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YEAR OF PUBLICATION – 2022

S. No	Name of the teacher	Title of the book/chapters published	Title of the proceedings of the conference
1	Dr.M.Shalini	Programming in Java (With Lab Programs)	-
2	Dr.M.Shalini B.E.V.L Naidu	Data Structure using Java	-
3	Dr.M.Shalini	Programming in C	-
4	S.Saritha	-	Proceedings of the NAAC Sponsored National Seminar on Promoting Quality Research and Innovation in Higher Educational Institutions
5	N.V.Swathi	-	Proceedings of the NAAC Sponsored National Seminar on Promoting Quality Research and Innovation in Higher Educational Institutions
6	M. Padmasri	Plant Anatomy and Embryology	-
7	Dr.M.Shalini	Multimedia Systems	-
8	Dr.M.Shalini	Data Structures using C++	-
9	D.Jyothi	Immunology and Animal Biotechnology	-
10	Suseela Sundari.M	Immunology and Animal Biotechnology	-
11	T.Sushma	Accounting Standards	-
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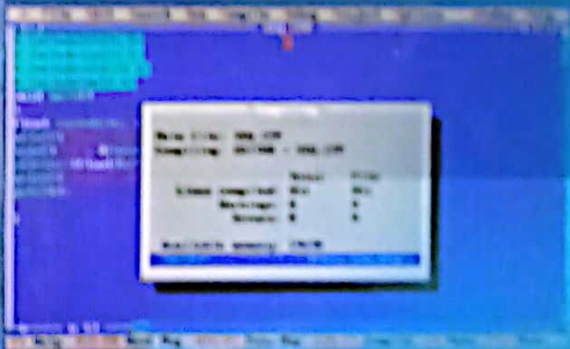
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For Women, Marredpally,
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As per CBCS Syllabus

Programming With C

M. Shalini



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*(Exclusively Meant For B.Com. (Computer)
3rd Semester Students of Telangana State)*

M. Shalini

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Head, Department of Computer Science

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About the Author

M. Shalini completed her MCA from Osmania University and M.Phil from Sri Padmavathi Mahila Vishwa Vidyalayam, Tirupati in the area of Artificial Neural Networks. She is currently pursuing her Ph.D from Bharathiyar University, Coimbatore with specialization in Neural Networks. She has more than 20 years of teaching experience, currently working as Head, Department of Computer Science at Kasturba Gandhi Degree and PG College for Women, affiliated to Osmania University, Hyderabad, Telangana, India. Her research interest includes Artificial Neural Networks, Image Processing, Artificial Intelligence, Web Designing. She has presented and published several papers on International and National Journals.



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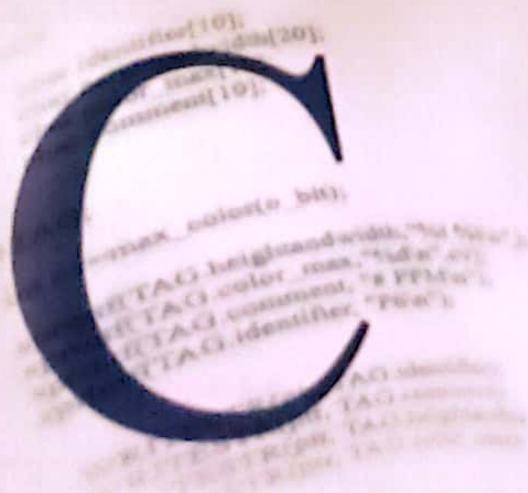
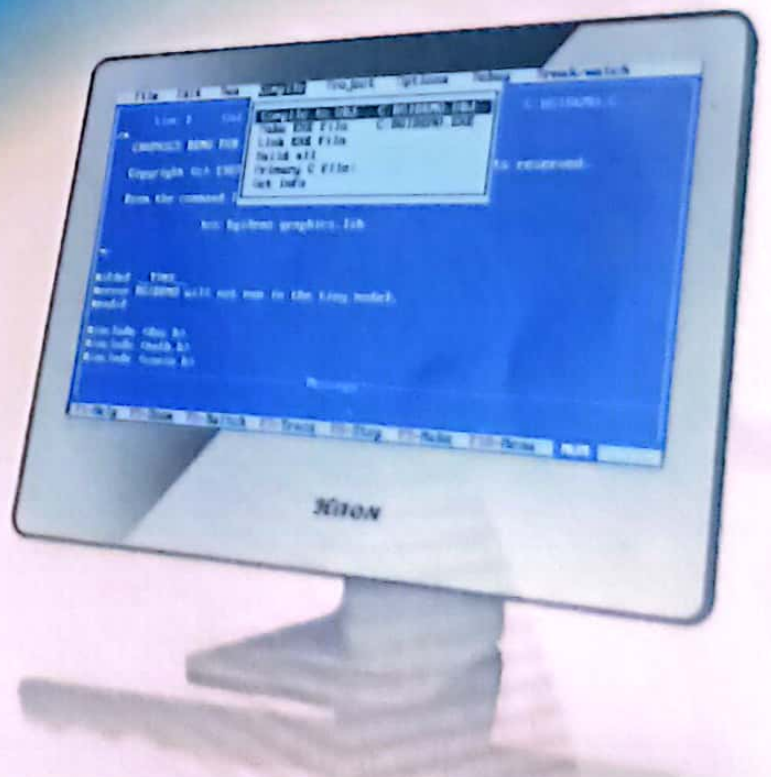
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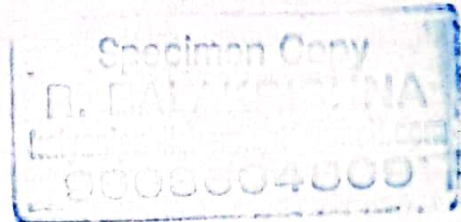


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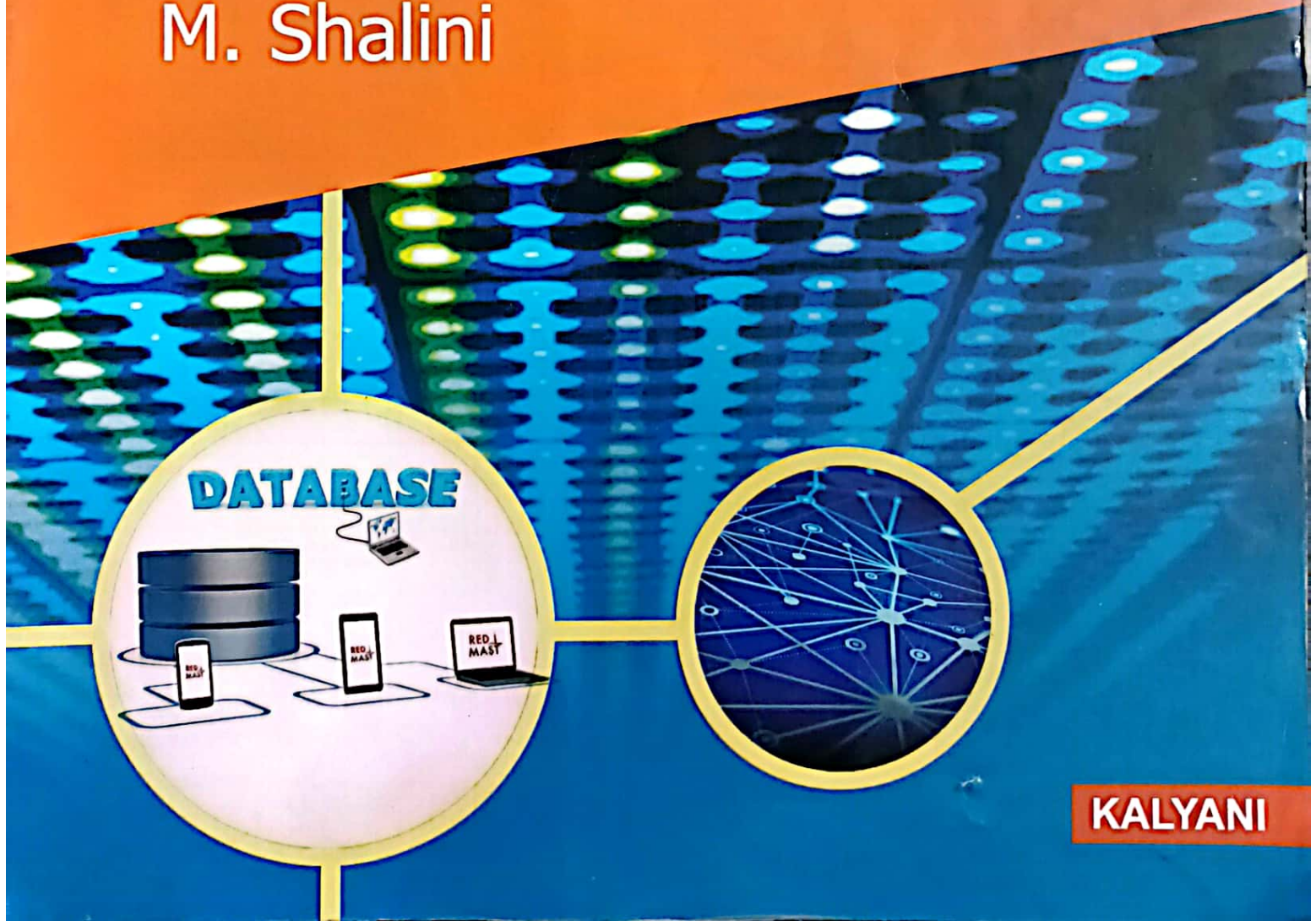
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DATA STRUCTURES

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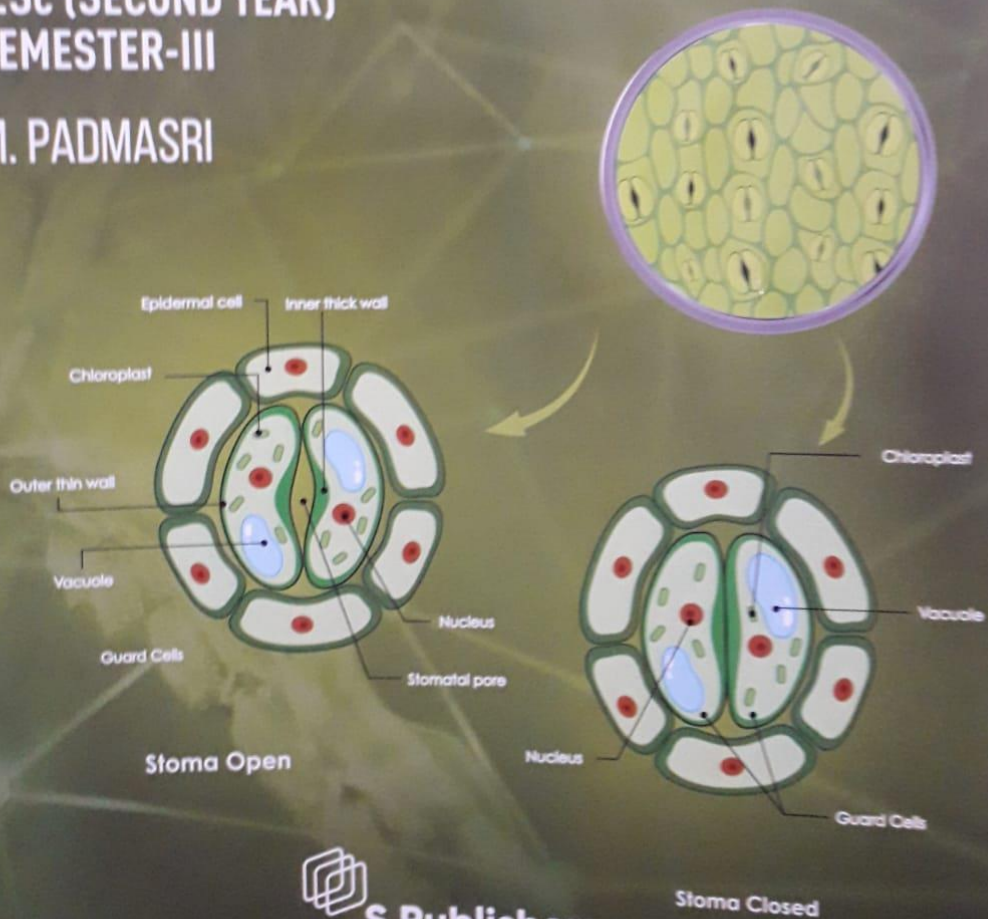
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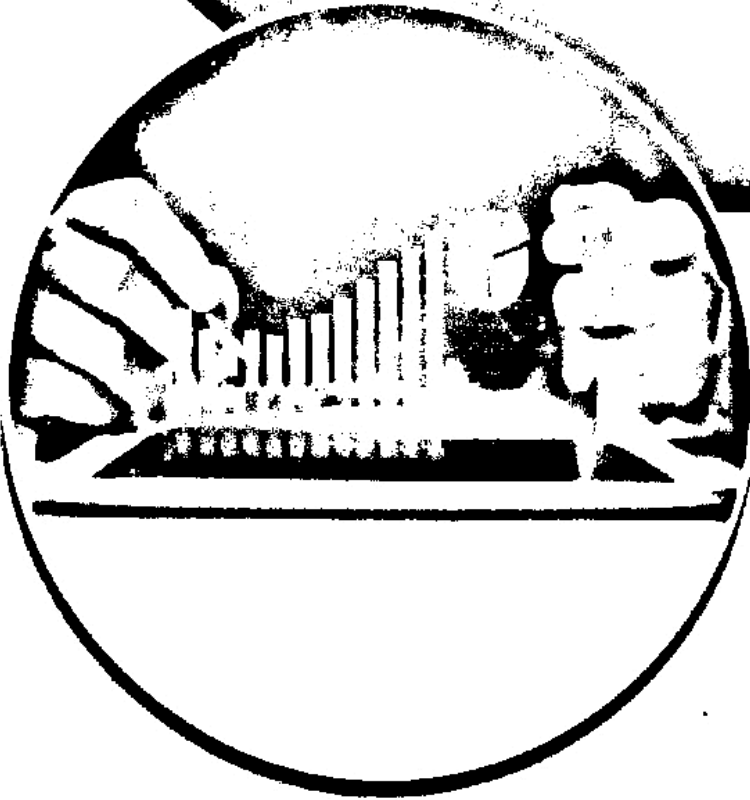
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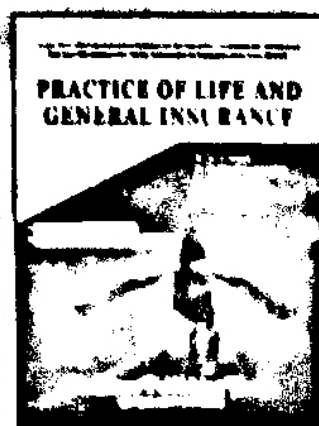
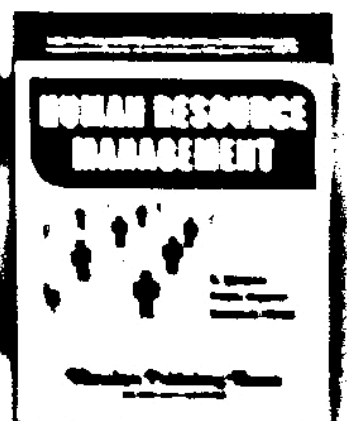
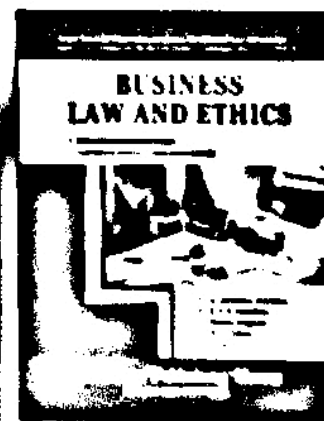
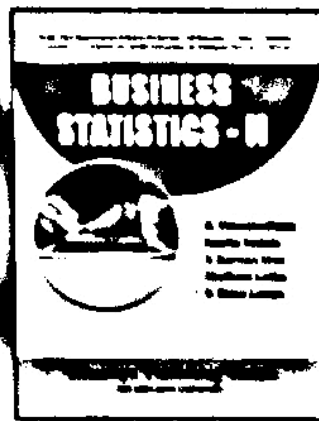
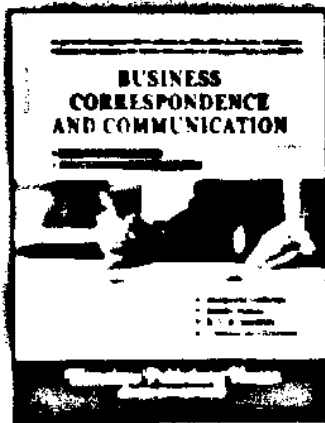
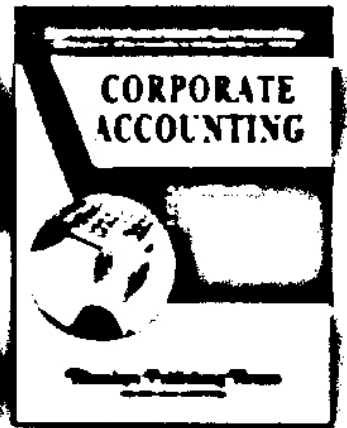
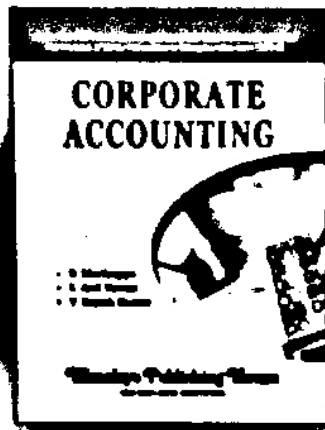
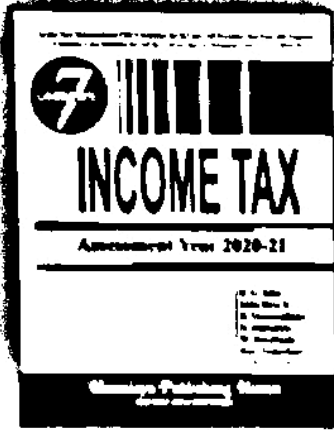
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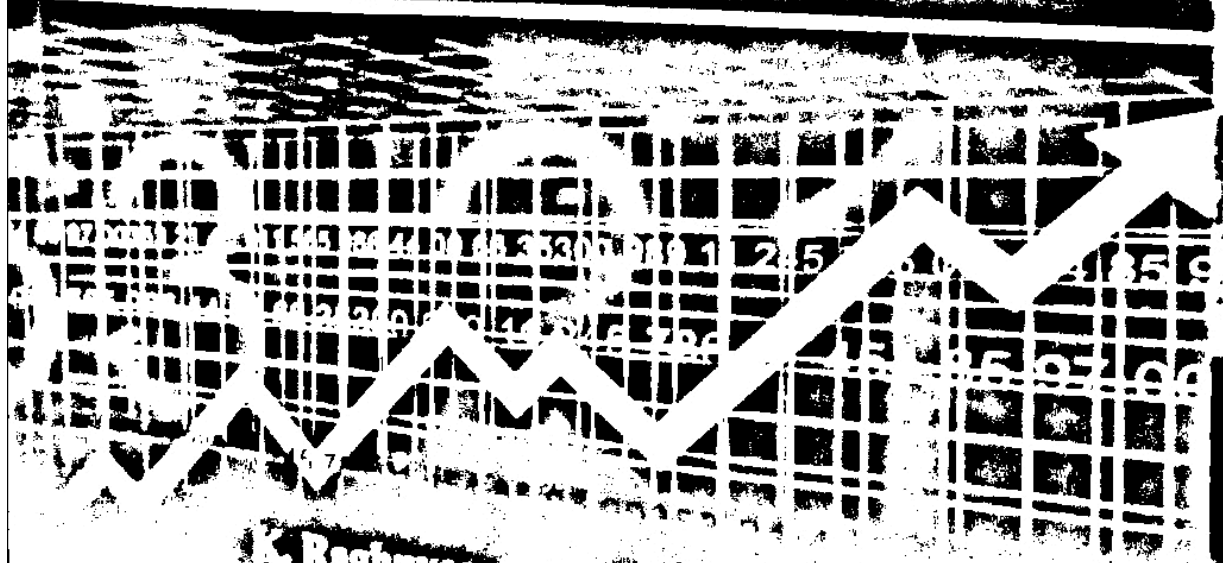


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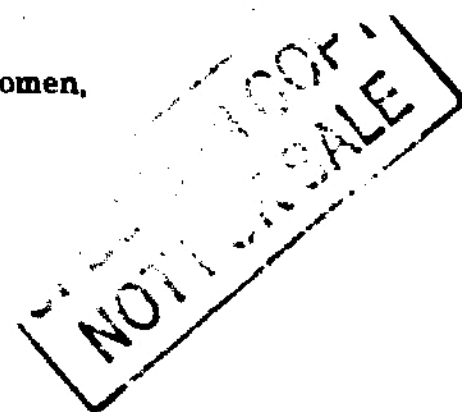
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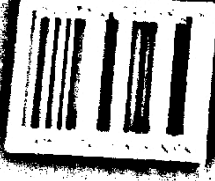
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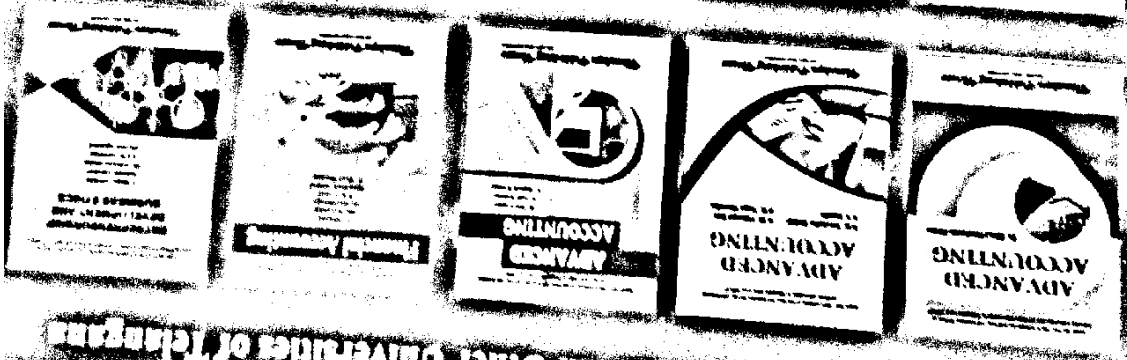
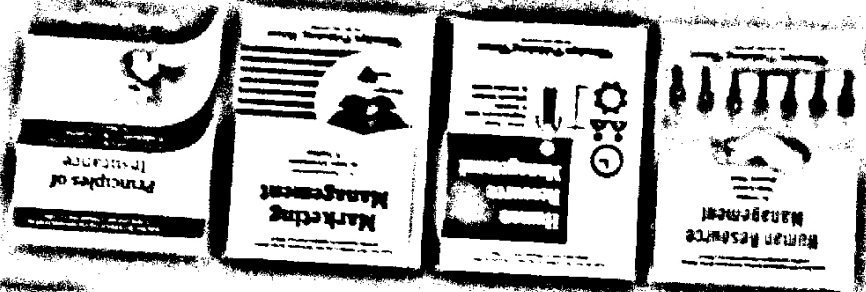
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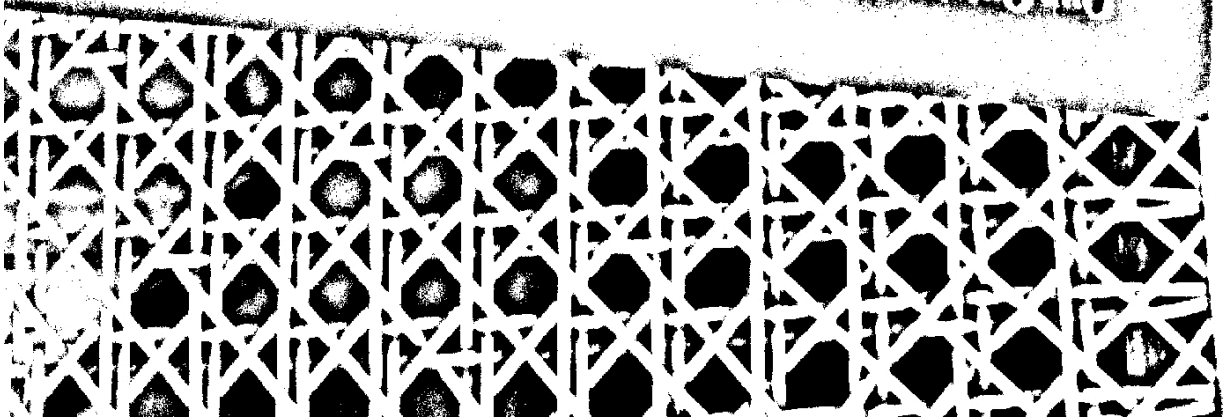
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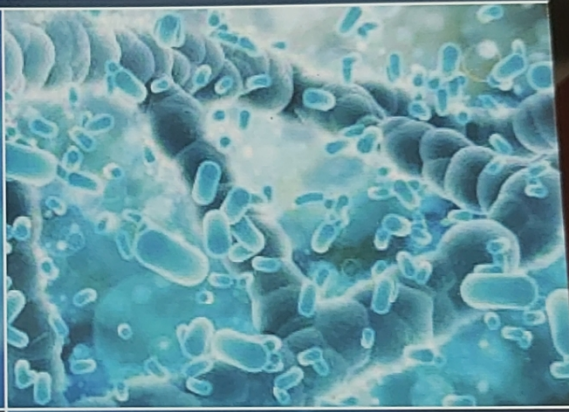
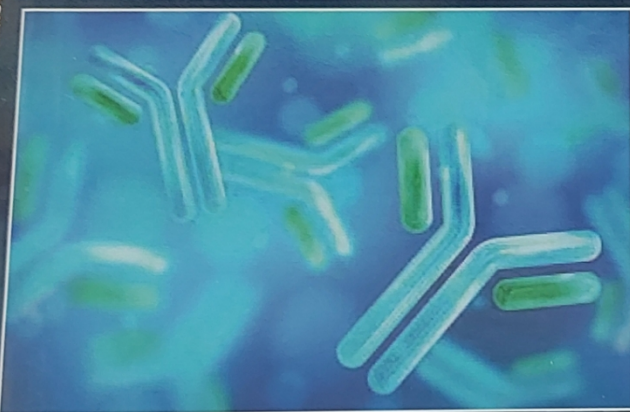
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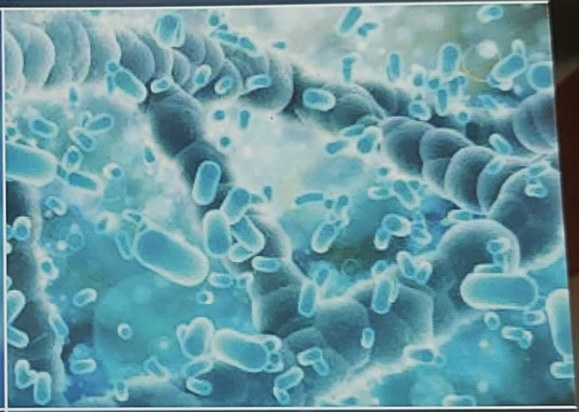
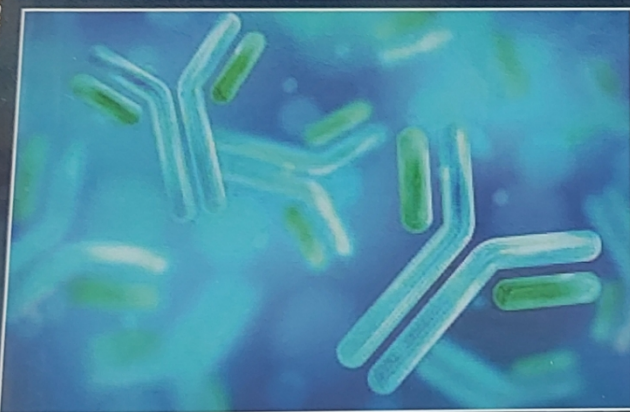
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3RD YEAR (PAPER V)

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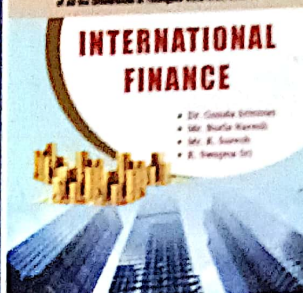


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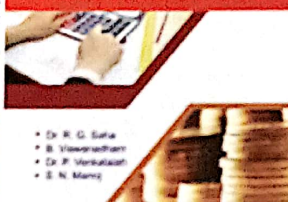


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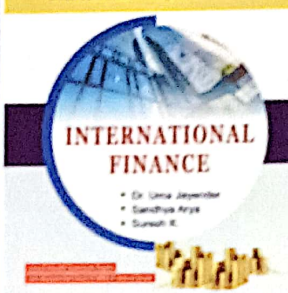


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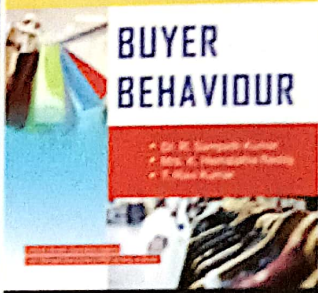


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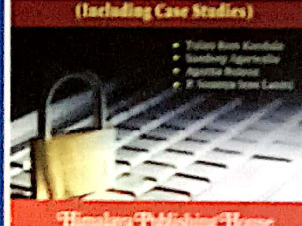
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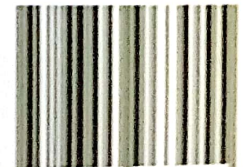
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**Research and Innovation - Boosting India's
 Economy**

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ABSTRACT

Community of people with common territory held together with glorious history, tradition, culture, language, their active participation in political, social and civil systems plays an important role in building of a nation which include establishment and empowerment of education, military defence, law and order, finance, police, import and export etc. Research and Innovation go hand in hand in developing the standard of livelihood. Research in any field tries to give practical solutions to socio-economic problems leading to innovative ideas which in turn result in intellectual development of people, community, society and nation. In this article emergence of India is considered as a strong and developing country in certain sectors. India, the largest democratic country with 17.7% of world's population is emerging as fastest growing major economy. India has the world's second largest military force with latest technology in national security is emerging as superpower with rapid digitalization. Startups are the seeds which would reap into eminent trees whose fruits would be seen by the world. Agriculture is the backbone of any economy more so for our nation, feeding and nourishing such

Research and Innovation - Boosting India's Economy

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Community of people with common territory held together with glorious history, tradition, culture, language, their active participation in political, social and civil systems plays an important role in building of a nation which include establishment and empowerment of education, military defence, law and order, finance, police, import and export etc. Research and Innovation go hand in hand in developing the standard of livelihood. Research in any field tries to give practical solutions to socio-economic problems leading to innovative ideas which in turn result in intellectual development of people, community, society and nation. In this article emergence of India is considered as a strong and developing country in certain sectors. India, the largest democratic country with 17.7% of world's population is emerging as fastest growing major economy. India has the world's second largest military force with latest technology in national security is emerging as superpower with rapid digitalization. Startups are the seeds which would reap into eminent trees whose fruits would be seen by the world. Agriculture is the backbone of any economy more so for our nation, feeding and nourishing such a population is no small feat achieved only through the extensive innovation done in its field.

Keywords: Empowerment, innovation, superpower, research, digitalization.

Start Ups

Startups are founded by one or more entrepreneurs who want to develop a product or service for which they believe there is demand. These companies generally start with high costs to run and limited revenue, which is why they look for capital from a variety of sources. Hence, startups must consistently and constantly innovate to make sure that big companies do not put them out of business. Research and Development plays a critical role in the innovation process.

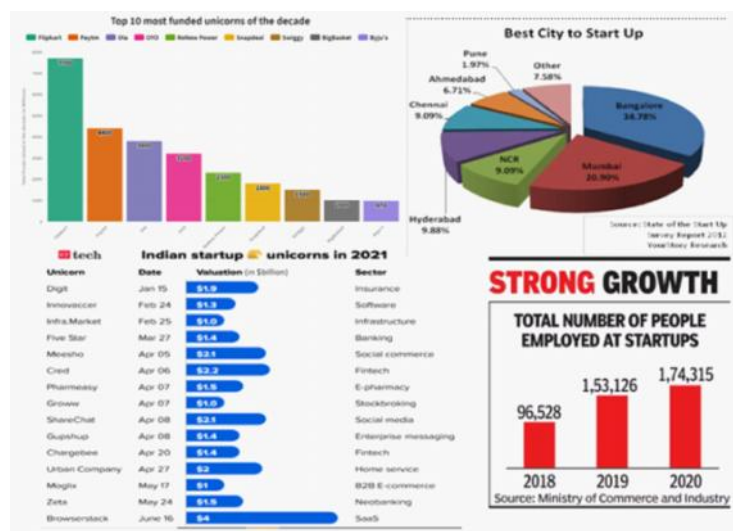
Entrepreneurship

Innovation in Entrepreneurship can provide various opportunities by helping the business to keep up with the current trends, sustainable growth and job creation which enables higher productivity, finally aiming for prosperity. An organization can achieve long stay if it brings innovation into process as its aim is to combine existing resources and capabilities to use them in producing in new and best possible ways.

India has over 61,400 startups recognised by the Department for Promotion of Industry and Internal Trade (DPIIT), with at least 14,000 recognised during fiscal 2022, according to the Economic Survey 2021-22.

The survey added that 555 districts in India had at least one new startup, highlighting that startups in India have grown remarkably over the past six years.

The number of new recognised startups has increased to over 14,000 in 2021-22 from only 733 in 2016-17 as per survey..India has become the third-largest startup ecosystem in the world after the US and China.



Startups has given new hope and enthusiasm among people to think differently and find their own solutions instead of depending on Government policies. Encouragement in terms of funding and resources is flooded on these start-ups entrepreneurs by Govt. and private sectors to develop a strong and sustainable economic growth.

Defence:

Defence Research & Development Organisation (DRDO) has a network of laboratories engaged in developing defence technologies covering various fields, such as aeronautics, armaments, electronics, land combat engineering, life sciences, materials, missiles, and naval systems.

The iDEX initiative was launched by the Hon'ble PM in April 2018. iDEX aims to achieve self - reliance and foster innovation and technology development in Defence and Aerospace by engaging Industries including MSMEs, start-ups, individual innovators, R&D institutes and academia.

Defence Minister Rajnath Singh has approved budgetary support of nearly Rs 499 crore for research and innovation in the defence sector for next five years to provide financial support to nearly 300 start ups / MSMEs/individual innovators and 20 partner under the DIO framework.

2-DG has been developed by the INMAS, DRDO in collaboration with Dr.Reddy's Labs - Clinical trial data shows the molecule that the molecule helps faster recovery of Covid 19 hospitalised patients by reducing their dependence on oxygen supplement.

Chemical Kit for Detection of Explosives (CKDE)

A compact, low-cost and handy explosive detection kit has been designed and perfected for field detection of traces of explosives. The kit yields a colour reaction, based on which explosives can be detected in minutes. It is used for identification of all common military, civil and home-made explosive compositions, and is being used by Police and BSF for the detection of explosives.



India has become self reliable of manufacturing defence equipments with high quality and striving towards excellence. Government has supported small, medium and startups to manufacture innovative technologies using AI.

Agriculture

After independence country was facing problems in food production and supply. Agricultural changes during the Mauryan, Mughal and British rule had a negative effect on productivity. In the first five-year plan, Indian Govt. proposed to demolish Zamindari system to support farmers, Acharya Vinobha Bhave started Bhoodan movement to encourage farming and increase the livelihood of farmers. Importance to food production was made a priority by construction of dams, agricultural research was given the top priority, innovation of new technologies in farming

- like tractors, oil engines, pipes were manufactured in country which resulted in 16 % growth of agricultural production by second and third five year plan.

In 1960 - rise in population means demand in food, Govt. had no choice other than importing, for the next years the condition was ship to mouth existence. 1966 India has to import 1 crore ton of food grains from US, with this hunger crisis nation economy was at stake.

Lal Bahadur Sastry, Prime Minister of India, C. Subramanyan, Food and Agriculture minister and M.S.Swaminathan (who was considered as "Father of Indian Green Revolution") played a key role to start of Green revolution in India. Strategies were planned to combine economy with research and grants were given for institutes for innovative technologies useful for agricultural equipment.

The cause of low production was identified as low quality of seeds, disease prone variety which immediately drawn demand for more research in this area. Dr. Norman Borlaug, American Agronomist - research on high yielding varieties of wheat was successful in Mexico, which were introduced in India by M.S. Swaminathan in about 20-25 % of agricultural land across India. This experiment was a huge success and production of food grains were increased tremendously during 1964-68 10 million tons to 17 million tons. Indian prosperity was measured in terms of 70% increase in income of farmers and production of food grains.

Major innovations that are commonly used in agricultural sector such as automation tractors seeding and weeding, drones, sensors using AI, vertical farming, smart and innovative soil less farming to create awareness, educate, improvise and motivate farmers and youth towards this global alarming issue.



Even though there is adequate food production, due to excessive usage of pesticides and water resources, there is depletion of natural resources and environmental pollution. Measures must be taken to overcome these negative effects on environment.

Biomedical sciences:

Innovation in medical technology including bioinstrumentation, artificial organs, cellular bio processing, health wear ables, 3D printing, MRI scan, drone-delivered medical supplies, stem cell cure for diabetes, cancer-diagnosing artificial intelligence have brought tremendous improvement in developing solutions to health problems or issues promoting and monitoring health life by prevention or delay of onset of diseases. In this field innovation not only increased knowledge in transforming lives and processes but also boosting business models.



Fashion Industry

Fashion Innovation is paying way to new aspect of cost-effective production of clothing, replacing wasteful materials with sustainable alternatives, cusromised product delivery.

Application of AI in this field to predict trends, understanding buying patterns, fast-shifting consumer demands to transform the fashion aesthetics. Emerging entrepreneurs now concentrating on biodegradable concepts -next generation of fashion innovators.

CONCLUSION:

After 75 years of independence India is racing ahead of many countries and competing successfully on par with developed countries. Indian Government has announced 5.35 trillion INR for defence in 2022-23 budget promoting a self-relient industry. Increasing population demanding increasing food production can be accomplished by emergence of second Green Revolution as insisted b Dr. Manmohan Singh. Policies have to merged with science and research to yield high quality, disease resistant food grains, establishing cold storage units for perishable agricultural products thus assuring farmers of their returns, promote organic and smart farming with minimum negative impact on environmental sustainability. Start-ups founded by entrepreneurs can act as wheels of growing economy in terms of employment rate and innovative solutions to society and nation. Nation Development is not possible without applied research and innovation of new technologies. India still needs to fund and encourage industries to extract skill based learning with socio economic responsibility. Integrating basic and applied research to innovate new technologies in developing new products and processes.



More effective and innovative ideas in terms of patents have to be encouraged by emerging startups, entrepreneurs and young scientists.

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