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Society for Promotion of Excellence in Electronics Discipline

# SPEED e- NEWSLETTER

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## Digital India for Happiness and Well being

**Happiness:**

Happiness is something that we all strive for, yet many of us find it challenging to grasp and even harder to maintain. In the last half of the twentieth century, four key themes emerged from the collective concerns and aspirations of the world's people: peace, freedom, development, and environment. We all have different explanations and definitions of what happiness is and what it means to each of us. No matter what challenges, crossroads, and lifestyle changes you come across in your life, at the end of the day, your happiness is what truly matters most. We're constantly bombarded with messages about what makes for a good life. Advertisers tell us it comes from owning and consuming their products. The media associate it with wealth, beauty or fame. And politicians claim that nothing matters more than growing the economy. But do any of these things really bring lasting happiness? For thousands of years, people have looked to philosophy, religion and proven wisdom for answers to such questions. **LIFE** is **L**Iving **I**n **F**ulfillment and **E**njoyment - fulfillment in our professional careers and enjoyment in our personal lives. There is nothing more satisfying than overcoming a challenge that was previously deemed insurmountable. One feels proud realizing that you have grown much more than your expectations. This balance is the core of a quality life and carries with it great benefits of clear thinking, effective decision-making, creativity and a sense of belonging and relatedness. These essential qualities will enable any individual whether a Teacher, Businessman, Doctor, Engineer, Company Executive, Student or Housewife to excel in their lives. Progress can be considered as a broad notion of a community's well-being that changes over time. While life satisfaction focuses on the subjective assessment of different elements that affect individual lives, well-being has been used to refer to objective living conditions.

**Digital Technology:** Pervasive use of digital technology devices such as personal computers, laptops, tablets and smart phones to connect, communicate, and collaborate has become widely accepted. The effects of electronics on the contemporary society are very significant. In the 21st century we are enjoying well developed electronics. In some form or the other every day we deal with the electronic devices several times. Innovation is the creative development of a specific product, service, idea, environment, or process with the fundamental goal of pleasing customers and extracting value from its commercialization. The increased complexity, packaging density, and functionality of modern cell phones is metaphorically representative of the change in the composition, skill mix, and tightly collaborative focus of the product development teams who innovate to create them. This evolution has resulted in innovations in new products, materials, computer-aided design tools, and manufacturing processes.

**Great teachers change lives forever by recognizing our potential, inspiring us to do our best and follow our dreams.**
**SPEED salutes such Great Teachers and WISHES entire teacher community "HAPPY TEACHER'S DAY!"**

## Digital India for Happiness and Well being …..

**Digital India Program:**

Recently, the government of India has promoted Digital India program. It is an umbrella program that covers multiple Government Ministries and Departments. It weaves together a large number of ideas and thoughts into a single, comprehensive vision so that each of them can be implemented as part of a larger goal. The Digital India vision provides intensified impetus for further momentum and progress for e-Governance and would promote inclusive growth that covers electronic services, products, devices, manufacturing and job opportunities. Nine pillars of Digital India have been envisioned, which include

1. Broadband Highways
2. Universal Access to Mobile Connectivity
3. Public Internet Access Program
4. e-Governance: Reforming Government through Technology
5. e-Kranti - Electronic Delivery of Services
6. Information for All
7. Electronics Manufacturing
8. IT for Jobs
9. Early Harvest Programs

The Digital India is a really massive, ambitious multifaceted program. It involves building of Digital infrastructure and its effective use is various societal applications leading to development and broader sense of happiness among the citizens of India. Digital infrastructure will focus on providing high speed secure Internet. Broadband for all Rural, Urban and National Information Infrastructure would integrate the networks like State Wide Area Network (SAWN), National Knowledge Network (NKN) and National Optical Fiber Network (NOFN along) with cloud enabled National and State Data Centers. Governance and services on demand will stress on integrating services across departments and jurisdictions and making services available in real time for both online and mobile platform. The Universal Access to Mobile Connectivity will focus on network penetration and fill the gaps in connectivity in the country. Digital empowerment of citizens will pay emphasis on universal digital literacy and availability of digital resources/services in Indian languages. Online applications, tracking of their status and interface between departments should be provided. Use of online repositories e.g. school certificates, voter ID cards, etc. should be mandated so that citizens are not required to submit these documents in physical form. Integration of services and platforms, e.g. UIDAI, Payment Gateway, Mobile Platform, and Electronic Data Interchange (EDI) etc. should be mandated to facilitate integrated and interoperable service delivery to citizens and businesses.

There are number of Mission Mode Projects under different stages of e-governance project lifecycle. These include

**Technology for Education – e-Education**

All Schools will be connected with broadband. Free Wi-Fi will be provided in all secondary and higher secondary schools (coverage would be around 250,000 schools). A program on digital literacy would be taken up at the national level. MOOCs –Massive Online Open Courses shall be developed and leveraged for e-Education.

Types of E-Learning

**Technology for Health – e-Healthcare**

E-Healthcare would cover online medical consultation, online medical records, online medicine supply, pan-India exchange for patient information. Health Information Exchanges are already showing benefits for both the patient and for hospitals. Patients who had digitally shared medical information and arrived at emergency rooms were less likely to have medical scans repeated. Physicians could just use the record already in the system.

The study by University of Michigan researchers was published in the journal Medical Care. The study focused only on scans and did not look for other medical tests routinely performed in ERs .When information was shared, patients were: 67% less likely to have a repeated chest X-ray, 59% less likely to have a redundant CT Scan, 44% less likely to have a duplicate ultrasound.

**Technology for Farmers**

This would facilitate farmers to get real time price information, online ordering of inputs and online cash, loan and relief payment with mobile banking.


**Technology for Security**

Mobile based emergency services and disaster related services would be provided to citizen on real time basis so as to take precautionary measures well in time and minimize loss of lives and properties.

# Digital India for Happiness and Well being …..

**Digital meets physical**

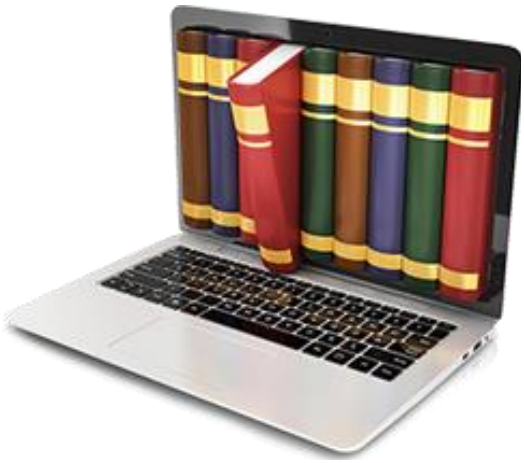
The borders of the digital and physical world have been blurring. Mobile and internet technology is transforming the lives of people. Today's clever apps use Smartphone technology to sense our locations and those of our friends. The technology will go further with next-generation wearable devices such as Google Glass, which deploys cameras and wireless connections to project information, on demand, through eyeglasses. Other wearable technologies are also emerging like "intelligent textiles" ,wristwatch computers etc. Technologies used in game consoles allow us to use physical movements and gestures to interact with digital devices. Boeing uses virtual-reality glasses so that factory workers assembling its 747 aircraft need to consult manuals less frequently. Annotated pop-ups point to drilling locations and display proper wire connections. The magic mirror s(displays) in store dressing rooms allow customers to "try on" clothes virtually to help them make their selection. There is potential for interactive digital plat-forms to play roles in product design in coming years.

**Technology for Financial Inclusion**

Financial Inclusion shall be strengthened using Mobile Banking, Micro-ATM program and CSCs/ Post Offices.

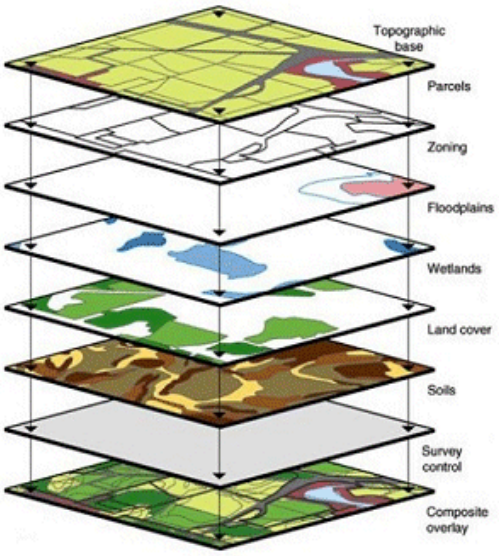
**Technology for Justice**

Interoperable Criminal Justice System shall be strengthened by leveraging e-Courts, e-Police, e-Jails and e-Prosecution.



**Technology for Planning**

National GIS Mission Mode Project would be implemented to facilitate GIS based decision making for project planning, conceptualization, design and development.




**Technology for Cyber Security**

Children and youth, spend a lot of their time connected with their friends through internet and use digital technology as a primary mode of communication. The Digital Wellness Online Challenge is an initiative that aspires to make children and youth aware of how they can maintain digital wellness by taking informed decisions and become safe, respectful and responsible users of digital technology. Designed as a fun engaging quiz activity the Digital Wellness challenge uses knowledge-based questions to provide information and scenario-based questions to encourage participants to think, decide, and choose an action that ensures their online safety and security.

The success of Digital India program and its effectiveness for Happiness and Well being of the entire Indian community would be very much dependent on the attitude and contributions of Scientists, Technocrats and Professionals from various sectors, Teachers, students, Government officials, and politicians and above all the people at large. Let us be wishful and forward looking. That is the way to happiness.

**Author: Dr. Arvind D. Shaligram, Professor and Head of the Department, Department of Electronic Science, Savitribai Phule Pune University, Pune.**


Much had been written and said about our beloved late president Dr. APJ Abdul Kalam. I would like to emphasis on his contribution for making our country a developed nation. He had a clear vision about India 2020; also his thoughts about the role of Electronics and Computer Science towards this mission were very important. I had a once in a life time opportunity to hear his visionary when he visited Nehru Memorial, near Wadia College, Pune. He was very positive about his vision for a ***shining India*** and that time I feel that he is pushing all of us into a blissful daydream. Consequently we have read about that in the newspapers continuously and will continue to read.

Dr. APJ Abdul Kalam had got the idea of *developed India* from a girl who said to him that she wants to live in **"D*eveloped India*".** He started thinking in that direction and his ideas were put forward in a book entitled '**INDIA 2020-A Vision For A New Millennium'**. In the book he had mentioned the key role of Electronics in this aspect. India has a rich inheritance as far as natural resources are concerned. With these resources India is making progress in Science and Technology. Further boost is required. In spite of having so many challenges, India had a successful missile program under the leadership of Dr. Kalam. Hence aptly called 'missileman'. Under his guidance TIFAC (Technology Information Forecasting Assessment Council) was born in 1988. There are Indians who survive on a day to day basis with no skills or education. These are unfortunate people but have the ability to absorb new technologies. Dr Kalam once said that technology should be developed in such a way that even illiterate people can use it. Today even illiterate people can use mobile phones. He proved to be correct. Another example: Literate people, educated ones from India may not be able to talk fluently in English, but can understand the technical details mentioned in manuals. Using them these people have become masters in computer operations. So Indian population, rich or poor, literate or illiterate, is the richest resource base in the form of human resource and India's strength lies in this. So he calls India a young country with largest youth population with a dream called "developed India". Thanks to this vision given by Dr. Kalam.

So a question comes: can India be a "developed India" by 2020 for ever ? Answer according to him was a big 'yes' if the vision document given to us by APJ Abdul Kalam is followed. In this document he has given technology vision by which self reliance and strategic industrial implementation will give a leadership that will transfer 'developing India into a "developed India". We have to prepare our self for this concept of "developed India". This vision document is nothing less than mission statement.

As far as our field of Electronics is concerned, technological development is going to play a very important role. The areas in which we need to concentrate are: Hi-tech circuits, materials, advanced manufacturing facility, InfoTech, software development for advanced electronic products, sensors, robotics and instrumentation.

## Digital India for Happiness and Well being …..

As far as food safety is concerned there are many issues related with it. Can we cater to fulfill the need of food for growing population; is a question. Once upon a time we were heavily dependent on food imports from foreign countries. Today we are not only self sufficient, but are able to export the excess production of agricultural goods. We have to continue this trend. APJ Abdul Kalam sir has given a very good foresight for us for future needs of food products and our capabilities to withstand the increasing demand. According to him we Indians can face the challenge by utilizing biotechnological development. In this, the most important technology is to develop **'transgenic' plants**. These plants are manmade and are designed to meet the desired objective by transfer of genes to a target plant. As I understand, his contribution in this field has equal importance as his contribution to the missile program. We have already developed seedless grapes. Extending this technology it is possible to develop a grape with mango juice inside or even a plant with brinjal and tomatoes above the ground and potato and groundnuts below the ground. To achieve this specific and urgent measures are required to develop post-harvest technologies with agro-food processing. With Kalam sir's vision we can ensure food safety in "Developed India" by 2020. Salute to him for his vision. Electronics related to this is in handling equipments, automatic e-weighing machines, automation in agricultural sector etc. In this regard he says, "Doing this is not chasing a moon, it is making the moon chase us".

As far as the medical field is concerned, there are many Indian plants (Adulsa, Turmeric etc.) that have medicinal values commonly called as "folk" medicines. But we do not use them regularly or we have forgotten how to use them over a period of time since this knowledge has not been transferred from one generation to another. These are extremely low cost; easily and abundantly across the length and breadth of India.. According to him this will reduce mortality of poor people and also increase their life span so according to him these plants need to be studied in much more details. As I read from the vision document by Kalam sir, these plants and their medicinal history is clearly spelt in the Vedas. He must have studied or at least read the Vedas because he has mentioned Charak and Susruta Samhita. This also shows Kalam sir's wide spectrum of interest.

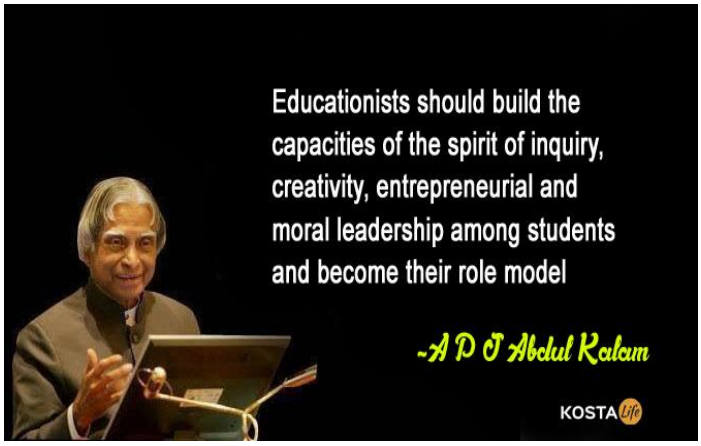
Kalam sir had considered repair and maintenance to be of great value for "Developed India". Nowadays 'use and throw' concept exists. Repair cost is high. So people go for new products than repairing and maintaining them. But if India develops manpower for this, then it will reduce the e-waste. There will be a facility of upward compatibility for the e-products. i.e. the hardware used in the earlier product can be used in new product.

What a vision ? I pay rich tributes to such a great visionary.

***Prof. R.K.Nerakar, N .Wadia College, Pune.***

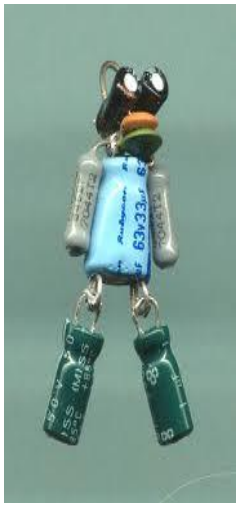
**A. P. J. Abdul Kalam**
**(October 15, 1931 - July 27 2015 )**

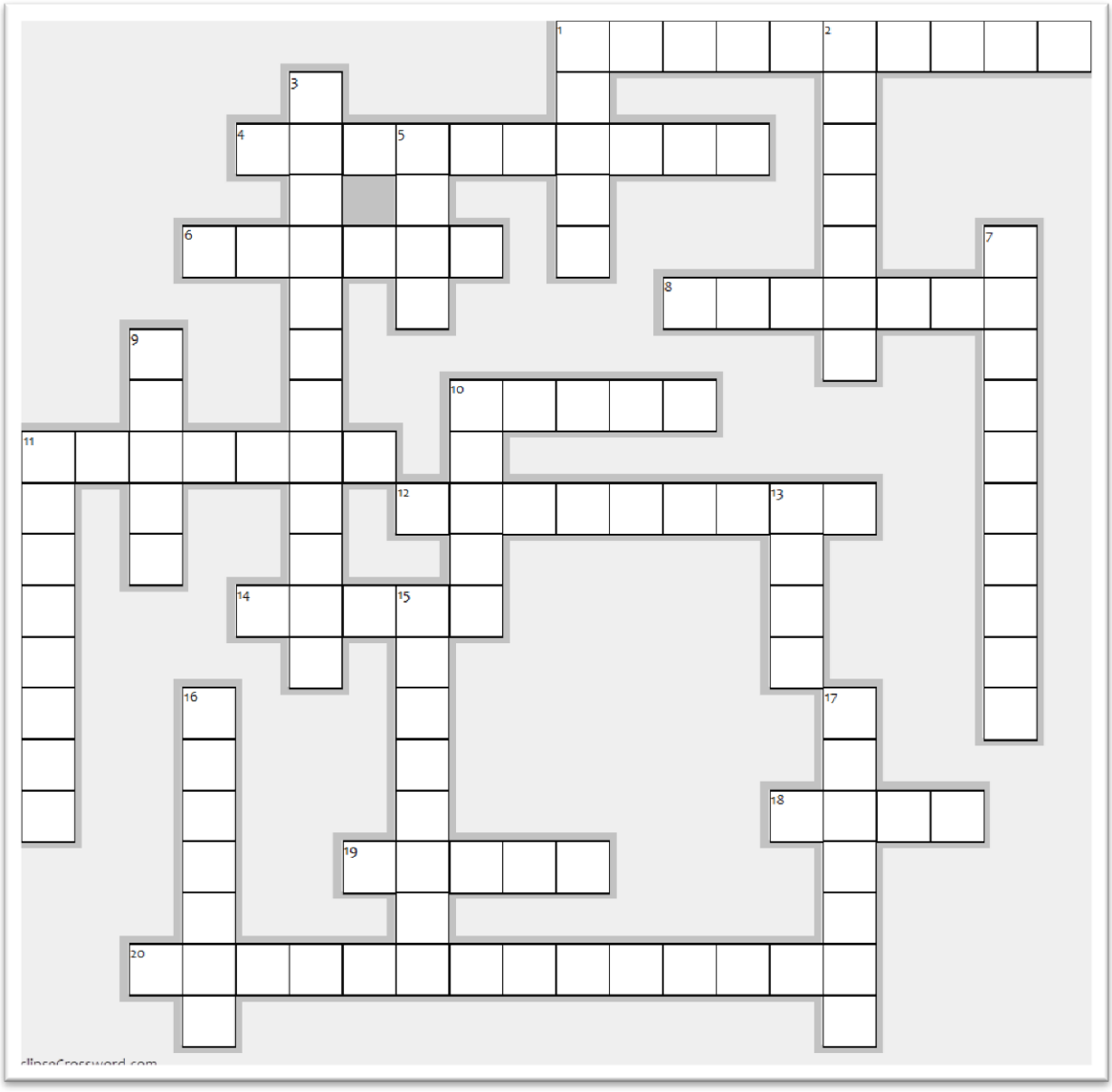
**Avul Pakir Jainulabdeen "A. P. J." Abdul Kalam was the 11th President of India from 2002 to 2007. A career scientist turned politician, Kalam was born and raised in Rameswaram, Tamil Nadu, and studied physics and aerospace engineering.**





**By - Hemant Yashwant Satpute**





IQ Test

Mary's father has 5 daughters.

Nana , Nene , Nini and Nono.

Who's the 5th daughter ?

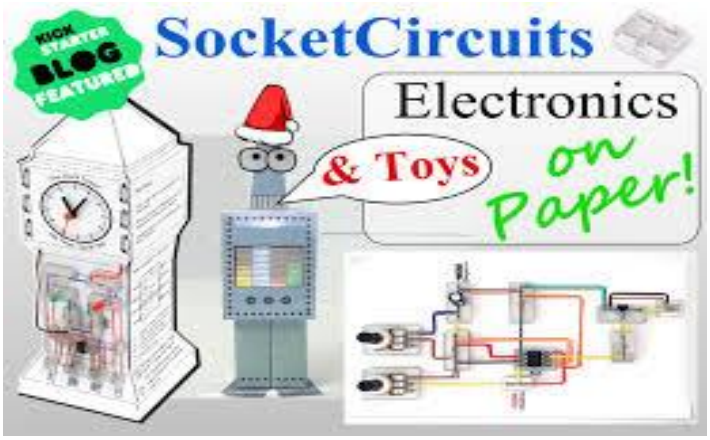
A. NUNU B. MARY

## Across

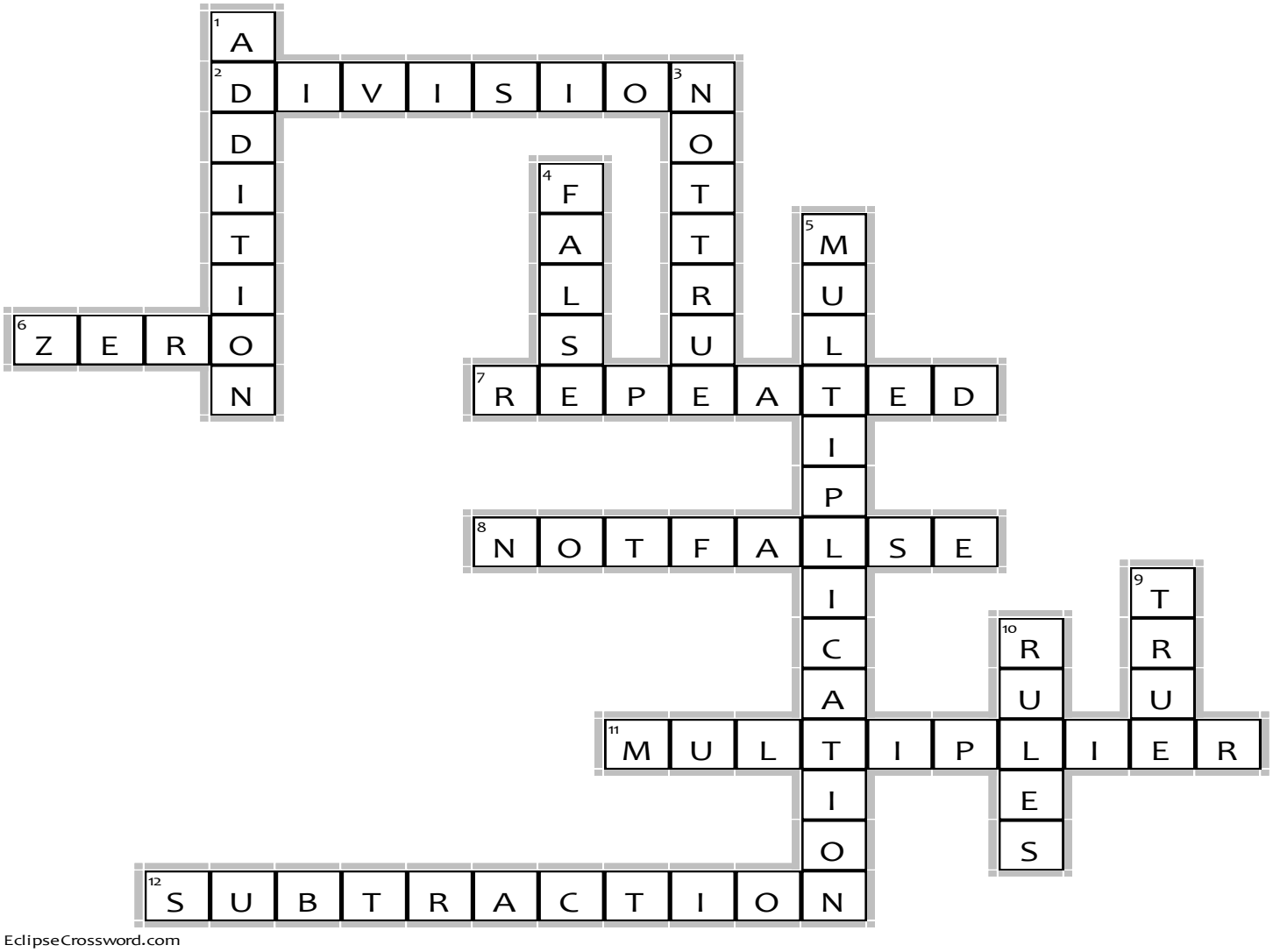
1. A graphical representation of ..... circuit indicating the states input values, output values and directed arcs for state transition is called as state diagram. (10)
4. ..... is a tabular form of state diagram. (10)
6. In Mealy model the.....is derived from present state as well as input. (6)
8. State table is a..... form of state diagram. (7)
10. A state.....can be represented in another form known as transition ..... (5)
11. In a state.....(Circles and arcs), the circles represent state. (7)
12. A ..... representation of sequential circuit indicating the states input values, output values and directed arcs for state transition is called as state diagram. (9)
14. "In Mealy model, the output is derived from present state as well as output" - This statement is..... (5)
18. The state table representation of a sequential circuit consists of three sections labelled present state, ..... state and output. (4)
19. In..... model output depends only on present state of the input. (5)
20. The state table ..... of a sequential circuit consists of three sections labelled present state, next state and output. (14)

## Down

1. In a ..... diagram (circles and arcs), the circles represent..... (5)
2. "State diagram is graphical representation of combinational circuit" - This statement is..... (7)
3. State table is a tabular form of..... (12)
5. "Tabular form of representing the behavior of a sequential circuit is known as State Table" - This statement is..... (4)
7. A state table can be represented in another form known as ..... table. (10)
9. In..... model the output is derived from present state as well as input. (5)
10. The state table representation of a sequential circuit consists of ..... sections labelled present state, next state and output. (5)
11. A graphical representation of sequential circuit indicating the states input values, output values and..... arcs for state transition is called as state diagram. (8)
13. In a state diagram (circles and .....), the circles represent state. (4)
15. The state table representation of a sequential circuit consists of three..... labelled present state, next state and output. (8)
16. In a state diagram (..... and arcs), the ..... represent state. (7)
17. In Mealy model the output is derived from ..... state as well as input. (7)



## Answer Key For Puzzle in Vol. 3, issue - 2

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