PRIYADARSHINI

ENGINEERING COLLEGE

(Approved by AICTE, New Delhi and Permanently Affiliated to Anna University, Chennai)
Chettiyapannur village and Post, Vaniyambadi – 635751, Vellore Dt,
Phone:-04174-227591

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEEERING

MAGAZINE -2018

PEP

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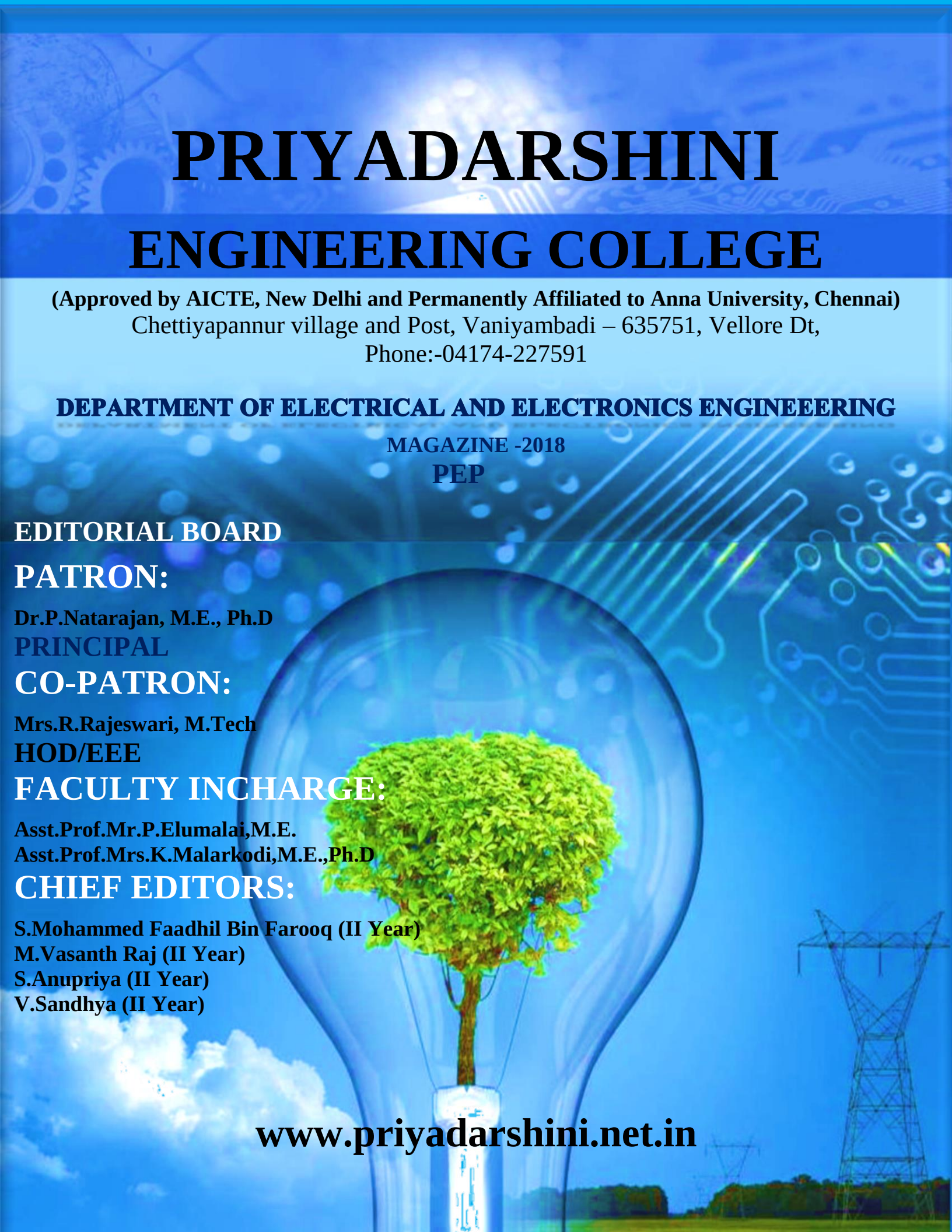


www.priyadarshini.net.in

ABOUT THE INSTITUTE:-

Priyadarshini Engineering College, the flagship of Jai Barath Charitable Trust, was established in 1995 at Vaniyambadi in Vellore District of Tamil Nadu. The college has been approved by All India Council for Technical Education, New Delhi & affiliated to Anna University, Chennai. Priyadarshini Engineering College situated in the rural area of Vaniyambadi, Vellore District is committed to the vision of developing itself into a multi-campus, Interdisciplinary Institution of Excellence through symbiotic efforts and innovative practices of management and faculty to provide the student with an ambient academic environment, ideal for the pursuit of knowledge and development carrier.

VISION OF THE INSTITUTE:-

To inculcate in the young rural minds the aptitude to compete with the quality technocrats.

MISSION OF THE INSTITUTE:-

To instill technical skills to compete in the sustainable world.

To impart holistic value based technical education.

To intensify research and development (R & D) activities in technological development.

To imbibe core values of love for motherland performance of duty, Compassion, tolerance, honesty and integrity.

MOTTO OF THE INSTITUTE:-

Perseverance, Endurance, Commitment.

"கற்றலும் கற்றவை கேட்டலும் கேட்டதன்கண் நிற்றலும் "

ADMINISTRATOR's MESSAGE:-

India has the world's largest population. It is not enough to only foster cognitive intelligence among the youth. The youth requires a mutual faculty endowed with multi dimensional intelligence. What are the objectives that the youth should work towards? These cannot be purely materialistic, materialistic Programme alone does not guarantee national security. What is essential is the character or integrity of the country's citizens. A national policy for integrating spiritual values and organization leadership can be achieved through measures by which we can create a modern Mindset among the youth. This will not only motivate them to acquire technical cognitive competence but also develop their emotional,, moral , social, spiritual, environmental and innovational intelligence. This will make them more patriotic self-reliant individuals of high character, possessing a social conscience. Such an army of evolved youth will be the asset of the nation.

PRINCIPAL's MESSAGE:-

I would like to welcome you back for the start of our new work ahead in the year. It is our mission to empower the learners to grow academically socially and emotionally by developing and supporting independent thinker and problem solvers, who strive for excellence in the class room and in the society throughout the year. I welcome and encourage your involvement in participation and input in making our college the best educational institution imparting technical education to all our students. Let us develop our college strategic plan with set targets and time frames to evaluate as to where we have succeeded or trailed and what to do improve, strengthen our teaching skill and introduce new methods in studies, in the conduct of examinations and provide an opportunity to a student to assess our lectures every semester. Also let us allow both teaching and non-teaching staffs to assess themselves in most in the most objective manner possible in order to enable the management to take realistic judgement whenever they approach for read ressal of any grievances. Through this initiation we hope to attend the world class status in society and education system.

A desire can change nothing

A decision can change something
A determination can change everything

Life throws a set of challenges in everybody. An engineer has to face challenge in his/her domain areas, with strong innovative ideas, and with scientific knowledge. One's commitment to become an engineer, a devotion shown to studies in the college will bear fruits and will be palatial
Throughout one's life.

ABOUT THE DEPARTMENT:-

The Department of Electrical and Electronics engineering was established with UG programme in the year 1997 with 45 intakes and was affiliated to Madras University, Chennai and consequent to the engineering courses being attached to the Anna University. The intake was increased to 60 in the year 2009 and permanently affiliated to Anna University since 2013. P.G (Power system Engineering) was introduced in the year 2013 with 24 intake, with an obvious vision to contribute its bit in the efforts of providing eminent engineers for the service of mankind specifically who hail from the rural background.

The department laboratories are well equipped with latest technological hardware and software tools in the fields such as Electrical circuits, electronics, Linear and Digital integrated circuits, Electrical Machines, Control and Instrumentation, Power electronics and Drives, Microprocessors and Microcontrollers and Power system simulation. We are publishing News Letter (Mysterious Transient) per semester and Magazine (EEEPEP) in every Academic Year. Department Library is equipped with 500 Volumes of Books.
Our department is fully geared to disseminate knowledge in Electrical and Electronics engineering discipline to the society through committed faculties. Seven faculty of our department are pursuing Ph.D in various universities. The department plays a vital role in training the students through in-plant training and industrial visits.
The main aim is to foster the technical background of engineers by providing the platform to showcase their findings and products in emerging fields.

Achievements

- *MoUs signed with 3 Industries*
- *Our Department has established and maintains two 15KVA Solar Plant in the College Campus.*

- *Faculty has published 150 papers in various National, International Journals and Conferences*
- *4 Books have been published by the faculty*

VISION OF THE DEPARTMENT:-

To produce eminent electrical engineer specifically from the rural background.

MISSION OF THE DEPARTMENT:-

Infuse moral ethics and good virtues to the students.
Providing good technical knowledge for innovative research and development
Making them excellent in extra curriculum activities.

HOD's MESSAGE:-

It is an occasion of great and satisfaction for the department of EEE, EEE PEB to bring out the third issue of the yearly of the technical magazine, it gives me immense pleasure to note that the response to the magazine has been overwhelming. The wide spectrum of articles gives us a sense of pride that our students and faculties possess creative potential and original thinking in ample measures. Each article is entertaining interesting and absorbing, I applaud the contributor's

Programme Educational Objectives (PEOs)

PEO 1: Core Competence:-
Graduates excel in analyzing, designing, simulating and testing of all electrical and electronics systems.

PEO2: Societal Requirements

Graduates are successful in giving solutions for real time problems to cater to the industrial and societal requirements.

PEO 3: Lifelong Learning

Graduates can adapt to lifelong learning to enhance their technical skills.

PEO 4: Leadership Qualities

Graduates exhibit their leadership qualities in a multi-disciplinary field.

How to Prepare for GATE Exam:

The past few years have seen a manifold increase in the number of candidates who are appearing in the GATE electrical engineering (EE). The popularity of the GATE exam has also increased owing to the rise in the number of public sector units who are recruiting the young guns on the basis of the GATE score. Hence, owing to the cut throat competition, it becomes important for the candidates to strategise their preparation well. The formulation of the right plan and its correct execution will help all the candidates who are aspiring to write the GATE electrical engineering exam come out in flying colours. The main objectives How to Prepare for Electrical Engineering (EE)" is to help the candidates know about the important topics, books from where they need to study and what is the course of action that they need to follow while preparing for GATE for electrical engineering.

Step 1. Exam Pattern of GATE for Electrical Engineering

Candidates aspiring to appear the GATE exam for electrical engineering must be aware about the exam patter. They must know the type of questions which will be asked and the sections which are mandatory. The GATE exam pattern also entails the marking scheme and also mentions how many questions are likely to be asked.

Type of Questions

Multiple choice questions

Numerical Answer Questions

Number of questions

The GATE electrical engineering question will consist of 65 questions of 100 marks. The question paper will be divided into three section. It is mandatory to answer questions from the engineering mathematics section.

Marking Scheme

If a candidate answers the multiple choice questions incorrectly, marks will be deducted. They will not lose any marks if they wrongly answer the numerical answer type questions.

Step 2. Be well versed with the syllabus

Once the candidates are aware about the kind of questions that will be asked in GATE , it is imperative for them to know the topics and sub-topics from where the questions will be asked. The section wise syllabus for GATE EE is given below in the table. For detailed syllabus, candidates can read GATE Syllabus for Electrical Engineering .

Electrical Engineering Syllabus

S.No	*Sections*
1.	*Engineering Mathematics, Linear Algebra, Calculus, Differential equations Complex variables, Probability and Statistics, Numerical Methods Transform Theory Electric Circuits, Electromagnetic fields, Signals and Systems, Electrical Machines, Power Systems, Control Systems, Electrical and Electronic Measurements, Analog and Digital Electronics, Power Electronics,etc.,*

Step 3. Study from right books and study material- While preparing for the electrical engineering exam for GATE , it is pertinent that the candidates study from the right books. It is good to study section wise from those books which are highly recommended. Studying from the right material will help the candidates save a lot of time.

Important Topics & Books for GATE

S.No.	*Topics*	*Books*
1.	*Engineering Mathematics*	*Advanced Engineering Mathematics by E.Kreyszig*

2.	*Networks*	*Engineering Circuit Analysis by Hayt and Kemmerly*
3.	*Signal and systems*	*Signals and Systems by Oppenheim and Wilsky* *Signals and Systems- Nagoor Kani*
4.	*Electrical Machine*	*Electrical Machinery by P.S.Bimbhra*
5.	*Power system*	*Power Systems Engineering by Nagrath and Kothari* *Power Systems by Jb Guptha & CL Wadhwa*
6.	*Power Electronics*	*For Beginners- Power Electronics by MH Rashid* *Power Electronics by P.S.Bimbhra*
7.	*Control system*	*Control Systems Engineering by Nagrath and Gopal*
8.	*Measurement*	*Electrical and Electronic Measurement and Instrumentation by AK Sawhney*
9.	*Analog*	*Electronic Devices and Circuit Theory by Boylestad*
10.	*Digital Circuits*	*For Digital Electronics, refer to Digital Design by M.Morris Mano*
		MicroProcessors by Ramesh s Goanker
11.	*ElectroMagnetics*	*Mathew N. O. SADIKU-Elements of Electromagnetics* *William .H.Hayt - Engineering Electromagnetics*
12.	*For Problem Solving*	*GATE Electrical by RK Kanodia*
13.	*Circuit analysis*	*Transient Analysis Of Electric Power Circuits by Arieh L Shenkmann and also Chakrabarthi*

Step 4. Management of time- One of the most important aspects of preparing for the GATE electrical engineering exam is time management. Before you kickstart your preparation, you should draw a time table and strictly adhere to it. Go through the GATE syllabus and see which topics will take more time and which ones will take less. Make a realistic time table after assessing yourself. Abiding to the daily time table will prove beneficial for you in the last few days before the exam. It would be better if you draw short term and long term goals, which means that you should

have weekly as monthly targets also in mind. The last few days before the GATE exam, should be just about revising the complete syllabus thoroughly. A focussed and a determined preparation will help you to get through the GATE exam.

Step 5. Prepare short notes

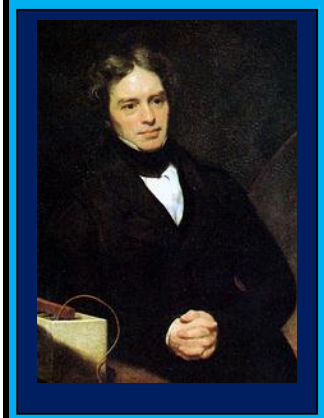
While preparing for the GATE exam, candidates are advised to make short notes as it will help them during the fag days of the entrance exam. During the last few days before the exam, these short notes prove very helpful as it is not possible for the candidates to revise the complete book.

Step 6. Solve past years GATE papers, sample papers and take mock tests- It is extremely important to assess yourself while you are preparing for the GATE exam. Candidates must solve the question papers of previous years and go through the sample papers of GATE as well. This will help them to get an idea about the kind of questions that are asked, the topics which are given more weightage over the years and those which are given less. Despite the fact that some topics are more important as compared to others, candidates must ensure that they prepare well all the topics.

The other very important aspect while preparing for the GATE exam for electrical engineering is taking the mock tests. These GATE mock test will give you an idea the kind of questions that will be asked in the main exam of GATE . The more number of mock tests that you take, it will be better for you since you will get an opportunity to identify your weak and strong areas. You will also be able to know how to manage your time on the day of the exam.

Step 7. Tips from the toppers- Candidates who are aspiring to appear the GATE exam can go through some of the vital tips which are provided by the GATE toppers of previous years.

SCIENTIST OF THE QUARTER



Michael Faraday FRS (/ˈfæ.rəˌdeɪ/; 22 September 1791 – 25 August 1867) was an English scientist who contributed to the study of electromagnetism and electrochemistry. His main discoveries include the principles underlying electromagnetic induction, diamagnetism and electrolysis.Although Faraday received little formal education, he was one of the most influenti-al scientists in history. It was by his research on the magnetic field around a conductor carrying a direct current that Faraday

established the basis for the concept of the electromagnetic field in physics. Faraday also established that magnetism could affect rays of light and that there was an underlying relationship between the two phenomena.[1][2] He similarly discovered the principles of electromagnetic induction and diamagnetism, and the laws of electrolysis. His inventions of electromagnetic rotary devices formed the foundation of electric motor technology, and it was largely due to his efforts that electricity became practical for use in technology. As a chemist, Faraday discovered benzene, investigated the clathrate hydrate of chlorine, invented an early form of the Bunsen burner and the system of oxidation numbers, and popularised terminology such as "anode", "cathode", "electrode" and "ion". Faraday ultimately became the first and foremost Fullerian Professor of Chemistry at the Royal Institution, a lifetime position. Faraday was an excellent experimentalist who conveyed his ideas in clear and simple language; his mathematical abilities, however, did not extend as far as trigonometry and were limited to the simplest algebra. James Clerk Maxwell took the work of Faraday and others and summarized it in a set of equations which is accepted as the basis of all modern theories of electromagnetic phenomena. On Faraday's uses of lines of force, Maxwell wrote that they show Faraday "to have been in reality a mathematician of a very high order – one from whom the mathematicians of the future may derive valuable and fertile methods."[3] The SI unit of capacitance is named in his honour: the farad.Albert Einstein kept a picture of Faraday on his study wall, alongside pictures of Isaac Newton and James Clerk Maxwell.[4] Physicist Ernest Rutherford stated, "When we consider the magnitude and extent of his discoveries and their influence on the progress of science and of industry, there is no honour too great to pay to the memory of Faraday, one of the greatest scientific discoverers of all time.

RIDDLES

1) What travels around the world but stays in one spot?
2) What has four eyes but can’t see?
3) If I have it, I don’t share it, If I share it, I don’t have it, what is it?
4) How many months have 28 days?
5) What goes up when rain comes down?
6) What has hands but not clap?
7) What has one eye and cannot see?
8) What word, when written in capital letters are the same forwards backwards and upside down?

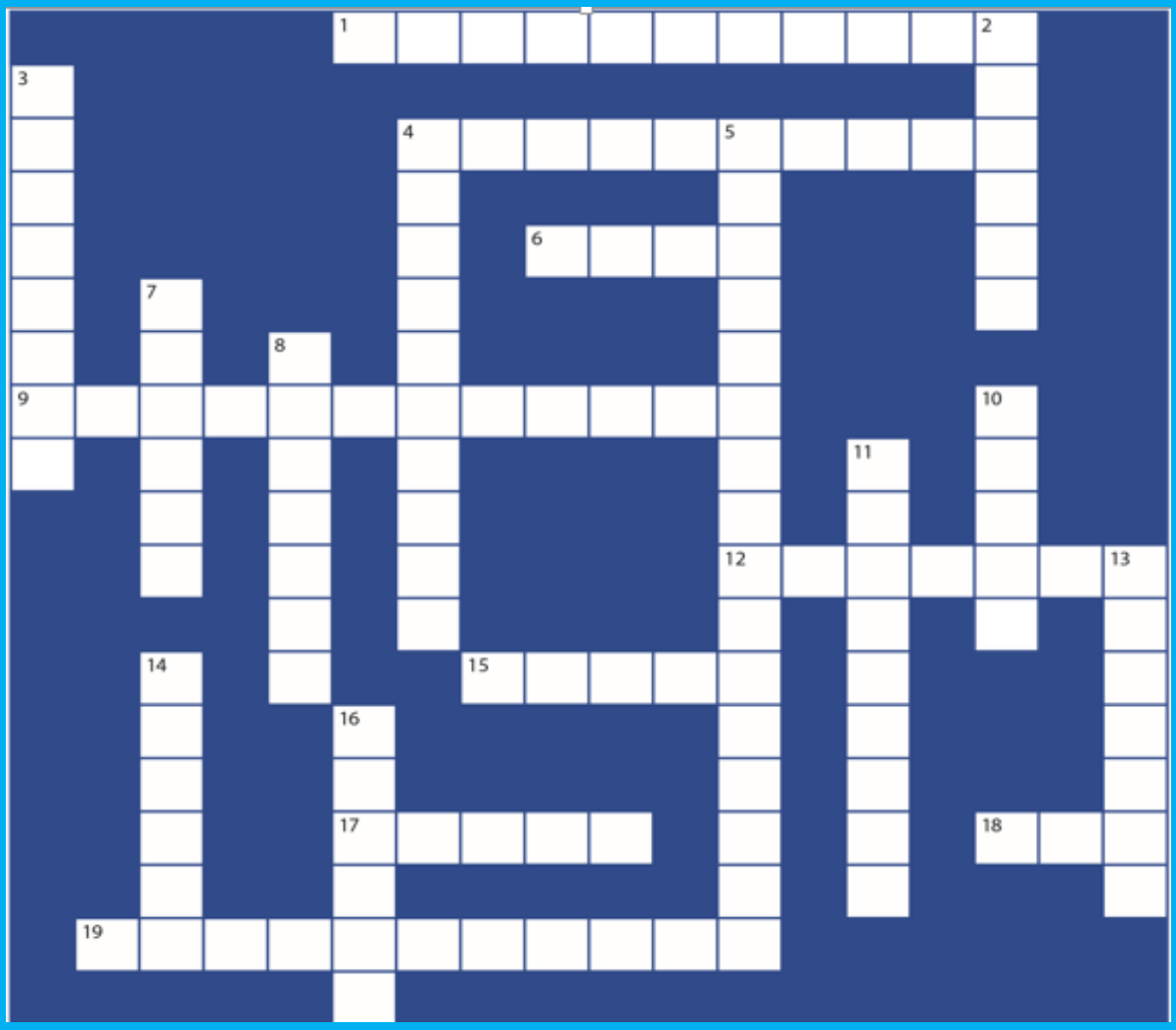
9) There is only single word in English language which can be typed using only the top row of the keyboard or a typewriter what is it?

10)What can you brake but not touch?

Answer:-

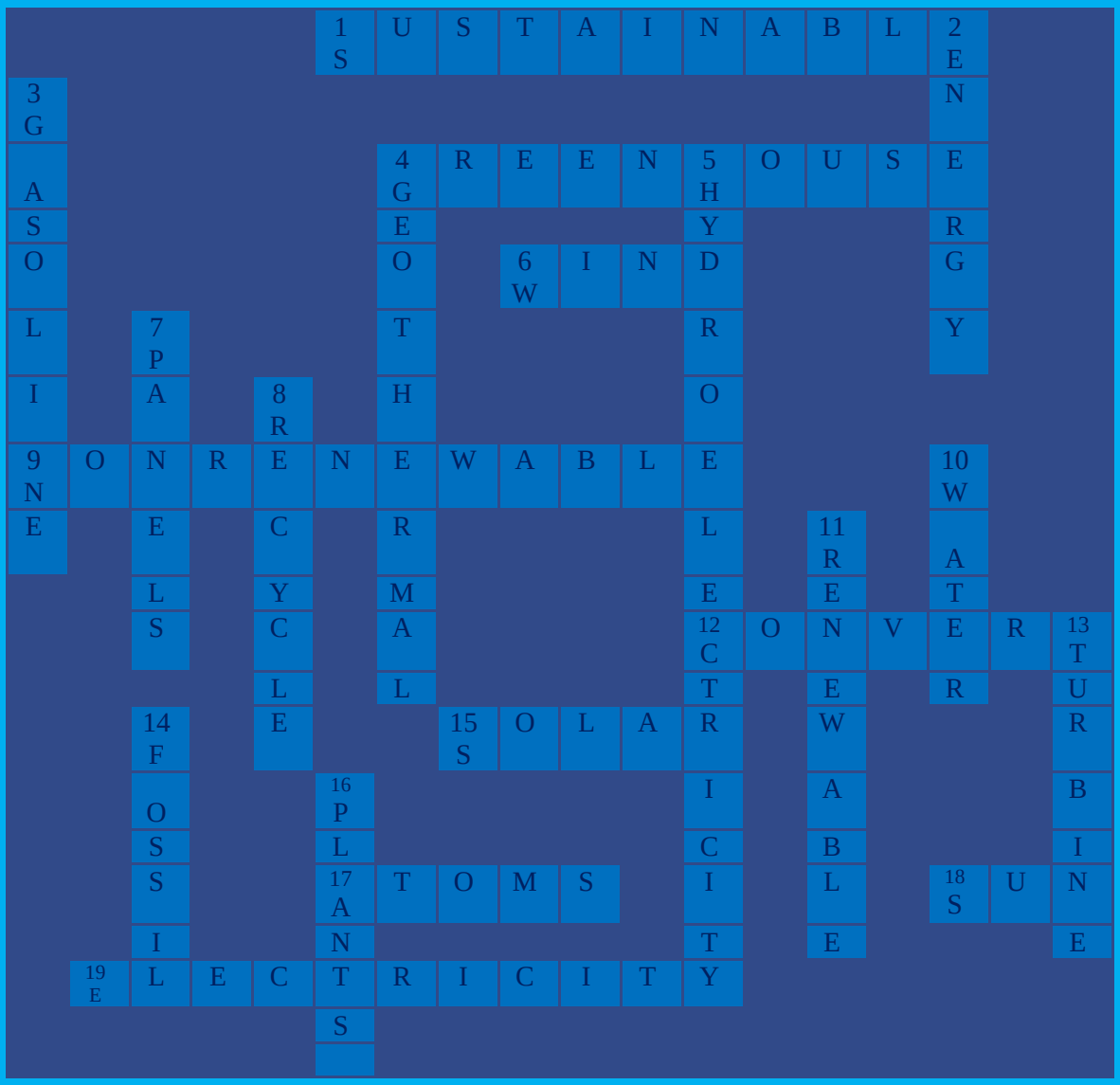
1) Stamp
2) Mississippi
3) Secret
4) All 12 months
5) Umbrella
6) Clock
7)Needle
8)Noon
9)Typewriter
10)Promise

CROSSWORD PUZZLE

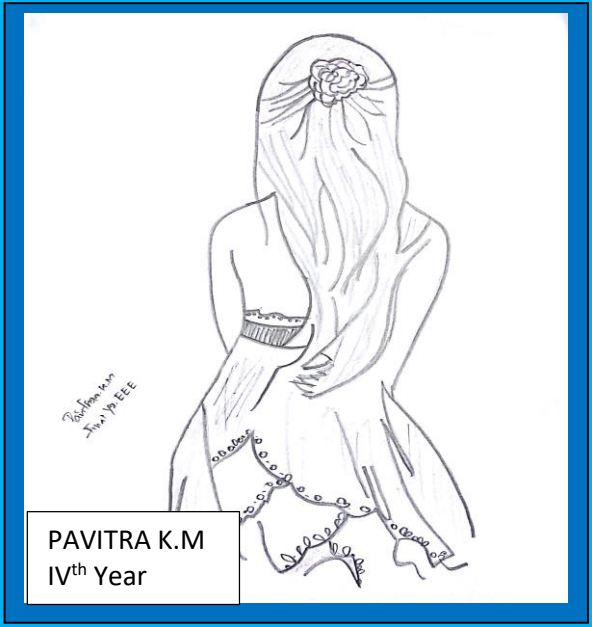


ACROSS	DOWN
1 A word that means indefinitely reliable is _____. **4** Gasses in the atmosphere that reflect heat back down are called _____ gasses. **6** The spinning Earth and the sun's heat generate _____. **9** Fossil fuels are _____ sources of energy. **12** Solar panels _____ the sun's energy to a form we can use. **15** Currently the fastest growing source of renewable energy. **17** Geothermal energy harnesses energy from decaying _____. **18** The _____ is a source of renewable energy. **19** Solar panels convert the energy from photons into _____.	**2** _____can never be created or destroyed. **3** This fossil fuel is used in many vehicles. **4** This energy is generated from decaying uranium atoms in the Earth's core. **5** This is generated at dams. **7** These are used to capture solar energy. **8** Three ways to cut down on fossil fuels are to reduce, reuse, and_____. **10** This is a source of renewable energy. **11** These energy sources produce no greenhouse gasses. **13** The blades of this capture some of the wind's energy. **14** This means "buried." **16** Biomass captures energy from the sun that is stored in decomposing _____.

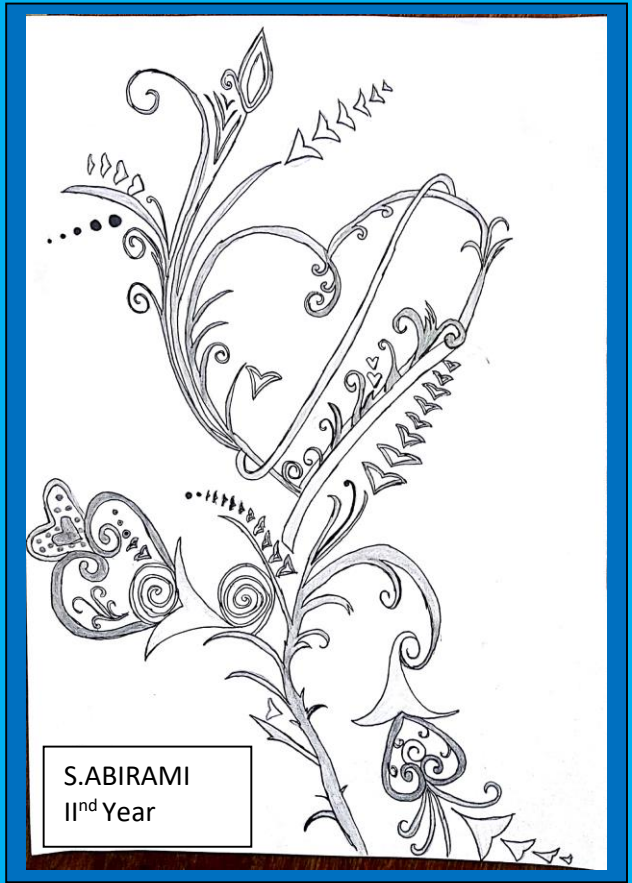
CROSSWORD PUZZLE ANSWER:-



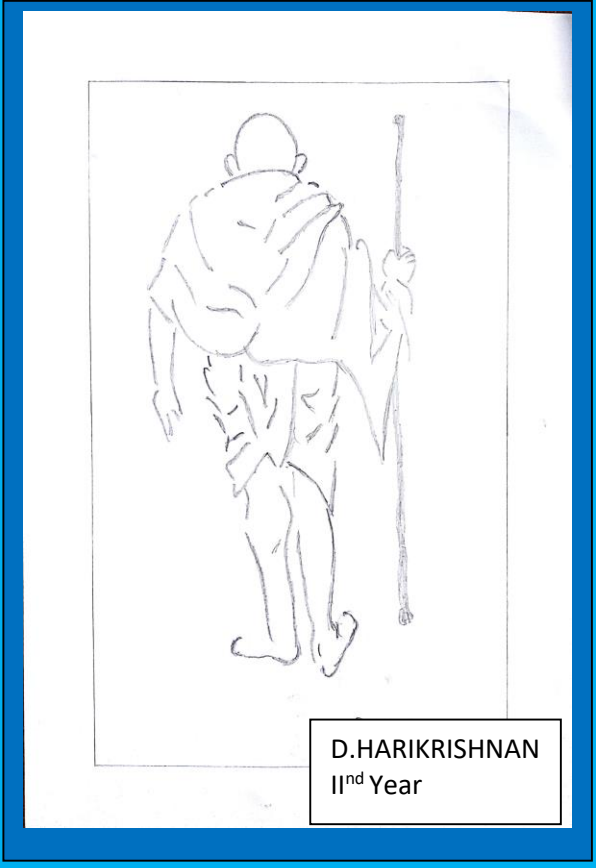
PENCIL SKETCH



PAVITRA K.M
IV[th] Year

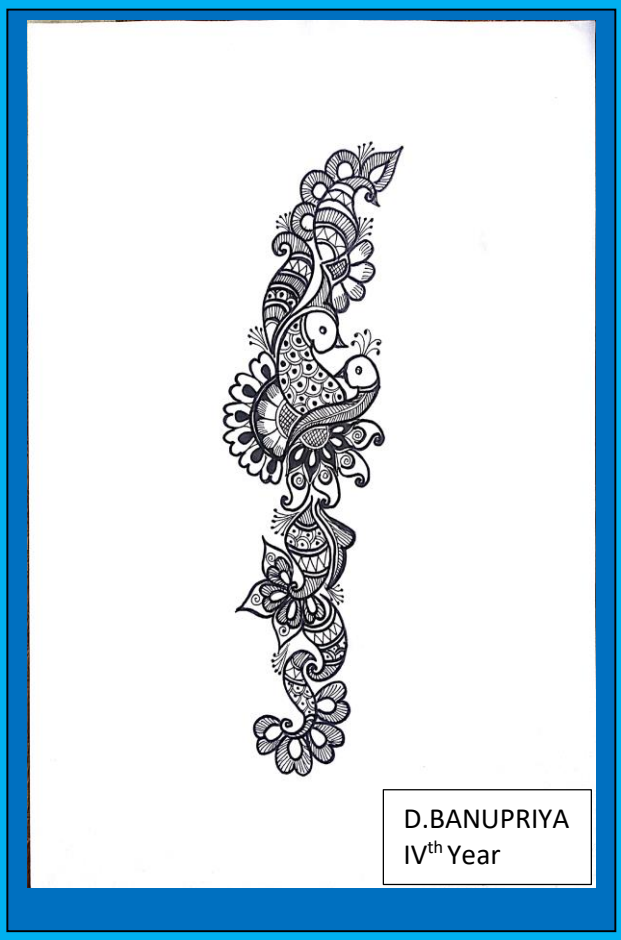


S.ABIRAMI
II[nd] Year

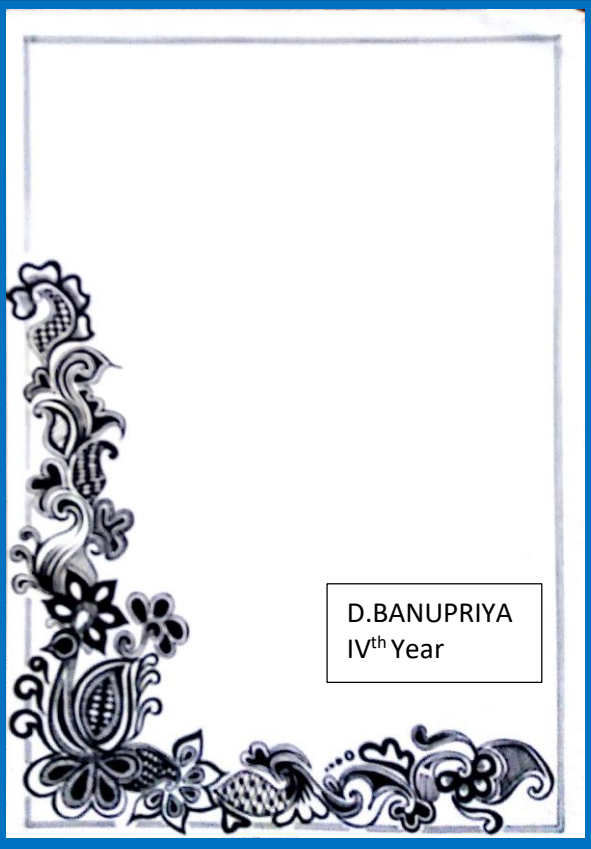


D.HARIKRISHNAN
II[nd] Year

D.HARIKRISHNAN
II[nd] Year



D.BANUPRIYA
IV[th] Year



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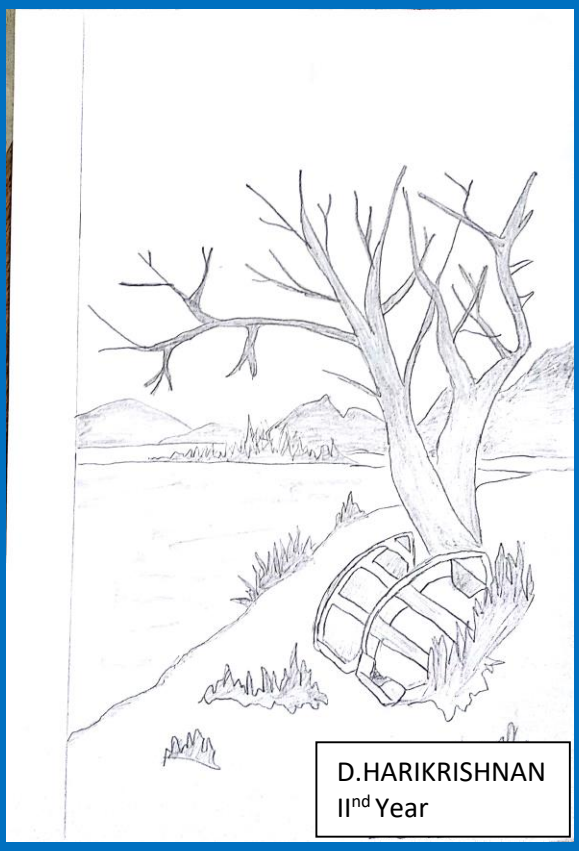
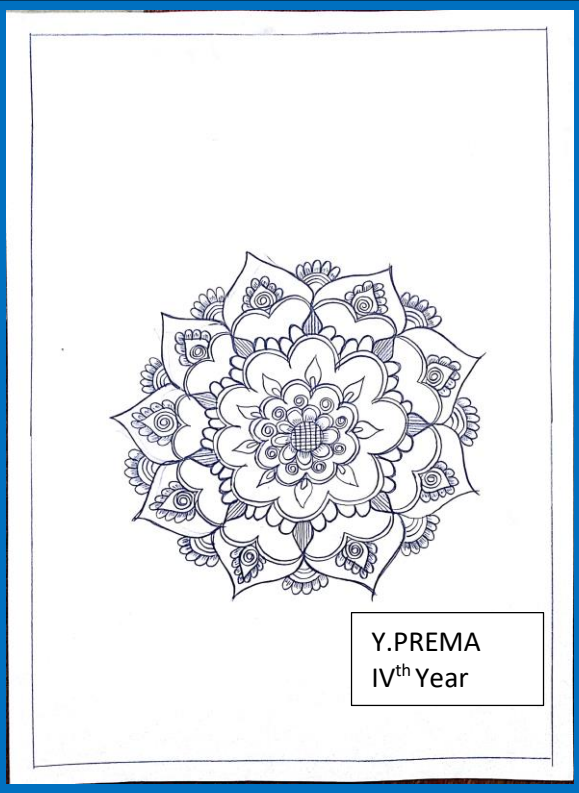
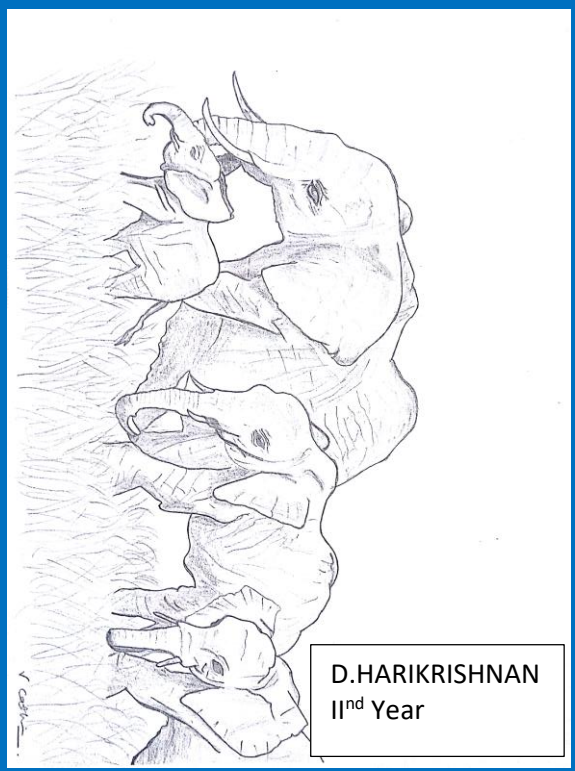


D.HARIKRISHNAN
II[nd] Year

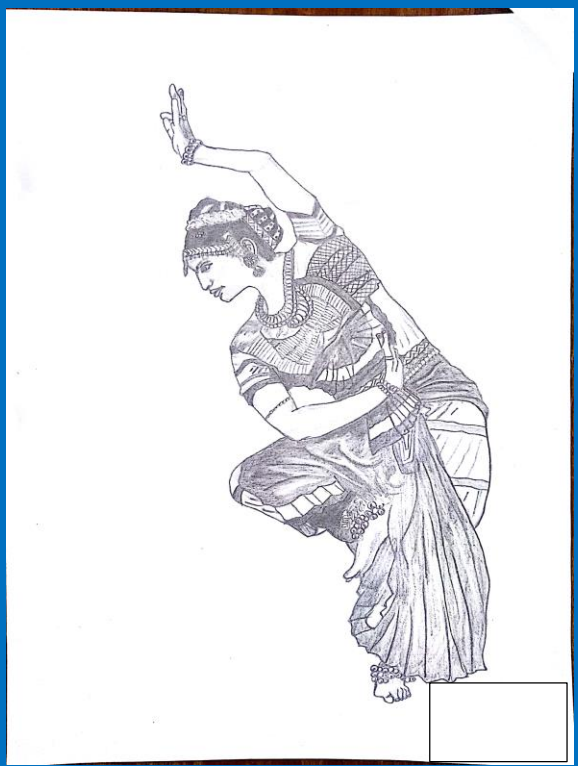


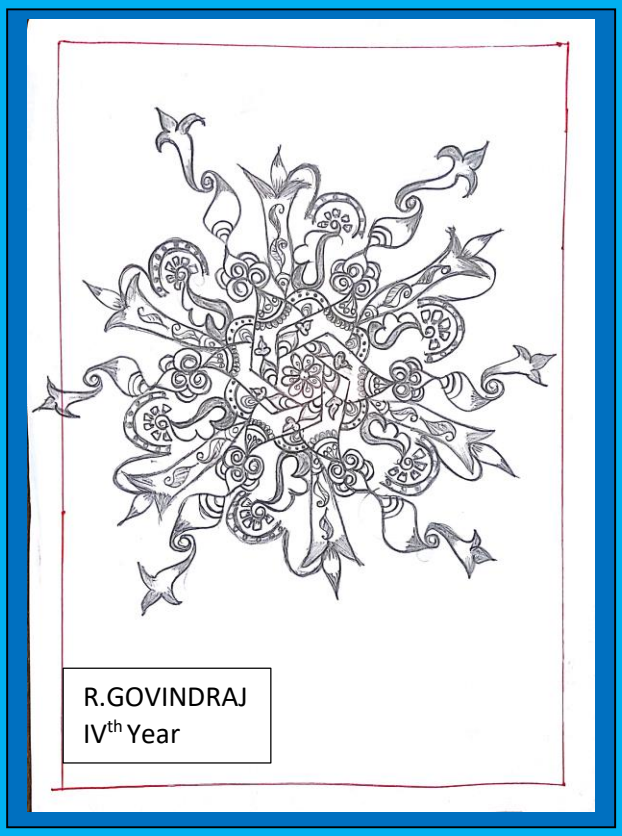
Y.PREMA
IV[th] Year

S.ABIRAMI
II[nd] Year

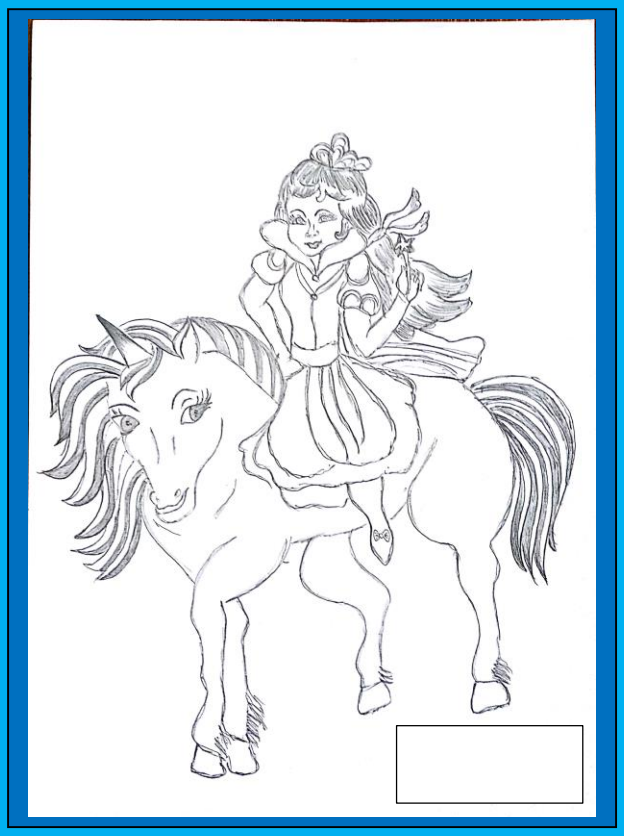


D.HARIKRISHNAN
II[nd] Year





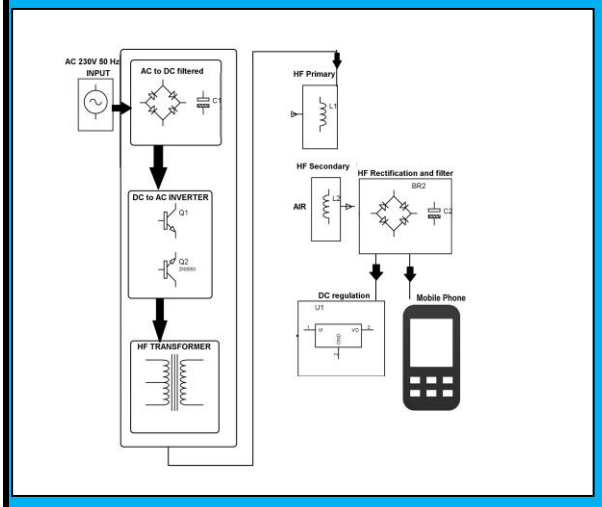
R.GOVINDRAJ
IVth Year



D.HARIKRISHNAN
IInd Year

ARTICLES

CHARGING A MOBILE PHONE WIRELESS:-

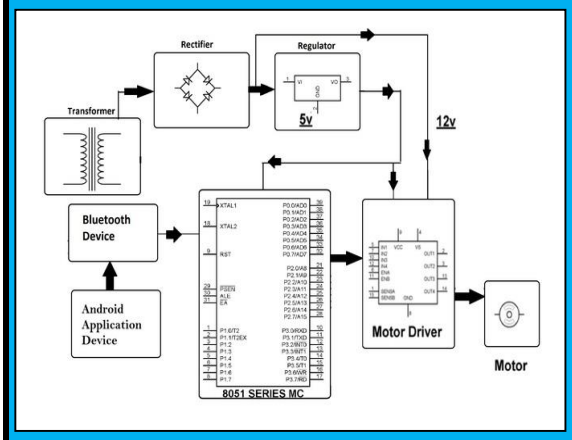


This system demonstrates the concept of wireless mobile charging system . The system allows user to wirelessly charge his mobile phone without plugging in the mobile adapter. We demonstrate the system using a charging pad where user just needs to place his adapter circuit to charge the mobile phone. For this purpose we utilize the advanced power transfer concept. For this purpose we use a high frequency transformer to convert mains input 230V AC to 12 V DC. This output is supplied to the charging pad coil When the adapter coil comes in range of the charging pad coil, the power is transferred wirelessly to the receiving coil and this 12 V dc is provided to the adapter circuit which is used to convert this 12 V DC to 5V DC which is then supplied to the mobile phone. So this allows us to charge the mobile phone wirelessly without plugging it in. The system can be further enhanced by integrating the charging adapter within the mobile itself so that user just needs to place his/her mobile phone on the charging pad to charge it.

Hardware Specifications

- *HF-Transformer*
- *2 Inductor Coils*
- *Rectifier*
- *Capacitors*
- *Transistors*
- *HF-diodes*
- *Voltage regulator*
- *USB Connector*
- *LED's*

DC Motor Speed Control By Android:-



This system DC motor Controller by Android is developed to control the speed of the DC motor in both clockwise and anticlockwise direction. For this DC motor is interfaced to the 8051 microcontroller. A Bluetooth modem is used to receive direction commands and PWM commands. When an Android device sends commands, it is received by the Bluetooth modem which then sends the commands to the microcontroller. The microcontroller the controls the DC motor through motor driver. The entire system is powered by 12V transformer. LCD display is used to show the status and the speed of the DC motor. The android application is used to control the entire system. The start button is first clicked to start the motor and then the motor can run in both clockwise and anticlockwise direction. Simultaneously the status of the system is displayed on the LCD screen and also the speed of the DC motor is displayed on the screen. Thus the speed of the motor can be increased or decreased in clockwise or anticlockwise direction with the help of this android application.

Hardware Specifications

- *8051 series Microcontroller*
- *LED*
- *DC Motor*
- *Motor Driver IC*
- *Voltage Regulator*
- *Crystal*
- *LCD Display*
- *Transformer*
- *Diodes*
- *Bluetooth Device*

Software Specifications

- *Keil µVision IDE*
- *MC Programming Language: Embedded C*

GPS Vehicle Tracking & Theft Detection:-

The project proposes a GPS based vehicle tracking system that tracks the vehicle and sends the tracking data over through a sms. The microcontroller acts as the controlling head of the system. When the system goes in Theft mode the authorized

user gets the alert message and user will Able to stop the vehicle engine immediately via sending sms to system With 'S' Keyword. The system includes a GPS modem that tracks the vehicle location in the form of latitude and longitude. This location can be accessed via sms that is being sent to the user. With the help latitude and longitude information SMS user will able to locate vehicle with Google map. This system proves very beneficial for transport and travel companies as they can now keep track of their vehicles.

METHODS OF SOLAR ENERGY:-

A solar thermal collector collects heat by absorbing sunlight. The term "solar collector" commonly refers to solar hot water panels, but may refer to installations such as solar parabolic troughs and solar towers; or basic installations such as solar air heaters. Concentrated solar power plants usually use the more complex collectors to generate electricity by heating a fluid to drive a turbine connected to an electrical generator. Simple collectors are typically used in residential and commercial buildings for space heating.

Solar-thermal collectors heating liquid:-

Solar collectors are either non-concentrating or concentrating. In the non-concentrating type, the collector area (i.e., the area that intercepts the solar radiation) is the same as the absorber area (i.e., the area absorbing the radiation). In these types the whole solar panel absorbs light. Concentrating collectors have a bigger interceptor than absorber.

Flat-plate and evacuated-tube solar collectors are used to collect heat for space heating, domestic hot water or cooling with an absorption chiller.

Flat plate collectors:-

Flat plate thermal system for water heating deployed on a flat roof
Flat-plate collectors are the most common solar thermal technology. They consist of an (1) enclosure containing (2) a dark colored absorber plate with fluid circulation

passageways, and (3) a transparent cover to allow transmission of solar energy into the enclosure. The sides and back of the enclosure are typically insulated to reduce heat loss to the outside air. A fluid is circulated through the absorber's fluid passageways to remove heat from the solar collector. The circulation fluid in tropical and sub-tropical climates is typically water. In climates where freezing is likely, a heat-transfer fluid similar to an automotive antifreeze solution may be used instead of water, or in a mixture with water. If a heat transfer fluid is used, a heat exchanger is typically employed to transfer heat from the solar collector fluid to a hot water storage tank. The most common absorber design consists of copper tubing attached to thermally conductive copper or aluminum fins. A dark coating is applied to the sun-facing side of the absorber assembly to increase it absorption of solar energy. A common absorber coating is flat black enamel paint.

Evacuated tube collectors:-

Most vacuum tube collectors are used in middle Europe use heat pipes for their core instead of passing liquid directly through them. Direct flow is more popular in China. Evacuated heat pipe tubes (EHPTs) are composed of multiple evacuated glass tubes each containing an absorber plate fused to a heat pipe.[6] The heat is transferred to the transfer fluid (water or an antifreeze mix—typically propylene glycol) of a domestic hot water or hydronic space heating system in a heat exchanger called a "manifold". The manifold is wrapped in insulation and covered by a protective sheet metal or plastic case. The vacuum inside of the evacuated tube collectors have been proven to last more than 25 years, the reflective coating for the design is encapsulated in the vacuum inside of the tube, which will not degrade until the vacuum is lost.[7] The vacuum that surrounds the outside of the tube greatly reduces convection and conduction heat loss, therefore achieving greater efficiency than flat-plate collectors, especially in colder conditions. This advantage is largely lost in warmer climates, except in those cases where very hot water is desirable, e.g., for commercial processes. The high temperatures that can occur may require special design to prevent overheating.