It has known all my secrets,

And all the battles that I've fought...

What a magical solace it holds within,

Exhuming all my fears,

Keeping safe my insecurities,

And sending unheard drifts down my ears.

All day long we keep hiding behind our masks,

Trying to escape from our own self,

But in this fury of the night,

We find comfort and not need any help.

The silence of the night speaks louder,

When no words are spoken,

It has a power to hold and heal,

All the due hearts that are broken.

And so, in this solitude,

Through my thoughts i will drive,

And when the clock will strike midnight,

Thats when I will feel the most alive.

-Sakshi Mahajan

SYIT

- मुलगी वंशाचा दिवा *-*

कळाली आनंदाची बातमी

घरचा आनंद मावेना गगणी

सर्वांना लागली माझी चाहूल

पण म्हणाली सर्व आम्हाला हवा राहुल

स्थान मिळाले आईच्या पोटी

पण घातली बापाने आईच्या विश्वासावर काठी

काळालं होत तो नसून ती

जगायचं तरी कसं मी

सर्वांनी केली जबरदस्ती आईवर

लाज वाटली दयाहीन बापावर

आई तुझं तरी प्रेम आहे का माझ्यावर

रडत रडत म्हणाले, ते आई ला ऐकू गेले

आईच्या कानी शब्द गुंजू लागले

आई मला जगायचंय

मला हे जग पाहायचंय

होत होता तिला त्रास पोटाच्या गोळ्याला मारायचा

इच्छा होती तिची मला हातानं घास भरवायचा

होती आई माझी रडत

सर्वांना माझ्याखातर समजावत

ऐकत नव्हतं कोणी आईचं

दगडी काळीज बापाचं

कसा निष्ठूर हृदयाचा बाप

मारत होता आई गारोदर नसल्याची थाप

आईनं ठरवलं होतं जगवायच मला

घरदार सोडायच,   स्वत:चा संसार मोडायचा

केवढा होता तो मोठा त्याग,   केलं मी चीज त्याचं

वितळलं काळीज बापाचं

ठरवलं त्यानं मला स्वीकारायचं

मग म्हणू लागला तो

आई पाहिजे,   बायको पाहिजे

मग मुलगी का नको ?

आधुनिक युगाचा मंत्र नवा,

मुलगी हवी वंशाचा दिवा,

मुलगा-मुलगी समान,

राखा मानवतेचा मान

मुलासाठी करू नाक दंगा

मुलगी आहे मानवतेची गंगा

दोन्ही घरांचा राखते मान

करू नाक स्त्री जन्माचा अपमान

चला सज्ज होऊया,

स्त्री भ्रूण हत्या थांबवूया

ईश्वराचा अमूल्य ठेवा

कन्येला जन्म द्यावा

मालक, करू नका पुत्राची घाई

मुलगी आहे ना आमची दोघांची आई.

-कु. लिनिशा ठाकोर

द्वितीय वर्ष डिप्लोमा

Polytechnic ची लढाई…

लहापणापासून स्वप्न बघितले होते इंजिनिअरिंग चे आणि

दहावीच्या प्रतापी मरकानी एडमिशन केले GPP चे.

लोकल मधून झालेलं पुणे दर्शन अधभूध होतं ,पण त्यानंतर

शिवाजीनगर च्या Traffic च दर्शन horrible होत.

शेवटी ठेवले आम्ही हॉस्टेल मध्ये पाऊल आणि

तिथूनच सुरू झाली आमच्या वाकड्या जीवनाची चाहूल.

जेवणात मीठ आहे की मिठात जेवण समजेना,

भाजी नक्की कशाची हे सुधा उमगेना.

आमची रांगडी भाषा कोणासोबत जुळत न्हवती पण आत्ता

Three -Fourth ,Jeans सोबत Leggings पण कळत होती.

C4 मधले 9.30 चे lecture म्हणजे आम्ही 15 मिनिट लेट आणि

शेवटचा बेंच अमचात ठरला होता थेट.

60 मिनिटाचा झाला की तास सगळ्यांचा एक च नारा असायचा

मॅडम आता करा की बास ,आता करा की बास.

1 तासाच्या युनिट टेस्ट ची आमची पद्धत होती आगळी,

5 ला पास आणि 7 ला डिस्टिंक्शन ची प्रथाच पडली वेगळी.

Semester end ला यायचं Oral, Practical च fear आणी

External म्हणायचे " Your basics are not clear".

जगा वेगळी पद्धत होती आमची अभ्यासाची ,

एका रात्रीत बसवायची कथा 6 महिन्यांची.

Practical चे किती तरी तास असेच उडायचे आणि

आमचे Practical चे Output मॅमला एक सारखेच दिसायचे.

Maths घेऊन खेळत होतो लेव्हल नॉन लेव्हल चा खेळ ,

कसा तरी बसवला आपला चाळीस चा मेळ.

कॉलेज सुटले की आमचा पत्ता कट्ट्या वर ,आहो Theory काय

Oral, Practical पण काढलेत आम्ही एका रात्रीच्या रट्ट्यावर.

आमची Marklist मात्र रंगीत फार ,

चिन्ह डॉलर ची किवा 2-3 दा स्टार.

करते वेळी Submission सांगायला कारण अनेक आहेत,

मॅम 12 मधले 10 सोडले तर बाकी सगळे चेक आहेत.

Proxy मारून देखील 50 टक्के चा वर Attendance नाही वाढली ,

पण Termwork साठी मात्र आम्ही सगळ्यांची गाठ भेट घेतली.

हल्ली कोरोना Pandemic मुळे घरी अस्तानी एकटे पणा वाटतो ,

Friends ला न भेटण्याचं दुःख मनात दाटत.

दिवस यईएल एक जेव्हा क्लासेस आपले भरणार नाहीत,

Teachers आपल्या मागे लागून अभ्यास करा बोलणार नाहीत.

Assignment चे गठ्टे जेव्हा आपल्यासाठी असणार नाहीत,

झेरॉक्स सेंटर च्या गर्दी मध्ये लढावं लागणार नाही.

लेट नाईट Movies नंतर Security काकांना मानावे लागणार नाही,

आणि रोज दिसणारी ती एक व्यकति पुन्हा पुन्हा दिसणार नाही.

निस्ट त चालेले हे क्षण आजच जगायचेआहेत ,

Polytechnic चे शेवटचे दिवस मनात साठवून ठेवायचे आहेत.

जातांना फ्रेंड्स एवढच सांगावस वाटं Computer,IT असो

किंवा Civil, Mechanical

दाही दिशां साठी आवाज आमचा एकच आहे ,

GPP सोडल तर बाकी सगळ fake आहे.

~ <u>Anushka Bandal</u>
<u>(TYIT)</u>

Success

There is a curve called Failure,

A loop called Confusion,

Speed bumps called Friends,

Red lights called Enemies, and

Caution lights called Family.

But if you have a spare called Determination,

An engine called Prevention,

Insurance called Faith, and

A driver called Jesus,

You will make it to a place called Success!!!

By niderah

SUBMITTED BY:

ACHAL NISWADE

S.Y.IT

_तु_

तुझ्या आठवणीत रमलेल्या प्रत्येक क्षणात तू,
फक्त तुझा विचार करणाऱ्या या मनात तू।

नकळत दिलेल्या भेटींच्या स्मरणात तू,
अपुऱ्या असलेल्या माझ्या जीवनात तू।

तुझ्यासाठी धडकणाऱ्या माझ्या हृदयात तू,
प्राण बनुनी आहेस माझ्या देहात तू।

तुझ्याविना घडणाऱ्या प्रवासात तू,
नसून ही असलेल्या सहवासात तू।

तुला मिळवण्याच्या माझ्या ध्यासात तू,
ध्यासापायी घेतलेल्या प्रत्येक श्वासात तू।

वाऱ्याच्या हळुवार स्पर्शात तू,
चेहऱ्यावरच्या नाजूक हर्षात तू।

माझ्या मनात उमगणाऱ्या प्रत्येक भावात तू,
ओठांवरी नेहमी येणाऱ्या नावात तू।

पक्षांच्या गोड गाण्यात तू,
समुद्राच्या निर्मळ पाण्यात तू।

या सुंदर पांढऱ्या शुभ्र ढगात तू,
साऱ्या माझ्या जगात तू।

इंद्रधनुष्याच्या प्रत्येक रंगात तू,
माझ्या प्रितीच्या प्रत्येक ढंगात तू।

माझ्या निराळ्या प्रेम कथेत तू,
माझ्या निस्वार्थ प्रेमाच्या व्यथेत तू।

जवळी असशील तू किंवा नसशील तू,
तरी नेहमी माझ्या हृदयात वसशील तू।
कारण माझा होतास तू आणि

कायम माझाच असशील तू…माझाच असशील तू…..

माझाच असशील तू…….

~अनुष्का रक्षे
द्वितीय वर्ष डिप्लोमा

___पहलाप्यार___

हमें कोई ना कहे,
इतना किसी में दम नहीं।

और हम किसी को ना कहे,
इसका हमें कोई घम नहीं।

हम किसी का दिल तोड़े तो,
हमे उसकी परवाह नहीं।

और हम किसी को छोड़े तो,
हमें उसका शिकवाह नहीं।

ज़िंदगी मेरी,प्यार हमारा   ,

दिल्लगी मेरीदिल तुम्हारा।   ,

हम भी जिस पर हार गए,
ऐसा तुम्हारा खुमार हैं।
सातों जनम सिर्फ हम ही
उस हुस्न के हकदार हैं।

तुम्हे खुदा ने दिया खूबसूरती का खिताब हैं,

कैसे बताऊ हालत दिलबेताब हैं।-ए-

हा ये पहला प्यार हैं,

शायद पहली और आखरी बार हैं......शायद पहली और आखरी बार हैं....

~~अनुष्का रक्षे
द्वितीय वर्ष डिप्लोमा

___जितनेकाइंतजार___

खॉमिया तो बहुत है मुझमे,
पर अरमान भी कम नही।

कामयाबियो को तो चूमना ही है,
मुझे रोक सके इतना किसी मे दम नहीं।

हौसले तो बुलन्द हैं मेरे,
पर बात बस हौसलो की नही।

श्रम और प्रयासों की हो साथ,
तो दूर मंजिले भी नही।

लड़ेंगे तो मरते दम तक,
जब तक रगों में बहता खून हैं।

हार ना मानेंगे कभी क्यो की,
अंदर बस जितने का जुनून हैं।

मंजिले बहुत बड़ी हौ पर,
उनसे बड़ा जज्बा है मेरा।

हार भी मेरे सामने हार जाए,
ऐसा उम्दा रुतबा है मेरा।

अब तो छिड़ गई हैं जंग,
हम तो पीछे हटेंगे नही।

चाहे लाख बार मिटालो,
हम तो अब मिटेंगे नही।

हर दफा ग़म और दर्द थे और रहेंगे मेरे हथ्यार,

क्या करे प्यार और जंग में सब जायज़ है मेरे यारा।...

अब लड़ने के लिये हो जाओ तैयार,

क्यो की मुझे बस है जितने का इंतेज़ार...

बस है जितने का इंतेज़ार..

~अनुष्का रक्षे
द्वितीय वर्ष डिप्लोमा

An Engineers Valentine...

I was alone and all was dark

Beneath me and above

My life was full of volts and amps

But not the spark of love

But now that you are here with me

My heart is overjoyed

You've turned the square of my heart

Into a sinusoid

You load things from Memory

Onto my system bus

My life was once assembly code

It's now like C++

I love the way you solder things

My circuits you can fix

The voltage cross your diode is

Much more than just point six

With your OP-Amps and resistors

You have built my integrator

I cannot survive without you

You're my function generator

You've changed my world ,increased my gain

And made my math discrete

So now I'll end my poem here

Control,Alt, and Delete..

- Shreetej Chavan

S.Y.IT

जीवण

जीवणात आला आहेस
थोड जगून तर बघ

जग फार सुंदर आहे
डोळे उघडे ठेवून तर बघ

प्रेम आपुलकी मिळते इथे
थोडासा जीव लावून तर बघ

संकट आल्यावर मदतीला येतील
हाक मारून तर बघ

हे मानवा तू हव ते कर
एकदा प्रयत्न करून तर बघ

स्वतःच्या इच्छा मारू नकोस
मनमोकळे पणाने जगून तर बघ

हे अनमोल जीवण पुन्हा नाही
हे मात्र कायम लक्षात ठेव.

Yogitagholve

-   Yogita Gholve
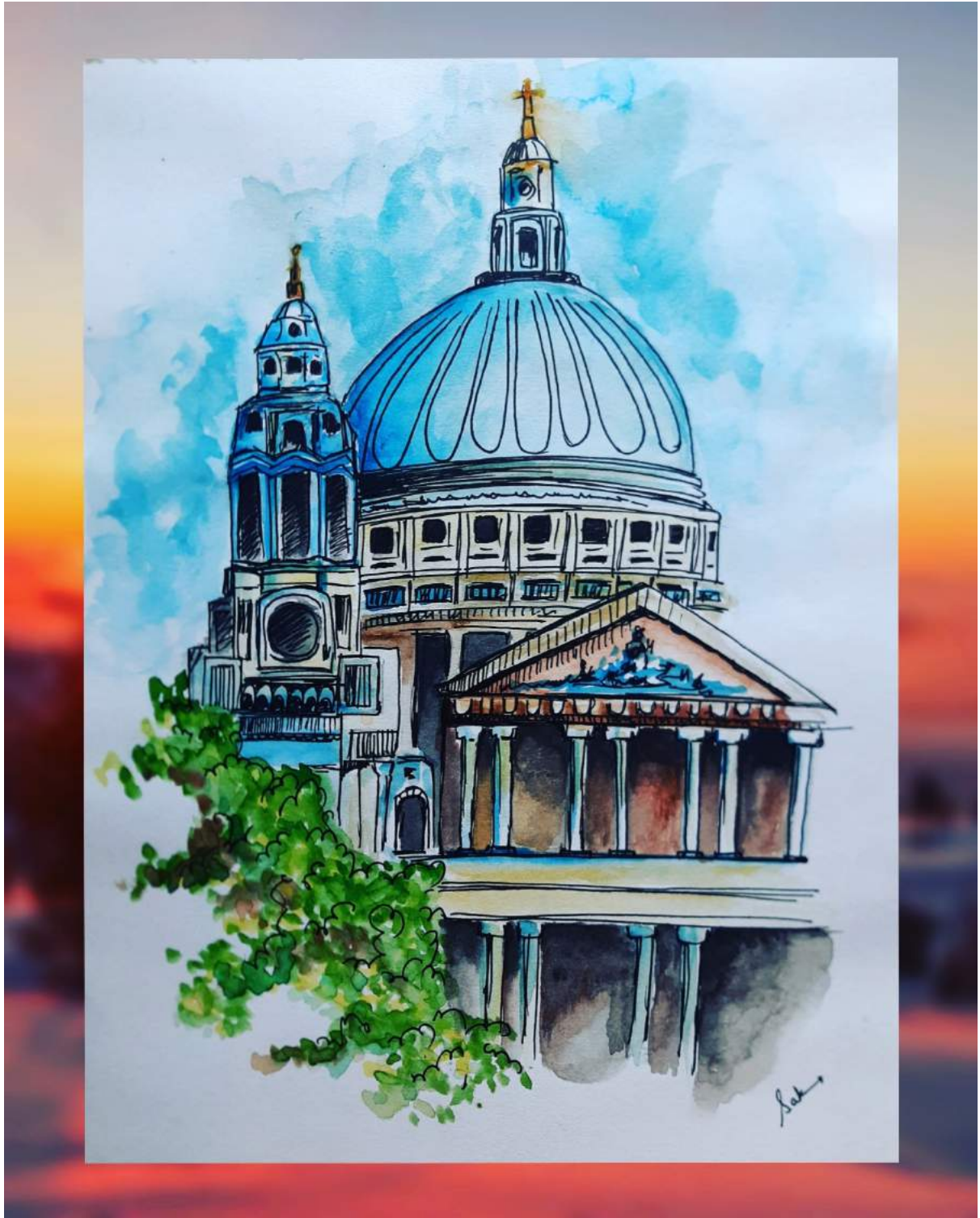   T.Y.IT
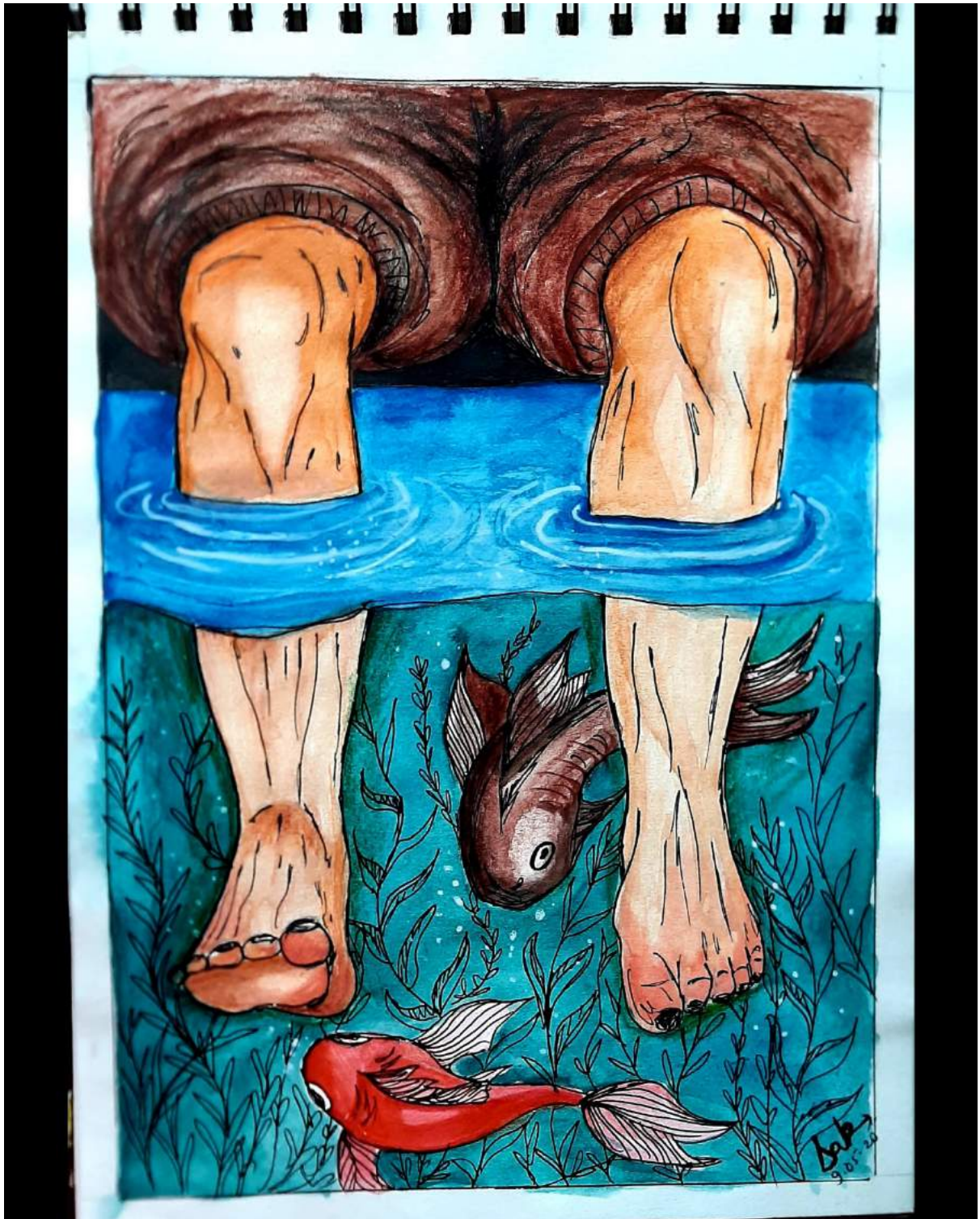
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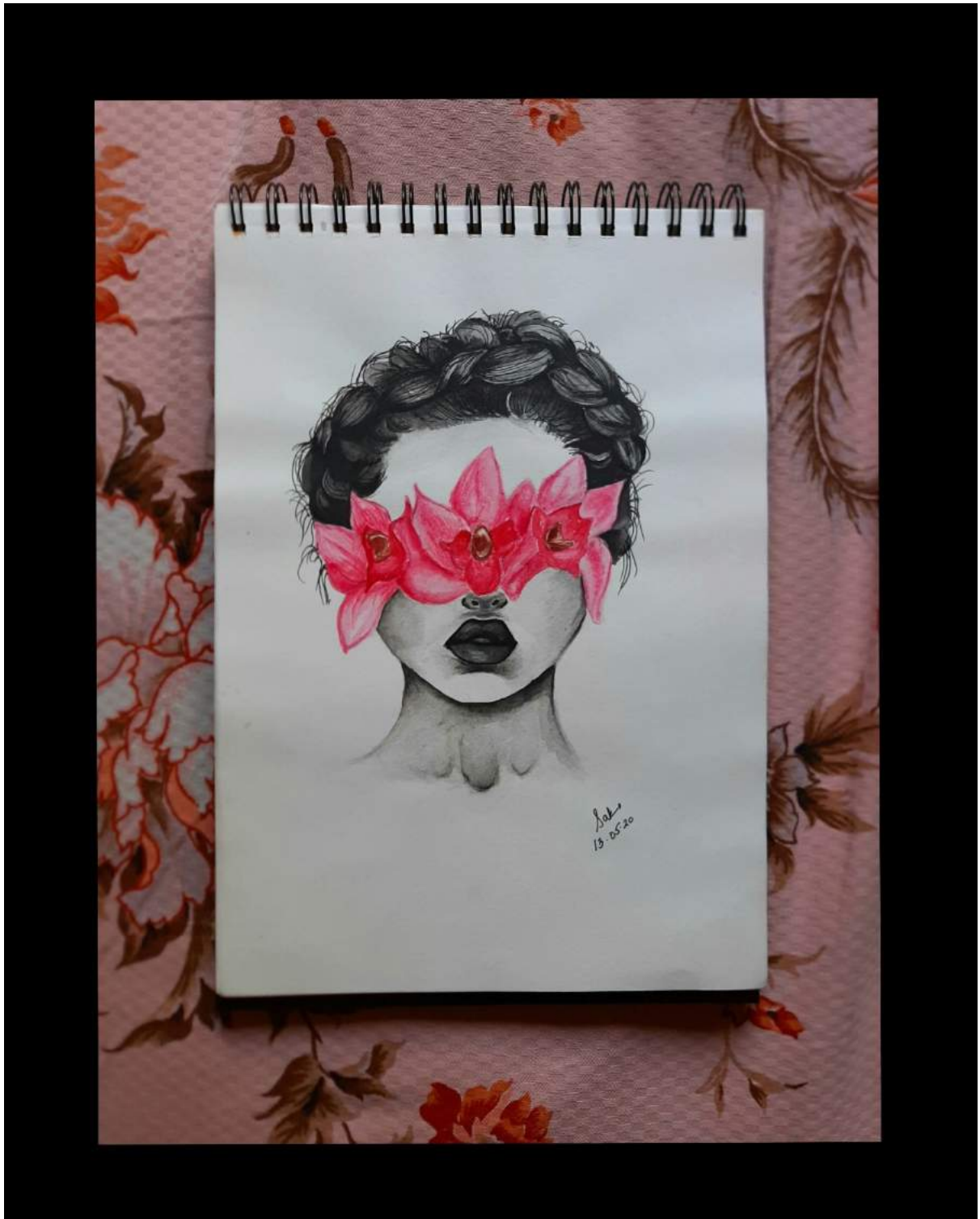
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- Sakshi Mahajan

S.Y.IT

- Priti Shirase

T.Y.IT

- Priti Shirase

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\- Sakshi Mahajan

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- Sakshi Mahajan

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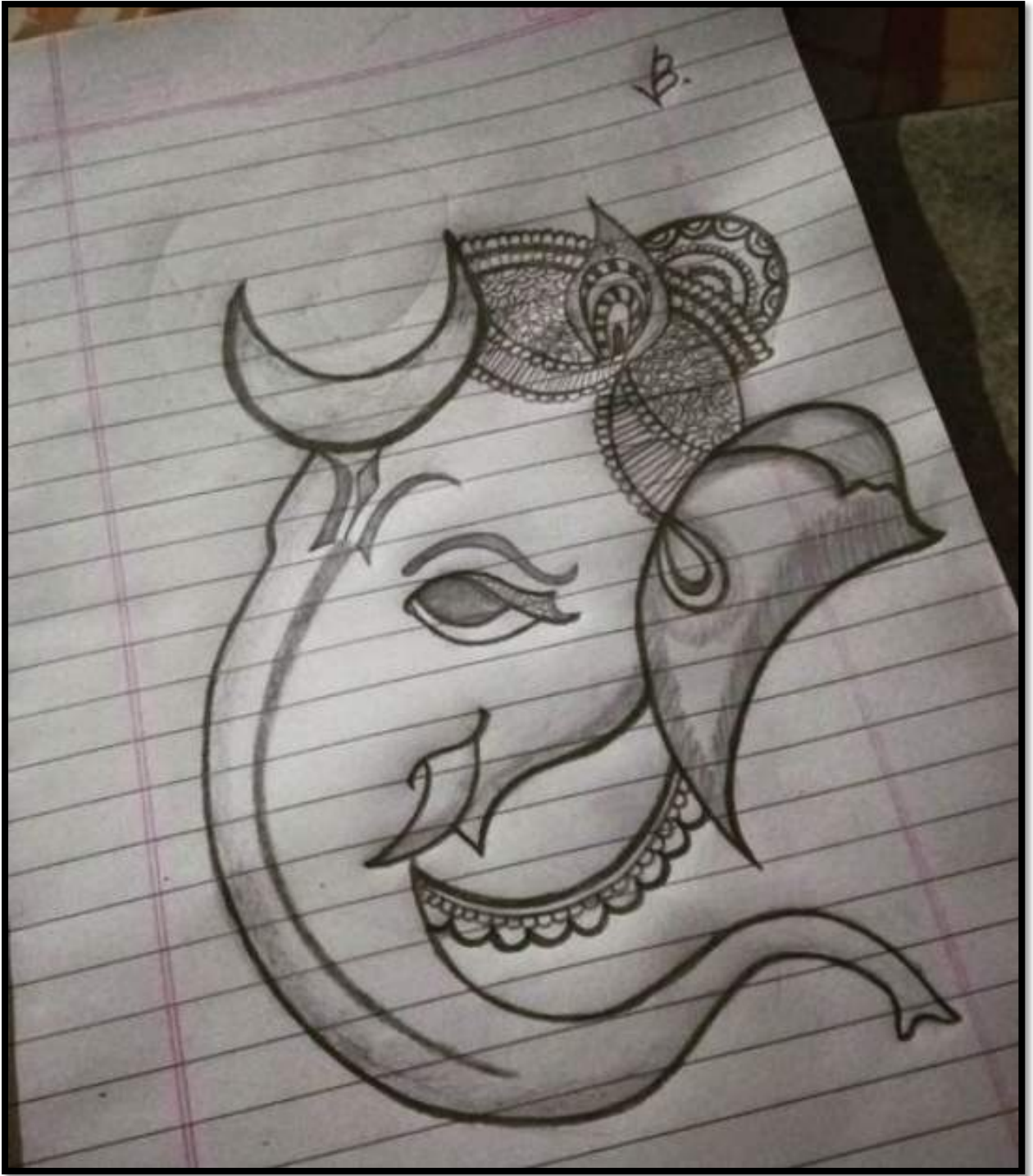- Sakshi Mahajan

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- Vaishnavi Bhandare

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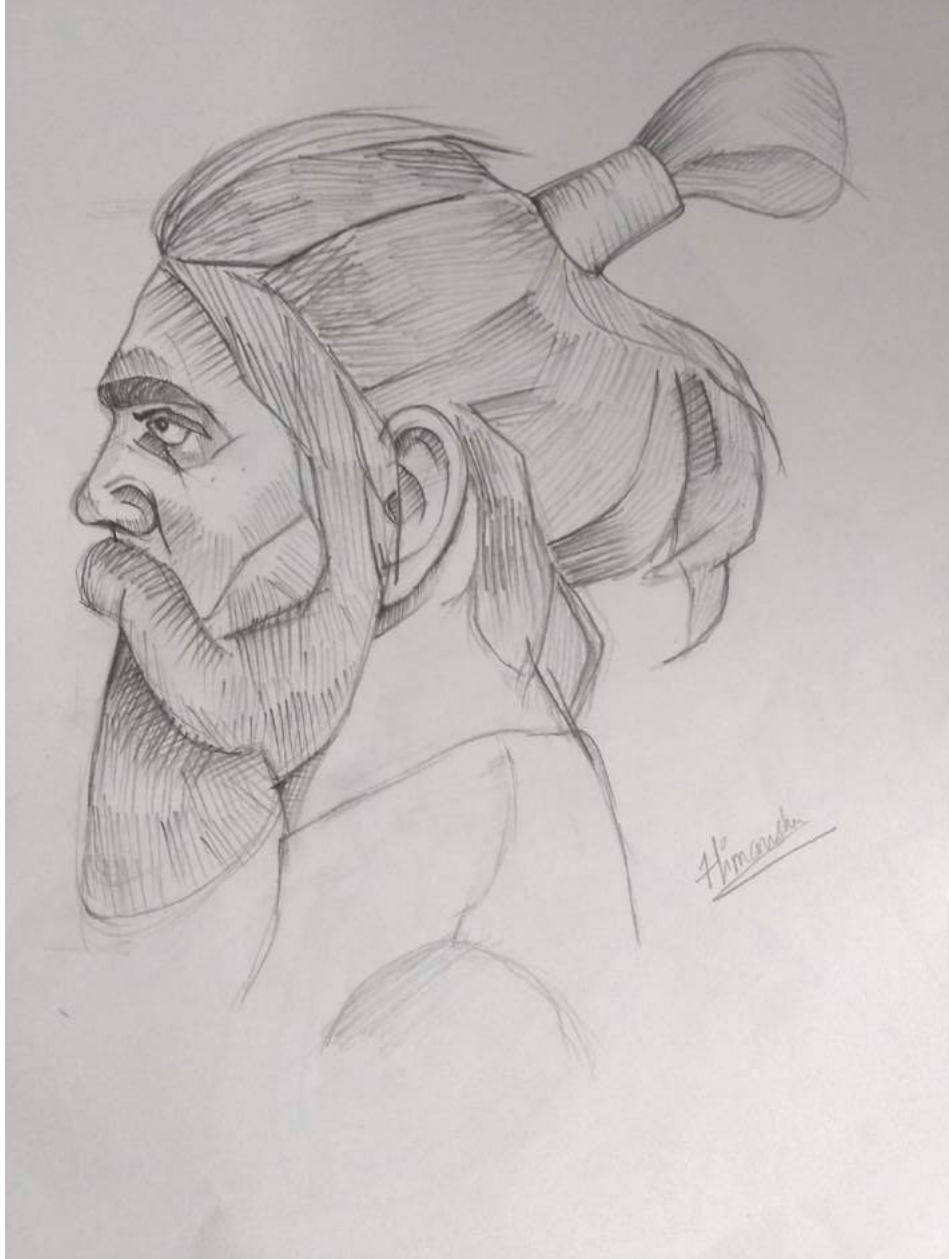- Vaishnavi Bhandare

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- Janhavi Patil.

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- Himanshu Sangale

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- Himanshu Sangale

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- Himanshu Sangale

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- Himanshu Sangale

T.Y.IT

happy sunday

- Aditi Nikam

T.Y.IT

- Aditi Nikam

T.Y.IT

JAGRUTI SHINDE

-S.Y.IT

Students Clicks

- Dipali Bhalshankar

T.Y.IT

Umar Momin

T.Y.IT

Umar Momin

T.Y.IT

Umar Momin

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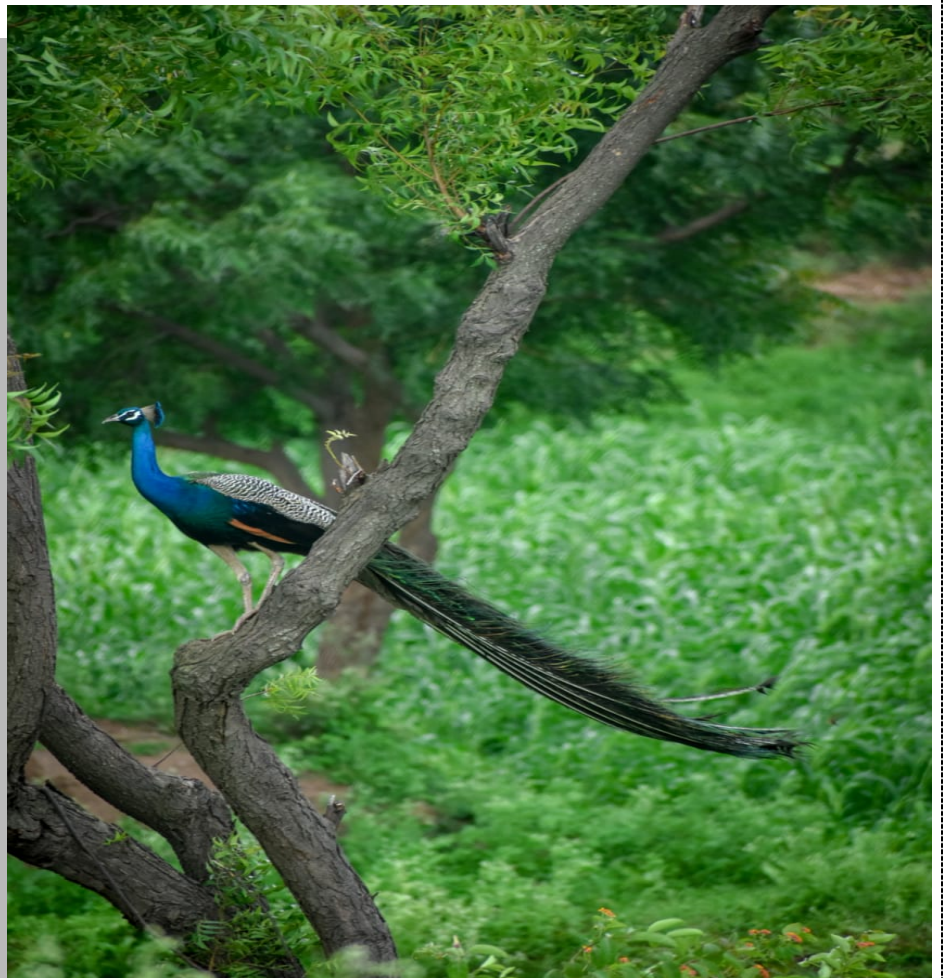
Umar Momin

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GROUP PICTURES

CLEANLINESS DRIVE

TREE PLANTATION

RANGOLI COMPETITION

INAUGURATION OF TECHNO FEST

THANK YOU...!