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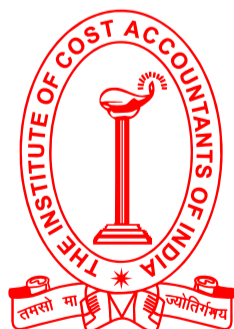


# CMA Student E - Bulletin

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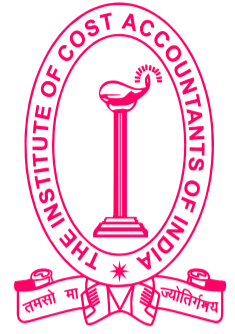
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Behind every successful business decision, there is always a **CMA**



*Message from*  
**The President**  
 CMA Balwinder Singh  
 The Institute of Cost Accountants of India



**MESSAGE FROM THE PRESIDENT**

Dear Students,

Greetings!!!

We all have stepped into a New Year, 2020 and I am sure that those who had appeared in the December, 2019 term of examination with utmost dedication and determination have done well in their examinations. Those who will be appearing in the forthcoming June, 2020 term of examination, must have already started their preparation.

Being a student of the Institute you must feel proud as the Institute of Cost Accountants of India is the only recognised statutory professional organisation and licensing body in India specialising exclusively in Cost and Management Accountancy. You must be aware that your Institute is the largest Cost & Management Accounting body in Asia and the 2<sup>nd</sup> largest Cost and Management Accounting body in the World.

The Institute prepares the course curriculum considering the perspective of the ongoing best practices which are in vogue both in domestic and Global arena. Professional expertise of both the academia and industry doyens is well blended in the syllabi. To achieve six important skill sets-Knowledge, Comprehension, Application, Analysis, Synthesis and Evaluation based on four knowledge pillars as Management, Strategy, Regulatory Function and Financial Reporting, the CMA course entails skills for employability Worldwide. Communication and soft skill sessions coupled with rigorous computer training help the students to enhance knowledge and to face the challenges.

Every stage in life has its own beauty. Each new day is a blank page in the diary of our life. The secret of success is in turning that diary into the best story you possibly can. Likewise, a New Year is like a blank book, and the pen is in your hands. It is your chance to write a beautiful story for yourself. On this New Year, may you change your professional direction and not mere dates, change your commitments and not the Calendar, change your attitude and not the actions, and bring about a change in your faith, your force and your focus and not the fruit. May you live up to the promises you have made. Keep your spirits and determination unshaken, and you shall always walk ahead. With courage, faith and great effort, you shall achieve everything you desire. May this New Year bring new happiness, new goals, new achievements and a lot of new inspirations in your life.

Wishing you a prosperous New Year ahead....

Happy New year!!!

CMA Balwinder Singh

President

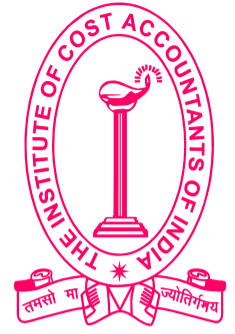
The Institute of Cost Accountants of India



**Be a CMA, be a Proud Indian**

# Message from The Chairman

CMA Biswarup Basu  
Vice President & Chairman,  
Training & Education Facilities  
and Placement Committee



## MESSAGE FROM THE CHAIRMAN

Dear Students,

Happy NEW Year!!!

Wishing you a new year filled with new hope new joy and new beginnings! I pray for you and your family's happiness and well-being. May you all have an amazing year ahead!

*"Satisfaction lies in the effort, not in the attainment, full effort is full victory"* -M. K. Gandhi. The most important need for a professional course is that, when you take up a professional course, you are honed in a particular and specific subject rather than just as general studies. So, seriousness is utmost needed and you must be serious from the very beginning and you also must be dedicated and determined to fulfil your dream within a time frame set up by you.

You must be proud to note that your Institute have celebrate Global Summit 2020 on "Mission 5 Trillion CMA as a Cryogenic Force" from January 9-11, 2020 at The Ashok Hotel, New Delhi. It is a pleasure to note that the Summit had been addressed by eminent persons holding high positions in the Government and Industry leaders. Many professional Gurus cutting across continents had also joined across the Globe.

Education gives us knowledge of the world around us and changes it into something better. It develops in us a perspective of looking at life. It helps us build opinions and have points of view on things in life. People debate over the subject of whether education is the only thing that gives knowledge. Education makes us capable of interpreting things, among other things. It is not just about lessons in textbooks, it is about the lessons of life.

The Directorate of Studies are continuously trying to update your knowledge through various publications in electronic versions like Mock Test Papers (MTPs), Work Books, monthly students E-bulletins etc. where eminent academicians and industrial personnel are contributing through their write up for your knowledge development. Being the Chairman of Training & Education Facilities and Placement Committee, I am really thankful to all of them.

*"Believing others is easy but believing in yourself that's the real challenge"* Swami Vivekananda. New beginnings are in order and you and you are bound to feel some level of excitement as new chances come your way!

Best wishes as always,

CMA Biswarup Basu  
Chairman, Training & Education Facilities and Placement Committee



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# KNOWLEDGE Update



In this section of e-bulletin we shall have a series of discussion on each of these chapters to provide a meaningful assistance to the students in preparing themselves for the examination at the short end and equip them with sufficient knowledge to deal with real life complications at the long end.



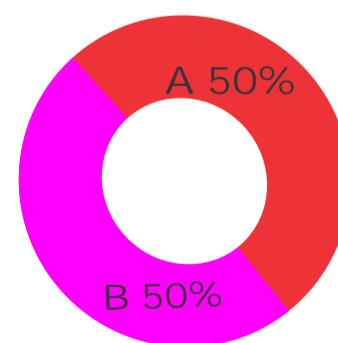
PAPER: 1, PART: I

# FUNDAMENTALS

OF ECONOMICS & MANAGEMENT  
(FEM) – ECONOMICS

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## Your Preparation Quick Takes



### Syllabus Structure

A Fundamentals of Economics 50%  
B Fundamentals of Management 50%

## Learning Objectives:

- Studying economics, one will be able to develop the analytical skills needed to work successfully in the field, including the study of logical analysis.
- Students will be able to identify and explain economic concepts and theories related to the behaviour of economic agents, markets, industry and firm structures, legal institutions, social norms, and government policies.
- Students will be able to integrate theoretical knowledge with quantitative and qualitative evidence in order to explain past economic events and to formulate predictions on future ones.
- Students will be able to evaluate the consequences of economic activities and institutions for individual and social welfare.

## Economics

Happy NEW YEAR friends !!! We are back with our mock test. We had merry Christmas and then new year festivities – a pretty long break which must have refreshed our brain and this will go a long way to help us flex the muscles of our brain. At the beginning of the new year we must take a pledge that we must go through the STUDY MATERIAL, given by the institute, thoroughly. Let us start our mock test now.

## I. Choose the correct answer:

- Means which are required to satisfy human wants are
  - Limited
  - Unlimited
  - Undefined
  - None of the above
- The degree of price elasticity of demand for Television set is
  - Moderate
  - Low
  - High
  - None of the above
- In the case of a unit elastic demand curve, when the price is falling, the total expenditure will
  - Rise
  - Fall
  - Remain the same
  - None of the above
- Which one of the following is not the total revenue (TR)?
  - $P \times Q$
  - $AR \times Q$
  - Summation MR
  - Summation AR
- A rational producer operates
  - In the first stage of the production process
  - In the second stage of the production process
  - In the third stage of the production process
  - None of the above
- In a perfectly competitive market
  - $AR > MR$
  - $AR = MR$
  - $AR < MR$
  - None of the above
- In a monopolistic market
  - The supply curve is upward rising
  - The supply curve is downward falling
  - There is no supply curve



- D. None of the above
8. The price set by the monopolist to discourage economic entry in the market which is often lower than the AC of production is called
- Cost-plus pricing
  - Psychological price
  - Dynamic pricing
  - Limit pricing
9. When a firm earns more than normal profit, the profit is said to be
- Sub-normal profit
  - Super-normal profit
  - Economic profit
  - None of the above
10. When inflation occurs due to excess demand over supply, it is
- Cost push inflation
  - Mark-up inflation
  - Demand-pull inflation
  - None of the above

KEY: 1.A, 2.C, 3.C, 4.D, 5.B, 6.B, 7.C, 8.D, 9.B, 10.C

II. Fill in the blanks

- Growth definition of economics is the brain child of .....
- For an inferior good, if income rises, the demand will .....
- The vertical difference between TC and TVC is .....
- IDA is associated with the ..... Bank
- Call money represent the amount borrowed by ..... from each other for the short term requirement

KEY: 1. Paul A. Samuelson, 2. Fall, 3. TFC, 4. World, 5. Commercial bank

III. True or false

- Collateral loans are given by commercial banks without security
- IMF introduced SDR to avoid the movement of gold across national boundaries
- NABARD is the apex body in the industrial credit
- Through CRR the central bank can control credit creation
- Money is cent percent liquid

KEY: 1. False, 2. True, 3. False, 4. True, 5. True

IV. Matching

- |                                     |                  |
|-------------------------------------|------------------|
| 1. Scarcity definition of economics | A. Chamberlin    |
| 2. Degrees of price discrimination  | B. fiscal policy |
| 3. Product differentiation          | C. Moral Suasion |
| 4. Keynes                           | D. Prof. Pigou   |
| 5. Qualitative technique            | E. Robbins       |

KEY: 1.E, 2.D, 3.A, 4.B, 5.C

Friends, I hope you have enjoyed solving the mock test paper. Please read between the lines of every section of the study material. Since economics is based on higher mathematics, you have to be very careful about the logic of your argument. Wish you best of luck in the exam !!!



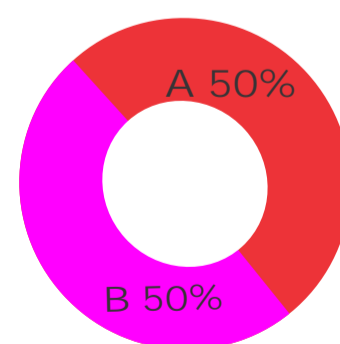
PAPER: 1, PART: II

# FUNDAMENTALS

OF ECONOMICS & MANAGEMENT  
(FEM) - MANAGEMENT

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## Your Preparation Quick Takes



### Syllabus Structure

A Fundamentals of Economics 50%  
B Fundamentals of Management 50%

**Learning Objectives:**

- Students will demonstrate their knowledge of business and management principles
- Students will reveal effective written and oral communication
- Students will exhibit an awareness of the global environment in which businesses operate
- Students will display the ability to recognize when change is needed, adapt to change as it occurs, and lead

**MANAGEMENT**

Leadership refers to an individual's ability to influence, motivate, and enable others to contribute toward organizational success. In business, a vision is a realistic, convincing and attractive depiction of where you want to be in the future. Vision provides direction, sets priorities, and provides a marker, so that you can tell that you've achieved what you wanted to achieve.

Leaders help themselves and others to do the right things. They set direction, build an inspiring vision, and create something new. Leadership is about mapping out where you need to go to "win" as a team or an organization; and it is dynamic, exciting, and inspiring. Yet, while leaders set the direction, they must also use management skills to guide their people to the right destination, in a smooth and efficient way.

To create a vision, leaders focus on an organization's strengths by using tools such as:

- Porter's Five Forces
- PEST Analysis
- USP Analysis
- Core Competence Analysis and
- SWOT Analysis to analyze their current situation.

They think about how their industry is likely to evolve, and how their competitors are likely to behave. They look at how they can innovate successfully, and shape their businesses and their strategies to succeed in future marketplaces.

Therefore, leadership is

- ❖ Proactive,
- ❖ problem solving,
- ❖ looking ahead, and not being satisfied with things as they are.

Hence, leadership combines the analytical side of vision creation with the passion of shared values, creating something that's really meaningful to the people being led.

Leaders must ensure that the work needed to deliver the vision is properly managed – either by themselves, or by a dedicated manager or team of managers to whom the leader delegates this responsibility – and they need to ensure that their vision is delivered successfully. To do this, team members need performance goals that are linked to the team's overall vision. Leaders can also motivate and influence people through their natural charisma and appeal, and through other sources of power, such as the power to pay bonuses or assign tasks to people. However, good leaders don't rely too much on these types of power to motivate and inspire others.

Leaders also need to make sure they manage change effectively. This helps to ensure that the changes needed to deliver the vision are implemented smoothly and thoroughly, with the support and backing of the people affected.

The words "leader" and "leadership" are often used incorrectly to describe people who are actually managing. These individuals may be highly skilled, good at their jobs, and valuable to their organizations – but that just makes them excellent managers, not leaders.

So, be careful how you use the terms, and don't assume that people with "leader" in their job titles, people who describe themselves as "leaders," or even groups called "leadership teams" are actually creating and delivering transformational change.

Management consists of controlling a group or a set of entities to accomplish a goal. Influence and inspiration separate leaders from managers, not power and control.

The words "leader" and "manager" are among the most commonly used words in business and are often used interchangeably. But have you ever wondered what the terms actually mean?

A manager is the member of an organization with the responsibility of carrying out the four important functions of management: planning, organizing, leading, and controlling. Most managers also tend to be leaders, but only if they also adequately carry out the leadership responsibilities of management, which include communication, motivation, providing inspiration and guidance, and encouraging employees to rise to a higher level of productivity.

Unfortunately, not all managers are leaders. Some managers have poor leadership qualities, and employees follow orders from their managers because they are obligated to do so—not necessarily because they are influenced or inspired by the leader.

Managerial duties are usually a formal part of a job description; subordinates follow as a result of the professional title or designation. A manager's chief focus is to meet organizational goals and objectives; they typically do not take much else into consideration. Managers are held responsible for their actions, as well as for the actions of their subordinates. With the title comes the authority and the privilege to promote, hire, fire, discipline, or reward employees based on their performance and behaviour.

## The Three Important Differences Between A Manager and A leader

Being a manager and a leader at the same time is a viable concept. But remember, just because someone is a phenomenal leader, it does not necessarily guarantee that the person will be an exceptional manager as well, and vice versa.

So, what are the basic differences between the two roles?

1. A leader invents or innovates while a manager organizes:

The leader of the team comes up with the new ideas and kick starts the organization's shift or transition to a forward-thinking phase. A leader always has his or her eyes set on the horizon, developing new techniques and strategies for the organization. A leader has immense knowledge of all the current trends, advancements, and skill sets—and has clarity of purpose and vision. By contrast, a manager is someone who generally only maintains what is already established. A manager needs to watch the bottom line while controlling employees and workflow in the organization and preventing any chaos. Managers understand the people they work with and know which person is the best fit for a specific task.

2. A manager relies on control, whereas a leader inspires trust:

A leader is a person who pushes employees to do their best and knows how to set an appropriate pace and tempo for the rest of the group. Managers, on the other hand, are required by their job description to establish control over employees, which, in turn, help them develop their assets to bring out their best. Thus, managers have to understand their subordinates well to do their job effectively.

3. A leader asks the questions "what" and "why", whereas a manager leans more towards the questions "how" and "when":

To be able to do justice to their role as a leader, some may question and challenge authority to modify or even reverse decisions that may not have the team's best interests in mind. Good leadership requires a great deal of good judgment, especially when it comes to the ability to stand up to senior management over a point of concern or if there is an aspect in need of improvement. Managers, however, are not required to assess and analyze failures. Their job description emphasizes asking the questions "how" and "when," which usually helps them make sure that plans are properly executed. They tend to accept the status quo exactly the way it is and do not attempt a change.

***"Leadership is the capacity to translate vision in to reality"***



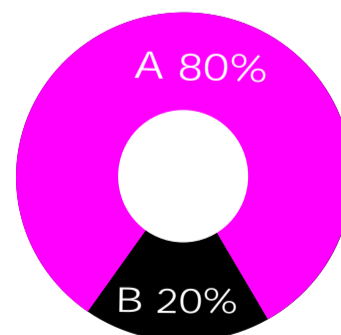


PAPER: 2

# FUNDAMENTALS OF ACCOUNTING (FOA)

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## Your Preparation Quick Takes



### Syllabus Structure

- A Fundamentals of Financial Accounting 80%
- B Fundamental of Cost Accounting 20%

## Learning Objectives:

In order to internalize the concepts of subjects like accountancy one has to have an understanding of the learning objectives of the chapters. Try to go through the Statement of Objects and Reasons issued for every topics as it would give you a background to your study.

## ACCOUNTING EQUATION

### INTRODUCTION:

In the last issue we have just introduced the concept the of Accounting Equation. In this issue we will discuss about this in detail.

In this issue we will discuss a basic and fundamental concept of accounting i.e the dual aspect concept which states for every debit there is a corresponding and equal credit. Algebraically we can express this as an equation. Before we explain such equation let us explain the basic terms of accounting. These are assets, liabilities, capital, expenses, losses, income and gains.

**Assets:** An expense which provides a continuous benefit over the years will be termed as asset. For example Building, furniture etc.  
**Liabilities:** it is an obligation of financial nature to be settled at a future date. For example loan taken.

**Expenses:** means cost which is expired. That is amount spent to enjoy a current benefit. For example if you spend Rs. 10/- to buy a chocolate and eat it, you actually enjoyed the taste of the chocolate. This is an expense.

**Losses:** The only difference between loss and expense is that cost is expired here without a benefit. Repeating the same example if the chocolate is slipped from your hand and you could not enjoy the taste, it will be a loss.

**Income:** It means a gross inflow of cash , receivable or other consideration arising out of ordinary activities of an entity. For example sale of goods.

**Gain:** It is such income which are not generated through regular course of business. For example, sale of short term securities.

### THE EQUATION:

Asset = Liabilities + Capital + income + gain - Expense - loss.

It means all benefits received by the entity must have been given by it or by other entity.

Let us explain this in detail:

The equation says : benefits received by an entity = benefits given by other entity

Benefits received are:

1. Expenses - benefits received and exhausted or used up
2. Losses- benefits received but could not be used
3. Assets- benefits received but kept for long run use for continuous benefits

Benefits given by other entity:

1. Liabilities- benefits/obligations taken but to be refunded in due course
2. Income- benefits taken but not to be returned.

Note:

Liabilities may be of two kinds- external and internal. External liabilities are bank loan, creditors, bills payable etc, but internal liability is the capital introduced by the proprietor. Capital account is actually the personal account of the proprietor.

That is why in the equation capital and liabilities are separately shown.

### FEATURES

- The equation gives foundation to the double entry book keeping system
- It holds good for every transaction
- It is also known as balance sheet equation

### EXAMPLE:

1. Ravi started a business with cash Rs. 90000/-
2. Purchased equipment for cash Rs. 7400
3. Purchased goods in cash Rs. 2600
4. Paid Rs. 2000 to creditors
5. Sold goods for cash Rs. 2000 (cost Rs.1200)
6. Business expenses Rs. 700
7. Goods worth Rs. 400 taken from business for personal use
8. Depreciation of the equipment Rs. 200
9. Purchased goods for cash Rs. 1000
10. Rent outstanding Rs. 200

Explanation :

1. Cash brought in for 90000 as capital , i.e assets increased and capital increased
2. Equipment purchased increased the balance of asset and decreased the balance of cash
3. Goods purchased increased the stock by reducing the cash
4. Paid to creditors reduced the liability as well as cash
5. Sold goods reduced the stock at cost of 1200 but increased the cash balance by 2000. The profit made of 800 is claim of the proprietor and added to capital.
6. Expenses reduce the cash balance and increases the expenses
7. Drawing of goods reduces the stock and reduces the capital as well
8. Depreciation reduces the balance of asset and loss as well
9. Goods purchased increases the stock and reduces the cash balance
10. Outstanding rent increases the expenses and the liability

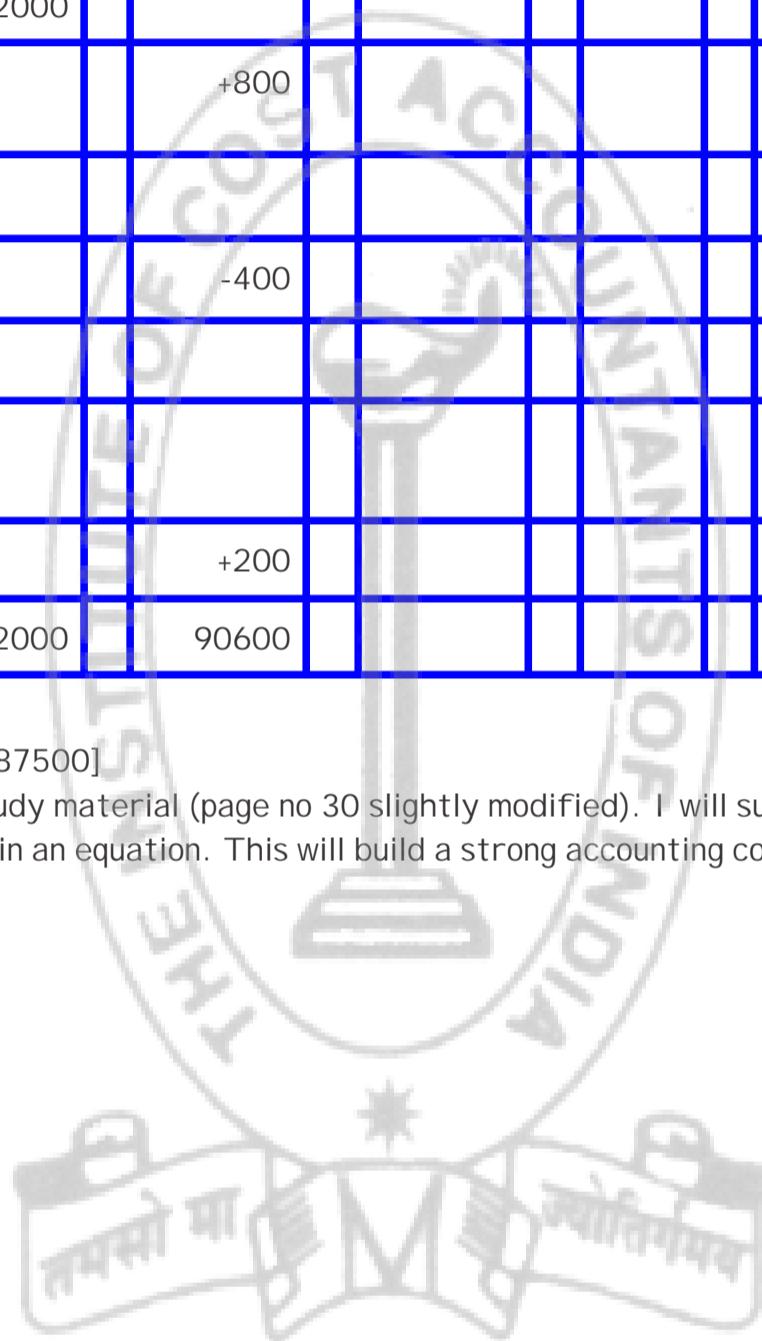
as well

Statement showing the accounting equation

ITEM	ASSETS	=	LIABILITIES	+	CAPITAL	+	INCOME	+	GAIN	-	EXPENSE	-	LOSS
1	+90000				+90000								
2	-7400 +7400												
3	+2600 -2600												
4	-2000		-2000										
5	+2000 -1200				+800								
6	-700									+700			
7	-400				-400								
8	-200												-200
9	-1000 +1000												
10					+200					+200			
Total	87500		-2000		90600					900			200

$$[87500] = [-2000 + 90600 - 900 - 200] = [87500]$$

The above example is taken from the study material (page no 30 slightly modified). I will suggest practicing this equation from the journal. Take any journal and try to put in an equation. This will build a strong accounting concept.



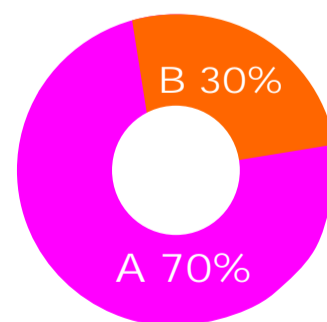


PAPER: 3

# FUNDAMENTALS OF LAWS AND ETHICS (FLE)

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## Your Preparation Quick Takes



### Syllabus Structure

A Fundamentals of Commercial Laws 70%  
B Fundamentals of Ethics 30%



## Learning Objectives:

- Read the Study Material minutely.
- For details or if you don't understand Study Material or the section is important to identify the topic, then refer to Bare Act, otherwise reference to Bare Act is not necessary. For Company Law, book by Avtar Singh is recommended. For other laws Institute Study Material is sufficient.
- The words used in any of the texts as mentioned above should be understood by immediate reference to the Dictionary.
- The main points coming out in any of the provisions should be either underlined or written in separate copy which has to be repeated again and again.
- Theoretical knowledge should be adequate and clear before solving practical problems.
- Don't write wrong English. It changes the meaning and therefore answer may be wrong even when the student's conception is clear. Also don't make spelling mistakes.

## LAW &amp; ETHICS

It is hoped that you keep on reading and recapitulating all that you have read for which you must prepare a time-table with time allotted for each subject – to read, write and revise.

Now, please appreciate why this paper is really very important for all of you who are aspiring to be true professionals and are all eager to proudly proclaim aloud that – Yes, behind every successful decision, there is a CMA. With Mission CMA in mind, you the students, are advised to study this paper with a practical approach, as if the points concern you and you are given to deal with it as a professional. As a CMA in the making whether you decide to get employed or be self-employed and employ people, you will have to deal with people and establishments legally and establish Legal relationship for lawful consideration and perform your professional duties. Keeping that in mind, you have to study this subject seriously.

The first TIP is that you as a student now, must start thinking like A Teacher. You must start studying the subject and raise questions to yourself and find your own answers.

Paper 3 of the Syllabus – 2016

let us discuss Ethics and Business

Ethics : Please remember that Ethics is truly the pillar on which you, – the would-be professionals will be expected by the society and the world-at-large, to stand, during your professional career.

Right from the day an individual is born, the world accepts him/her as a member of a Society, a Clan, a Culture and a Tradition and each of those categories are governed by respective Standards and Ethics. We may therefore, explain that Ethics are such standards that are consistently followed over the years depending on the philosophy that, that system has been following based on the terms of right, obligations and the benefits derived by the society depending on their geographical location and demographic characteristics.

It is known that, right after his/her birth, from the day a person, begins to see, hear, understand and realize the customs, beliefs, traditions and culture into which he/she is born, he/she is told to do or not to do something, to speak or not to speak something, to wear or not to wear certain dresses, to eat or not to eat certain foods and vegetables or to behave in a certain manner, etc. However, we must never be confused but should be able to

distinguish between Morals and Ethics.

It must be appreciated that all ethical traditions and customs are generally followed based on systematic and scientific reasons depending on how much the individual has bonded and established his relationship within that category where he/she belongs or interacts with, but such reasons may not be always known to every individual existing within that system. Let us take an example. When you enter or pass through a place where the environment is good, peaceful and congenial, you tend to prolong your stay over there, but in a reverse situation, you will definitely either avoid such place or quickly leave that place. In the former case, the individuals gathered there have not breached their ethics but in the latter case, the ethics have been definitely breached and violated.

That prompts us to raise a question – should ethics be rigid or does it need changes? The answer is that we must remember that ethics is something which is generally prompted by your conscience. Ethics, helps us to realize what is right and wrong and what we should refrain from doing. Moreover, since the time-machines keeps ticking and changes are bound to take place depending on situations and circumstances, ethics actually guides us to study and analyze an existing system first before showing the path towards development and fine-tuning of an existing system that needs a change.

Ethics : Please recollect what you read in the initial paragraph, that Ethics is truly the pillar on which you, – the would-be professionals will be expected by the society and the world-at-large, to stand, during your professional career.

Moral and Ethics, depends on how we interpret the meaning. Morals, deal with customs and practiced principles followed by certain groups, depending on religion, culture and traditions. Ethics, on the other hand, lays emphasis on character, conduct and individual behavior. What is ethically moral, may not be morally wrong. For example, eating fish on Saturdays may not be ethically wrong but it may be morally wrong for certain community members. Ethics and Morals are certain laid practices which reminds the members of the society about their duties and restrictions, so that those community members stay within set acceptable limits. Breaching the restrictions cause conflicts and disturbs human peace and harmony between different social relationships such as – father and son, husband and wife, between friends and relatives and even between communities.

Ethics, demands that we follow certain disciplines, standard practices and conventions more than what is prescribed by law. It all depends on how we apply and practice ethics in our daily life

and general practices.

Ethics in general life must be followed differently. Ethics in office must not be mixed with ethics at home. For example, watching television (TV) during working hours in office may not be permitted but, at home it is allowed. However, playing a TV at home while a student is studying there is ethically wrong if it disturbs or distracts the attention of that student there. This is called Value-based Ethics and discipline.

Ethics is linked to Principles and principles are aimed at bringing methods, systems, procedures, orderliness, happiness and for leading the path towards good mutual co-existence between individuals and their way of life. These are Social Ethics, but what the society expects from the businessman can be called Professional Principles and Practices.

Having understood the above, let us remember the points laid as Seven Guiding Principles to be followed in our daily Public Life, with the help a Slogan -

I Should Organize And Operate with Honest Leaders, where -

- I = Integrity while discharging duties
- S = Selflessness without personal gains and bias
- O = Openness and transparency
- A = Accountability for decisions taken
- O = Objectivity and focused approach
- H = Honestly in discharging Public Duties
- L = Leadership with sound principles and practices

To sum up, Ethics and Law are both complementary and inter-related in order to link social rules, customs, regulations and restrictions prescribed by Society through social customs and beliefs. That is perhaps why it is said that Convention is more than law.

Business Ethics is applicable within the periphery of a business circle and environment. It encompasses the behavior of individuals within business organizations, giving top priority to Business Interests.

Business Ethics is the study of business situations, activities and decisions where issues of right and wrong are addressed. This wonderful explanation was given by Andrew Crane.

In this context, one must remember the 3 C's of Business Ethics, which are -

- a) Compensation,
- b) Competency and
- c) Character.

One must accept and appreciate that - Ethical Business Profit, is a reward to the businessman for - investing in business, for generating employment, for contributing to the growth of business at large, by abiding by the Laws of the Land and the ethical practices followed in the trade and business.

Ethics applies to all accepted activities of the people, including those engaged in business. However, one must ethically refrain from too much greed and profiteering and from corruption at any stage.

Ethics must promote healthy practices and standards in the political, social and economic arena for bring Value-addition among individuals in the society at all walks of life while maintaining good Work-Life Balance.

Business ethics also encompasses Corporate ethics, Professional ethics, and applied ethics which deals with all aspects of ethical principles, all problems relating to moral, social and behavioral issues that one faces in the business arena and because of which the business environment often gets vitiated during conduct of business by individuals operating while operating in business organizations.

It covers matters and standard ethical practices which are expected to be followed at the required time and situation keeping social principles in mind.

It must be kept in mind that Business is indeed aimed at making a profit. However, it must never be forgotten that profit is actually a reward for doing a business but any effort to increase the profit through illegal or unethical means is not proper. Profit is the fruit derived from Capital Invested in business first and then it is the reward for the best possible entrepreneurship.

One must admit that as the business prospers, the entrepreneurs' needs and wants change and their life style also undergoes a change. However, one must not mix life with business. Therefore, the focus has to change into order to diversify and expand the business to earn more without compromising on morality and ethics. Business must be kept within the standard periphery of ethics.

That leads us to the very important question about Character of Business.

Businessman must never ask for too much at too short a time. Everything follows a natural pattern and profit earning is no exception. Resorting to corrupt practice can never be accepted under any situation - political, social or economic. Increasing profit earning from business can be done ethically by applying managerial skills while boosting growth while staying and adhering to the various professional code of conduct, standard practices in the society, and law of the land - the Acts, Rules and Regulations as applicable.

Business Ethics must proceed with - Skill, efficiency and diligence.

Good Business Ethical practices must -

- a) Avoid Indulgence in malpractices - stay away from the influence of bad businessmen who do not abide to fair practices and resort to unfair trade practices and cheating etc.
- b) Help workers and labour to work with Self-Confidence - and ensure success of their business by playing a constructive role in the company,
- c) Encourage customer satisfaction and confidence by convincing them that they follow ethics and provide the right goods and services,

- d) Promote business, through a clear image of ethical business without hollow promises ,
- e) Protect consumer rights - viz. right to health and safety, right to information, right to choose , right to be heard, right to redress grievances etc.,
- f) Look into the interests of the Employees as well as the Owner/Stakeholders and prevent them from being exploited and, also
- g) Enable steady growth of the organization through actual efficiency, optimum utilization of resources amid of

healthy completion without defeating and damaging the competitor through unethical practices.

- h) Build a clear and clean image in the business by impressing all that every business transaction is fair and proper and acceptable to society who will be convinced that they are not cheated and are getting the right goods and/or services at the right price and value for money.
- l) Ensure survival of the business by respecting the demands of the end-user ethically through proper code of conduct and serving the customers and consumers satisfactorily without an eye on short term profits and ensuring that the business grows smoothly and steadily.



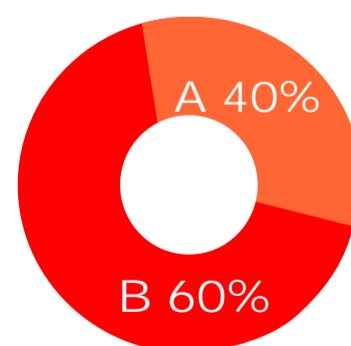


PAPER: 4

# FUNDAMENTALS OF BUSINESS MATHEMATICS AND STATISTICS (FBMS)

CMA Ankan K Bandyopadhyaya  
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## Your Preparation Quick Takes



### Syllabus Structure

A Fundamentals of Business Mathematics 40%  
B Fundamentals of Business Statistic 60%

## Learning Objectives:

- The central objective of Statistics is to equip students with consequently requisite quantitative skills that they can employ and build on in flexible ways.
- Statistics help to design data collection plans, analyze data appropriately and interpret and draw conclusions from those analyses.
- To provide students with the idea of statistical calculations which promotes the efficient functioning of commerce and industry;

## BUSINESS MATHEMATICS

In this issue we will discuss few important issues on Correlation & Regression with illustration.

Let us recapitulate with a simple question:

What is Correlation?

All of us know that correlation or better named correlation analysis is a group of techniques to measure the relationships between two variables.

What does relationship actually mean?

Relationship actually indicates the pattern/quantum of variability of one variable against changes in another variable. i.e.

If one variable is increased by some quantum, does the other variable increase/decrease by the same quantum?

If the variables change linearly?

Does the number of hours that student study for an exam influence the exam score?

Now it is understood that in correlation analysis we study the behaviour of two variables together.

One variable is called Dependent variable and the other is called independent variable—exam score is the dependent variable and the no of hours of study is the independent variable.

The relationship is called Correlation and it can be i) Linear correlation ii) Non-Linear.

We are concerned only with linear correlation (as per syllabus)

If we ask between two variables X & Y, is there any relation?

Say we say: Yes there is relation means there is a correlation between X & Y.

This answer is a qualitative answer.

Answer to our next question "What is the quantum of this correlation" is a quantitative answer. To give this answer we require a measuring scale and under correlation analysis this measuring scale is called Correlation Coefficient.

Correlation Coefficient is a measure of the strength of the linear relationship between two variable.

Correlation Coefficient is indicated by r

It ranges from - 1 up to and including +1

A value near 0 indicates there is little linear relationship between the variables

A value near 1 indicates a direct or positive linear relationship between the variables

A value near - 1 indicates an inverse or negative linear relationship between the variables.

The basic formula for computation of correlation coefficient is

$$r = \frac{\text{cov}(X, Y)}{\sigma_x * \sigma_y}$$

$$\text{Or, } = \frac{\sum S_{xy}}{N * \sigma_x * \sigma_y}$$

Where,  $x = X - \bar{X}$ ,  $y = Y - \bar{Y}$ ,  $N =$  No of observation,  $\sigma =$  standard deviations  $N$

The term  $xy$  or  $S(X - \bar{X})(Y - \bar{Y})$  drives the strength as well as the sign of the relationship between the two variables.

The correlation coefficient is unaffected by the units of the two variables: Means it is a pure number independent of the unit of measurement.

The correlation coefficient is independent of the origin and scale of reference: Change of origin means subtracting of some constant from every given value of X and Y and change of scale means dividing (or multiplying) by some constant every given value of X and Y.

Q1. Consider the following table:

X	2	4	5	6	8	11
Y	18	12	10	8	7	5

The correlation coefficient between X & Y is -0.92. Multiply each X value in the table by 2 and add 6. Multiply each value of Y in the table by 3 and subtract 15. Find the new correlation coefficient.

Ans: Without any detail computation we could say that the correlation coefficient remain same at -0.92. Because by multiplying with and adding/subtracting a constant from each value of X and Y in the table we are basically changing the scale and origin by which there will be no change in the correlation coefficient.

The original table and its correlation coefficient along with modified table and its correlation coefficient are shown below. The output is taken from Excel.

X	Y			
2	18			
4	12			
5	10			
6	8		X	Y
8	7	X	1	
11	5	Y	-0.92032	1

X	Y			
10	39			
14	21			
16	15			
18	9		X	Y
22	6	X	1	
28	0	Y	-0.92032	1

How do you interpret a correlation of -0.920?

First it is negative, so we conclude there is an indirect relationship between two variables. If the correlation coefficient is positive, there will be a direct relationship.

The value is close to -1, so we conclude that negative association is strong.

But please note that existence of correlation does not permit us to change that change in one variable causes the change in other. In correlation analysis we are just concerned with finding of degree of association only and not to find out the causes behind changes in values of the variables.

Besides correlation analysis Regression analysis is another method to examine a linear relationship between two variables.

This analysis uses the basic concepts of correlation but provides much more information by expressing the linear relationship between two variables in the form of an equation.

Based on this equation we could estimate the value of dependent variable based on a selected value of the independent variable.

The technique used to form this equation and to estimate the value of the dependent variable is called Regression Analysis. The straight line equation ( $y = mx + c$ ) form so constructed is called Regression equation.

Therefore Regression equation expresses linear relationship between two variable.

General form of linear regression equation  $\hat{Y} = a + bX$

- $\hat{Y}$  is the estimated value of the Y variable for a selected X value
- a is the Y intercept. It is the estimated value of Y when X = 0
- Or, a is the estimated value of Y where the regression line crosses the Y axis when X = 0
- b is the slope of the line or the average change in  $\hat{Y}$  for each change of one unit (either increase or decrease) in the independent variable X

So in a regression equation a is the y intercept and b is the slope.

Slope of the regression equation  $b = r \frac{s_y}{s_x}$  when regression equation is  $Y = a + bX$  (regression equation of Y on X)

But when we form regression equation of X on Y i.e.  $X = a + bY$  then we could write

$$b = r \frac{\sigma_x}{\sigma_y}$$

Where  $\sigma$  is the standard deviation and  $r$  is the correlation coefficient.

The formula for computing Y intercept  $a = \bar{Y} - b \bar{X}$  here  $\bar{X}, \bar{Y}$  are the mean of the respective series.

This regression line is usually called Least Square Regression line because the line is drawn following least square principle in which our objective is to use the values of the variables to position a line that best represents the relationship between the two variables.

- This least square regression line will always pass through the point  $(\bar{X}, \bar{Y})$
- The term  $S(Y - \hat{Y})^2$  sum of the squared deviations, is smaller for the least square regression equation  $\hat{Y} = a + bX$  than for any other equation.

Consider the following data:

Month	Price/Kg in R	Quantity (kg)	Month	Price/Kg in R	Quantity (kg)
January	96	250	July	112	220
February	110	200	August	112	220
March	100	250	September	108	200
April	90	280	October	116	210
May	86	300	November	86	300
June	92	300	December	92	250

The regression equation of quantity (Y) on price (X) is  $\hat{Y} = 572.74 - 3.244X$

This line is formed following principle of least square.

Expected value of dependent variable for January will be therefore  $\hat{Y} = 572.74 - 3.244 * 96 = 261.316$  Similarly for other months we could calculate.

The deviations from actual in the month of January =  $Y - \hat{Y} = 250 - 261.316 = -11.316$ . In this way we could find out deviation quantum for every month.

Sum of the squared deviation =  $S(Y - \hat{Y})^2 = 2622.62$

If we choose two arbitrary equations but very close to our regression equation

we could demonstrate that this  $S(Y - \hat{Y})^2$  values for these other equations will be always greater than 2622.62

Let us take arbitrary equations are:

Alt1:  $\hat{Y} = 570.85 - 3.162X$  & Alt 2:  $\hat{Y} = 571.22 - 3.205X$

With Alt1  $(Y - \hat{Y})^2 = 3110.47$  and with Alt2  $(Y - \hat{Y})^2 = 2693.022$

The detail computation is shown in the following table.

Therefore sum of the squared deviation i.e.  $(Y - \hat{Y})^2$  will be always minimum in case of actual regression equation

Price	Quantity	Expected Quantity	Deviation	Deviation Squared	Expected Quantity Alt1	Deviation Squared	Expected Quantity Alt2	Deviation Squared
96	250	261.316	-11.316	128.051856	267.298	299.220804	263.54	183.3316
110	200	215.9	-15.9	252.81	223.03	530.3809	218.67	348.5689
100	250	248.34	1.66	2.7556	254.65	21.6225	250.72	0.5184
90	280	280.78	-0.78	0.6084	286.27	39.3129	282.77	7.6729
86	300	293.756	6.244	38.987536	298.918	1.170724	295.59	19.4481
92	300	274.292	25.708	660.901264	279.946	402.162916	276.36	558.8496
112	220	209.412	10.588	112.105744	216.706	10.850436	212.26	59.9076
112	220	209.412	10.588	112.105744	216.706	10.850436	212.26	59.9076
108	200	222.388	-22.388	501.222544	229.354	861.657316	225.08	629.0064
116	210	196.436	13.564	183.982096	204.058	35.307364	199.44	111.5136
86	300	293.756	6.244	38.987536	298.918	1.170724	295.59	19.4481
92	250	274.292	-24.292	590.101264	279.946	896.762916	276.36	694.8496
Sum				2622.619584		3110.469936		2693.022

In regression analysis a regression equation's ability to predict is measured by a statistic called Coefficient of determination. Or called R-square.

Coefficient of Determination: The proportion of the total variation in the dependent variable Y that is explained or accounted by the

variation in the independent variable

R-Square =  $r^2$

A R-square value 60% and above usually indicates a good regression fit.

In many software packages regression output shows automatically the R-square value besides other thing.

The excel output of regression carried out with our data above is shown below:

SUMMARY OUTPUT								
<i>Regression Statistics</i>								
Multiple R	0.918466858							
R Square	0.843581369							
Adjusted R Square	0.827939506							
Standard Error	16.1945023							
Observations	12							
<i>ANOVA</i>								
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>			
Regression	1	14144.04762	14144.04762	53.93100318	2.4716E-05			
Residual	10	2622.619048	262.2619048					
Total	11	16766.66667						
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	572.7380952	44.42081288	12.89346273	1.48283E-07	473.762356	671.7138342	473.7623562	671.7138342
Price	-3.24404762	0.441741266	-7.34377309	2.47157E-05	-4.2283085	-2.25978674	-4.2283085	-2.259786742

In the summary output R-Square value is 0.843581369 i.e. around 84.36%. It means that our regression equation is capable to predict and around 84% of variations in dependent variable (Quantity) can be explained by the variations in independent variable (Price).

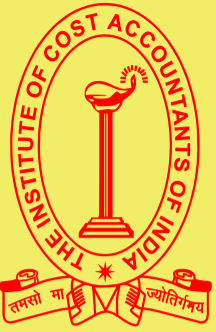
In the next issue we will discuss some more complicated problems based on ideas given in guide book and in this lesson.

#### Suggestions:

The study guide needs to be read thoroughly. Supplementary readings could be made from other resources. This issue is based totally on study guide issued by the institute. Standard books on business statistics could be referred for additional expertise to attend the short questions. This lesson is an extension of discussion on the topic in guide book. Detailed discussions on different formulas are not done here to avoid repetition. Further problem solving with different formulas and their application will be done in next issue. This lesson is purely an aid to study guide on paper 4- Fundamental of Business mathematics and Statistics written and issued by Institute on Syllabus -16.

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# PRACTICAL Advice

## ABOUT YOUR STUDIES - FOUNDATION COURSE

Practical support, information and advice to help you  
get the most out of your studies.

START

01

Read Study Notes  
MTPs, E-Bulletin  
Work Books  
Webinar seasons

Solve Exercises  
given in Study Note

02

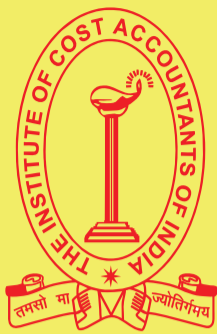
03

Assess Yourself

Appear For Examination

04

FINISHED



# SUBMISSIONS



Dear Students,

We are very much delighted to receive responses from all of you; for whom our effort is!

We have noted your queries and your requests will definitely be carried out. Further, requesting you to go through the current edition of the bulletin. All the areas will be covered gradually. Expecting your responses further to serve you better as we believe that there is no end of excellence! One of the mails received is acknowledged below.

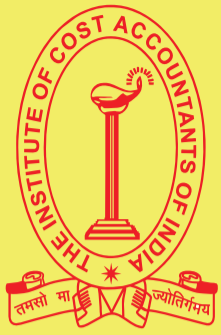
Please put your opinions so that we can make your e-bulletin everything that you want it to be.

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Send your Feedback to:  
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#### Updation of E-Mail Address/Mobile:

Students are advised to update their E-Mail id and Mobile Numbers timely so that important communications are not missed as the same are sent through bulk mail/SMS nowadays. Student may update their E-Mail id/ Mobile Number instantly after logging into their account at [www.icmai.in](http://www.icmai.in) at request option.



## Message from Directorate of Studies

Dear Students,

May the New Year be full of Success - Happy New Year!

We from the Directorate of studies know your expectations from us and accordingly we are trying to delivery some meaningful tips through the publications of monthly E-bulletins. Other than this we are trying to help you through, Mock Test Papers (MTPs), Work Book, and we have conducted Webinar sessions. Before stepping in to the examination hall, please go through the PPTs on "Achieve your GOAL"; Uploaded by the Directorate of Studies and which will help you to know about certain Do's and Don'ts in the examination.

You know that the nation is celebrating 150th birth anniversary of the father of the nation **M. K. Gandhi**. One of his inspirational message towards the students were:

**"You must be the Change you wish to see in the World",**

Let us observe his memory, following the above message.

Certain general guidelines are listed below and which will help you in preparing yourselves:

- Conceptual understanding & Overall understanding of the subject should be clear.
- Candidates are advised to go through the study material provided by the Institute in an analytical manner.
- Students should improve basic understanding of the subject with focus on core concepts.
- The Candidates are expected to give to the point answer, which is a basic pre-requisite for any professional examination.
- To strengthen the answers candidates are advised to give answer precisely and in a structured manner.
- In-depth knowledge about specific terms is required.
- Write question numbers correctly and prominently.
- Proper time management is also important while answering.

Please refer the links mentioned below :

For Mock Test Papers (MTP) : [http://icmai.in/studentswebsite/mtp2016\\_j19\\_fnd.php](http://icmai.in/studentswebsite/mtp2016_j19_fnd.php)

For PPT on "Achieve your GOAL" : <http://icmai.in/studentswebsite>

Recorded Webinar Link: [http://icmai.in/Webinar\\_Portal/Students/StudentLogin.aspx](http://icmai.in/Webinar_Portal/Students/StudentLogin.aspx)

Ebulletin Link : <https://icmai.in/studentswebsite/E-Bulletin.php>

- Don't give up
- Don't give in
- Don't give out

You can win!

GOOD LUCK

Be Prepared and Get Success;

Disclaimer:

Although due care and diligence have been taken in preparation and uploading this E-bulletin, the Institute shall not be responsible for any loss or damage, resulting from any action taken on the basis of the contents of this E-bulletin.





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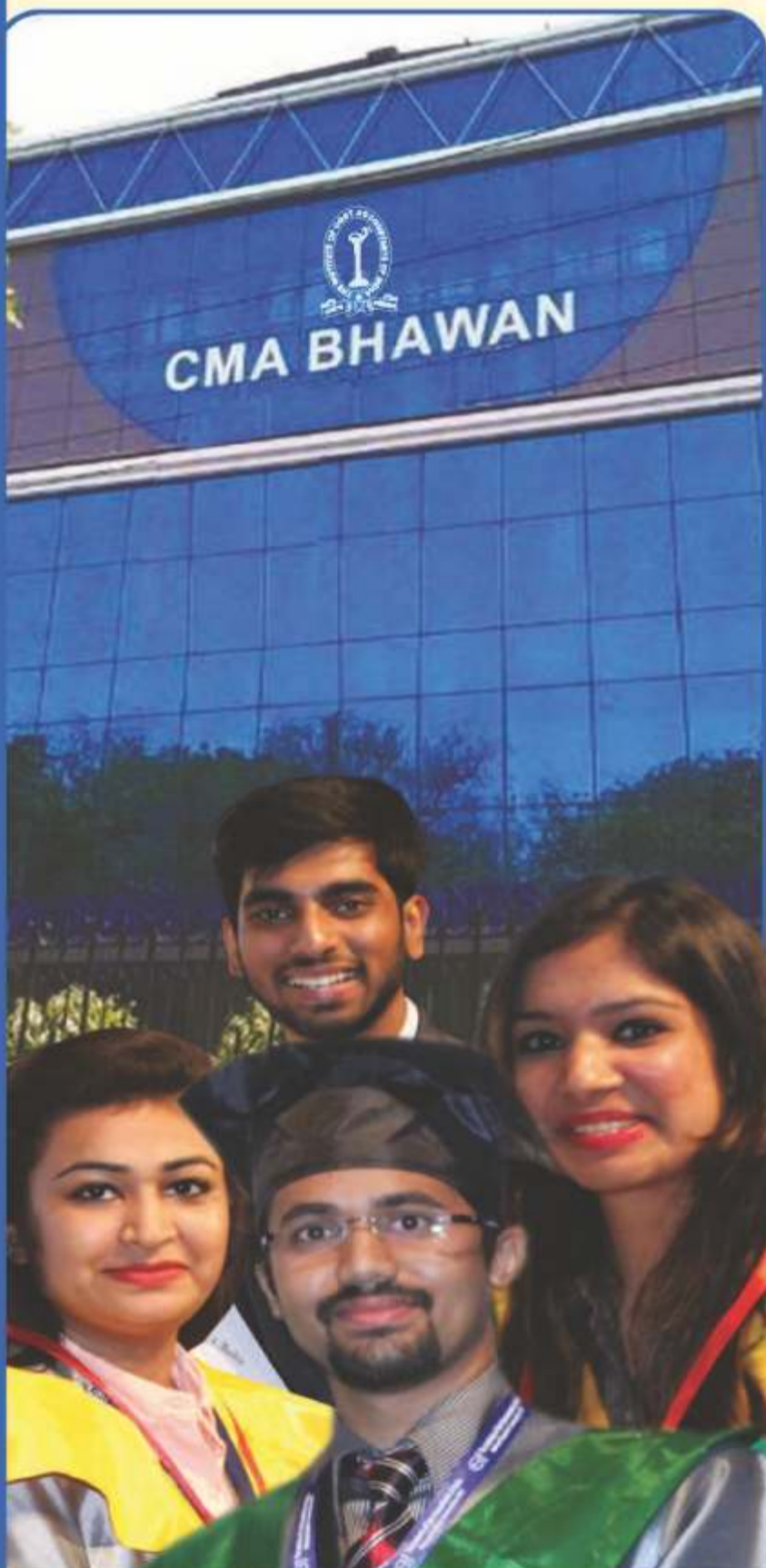
Few of Our Proud Recruiters



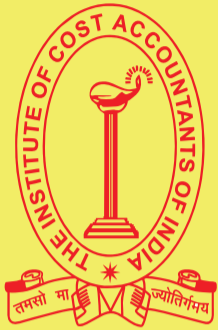
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Behind every successful business decision, there is always a **CMA**



# Few Snapshots



Glimpses of Symposium on Cost Audit organised by the Technical Cell of the Institute in Mumbai on 20th December 2019 CMA Balwinder Singh, President with the dignitaries



CMA Balwinder Singh, President of the Institute greets Shri J P Nadda, Hon'ble Member of Parliament (Rajya Sabha) and National Working President of the Bharatiya Janta Party along with CMA Vijender Sharma, CCM and CMA D. C. Arya, Former Chairman, NI RC of the Institute



CMA H Padmanabhan, Chairman, CAT Committee along with CMA D. V. Joshi, Past President of the Institute greets Shri Narendra Singh Tomar, Hon'ble Union Minister of Rural Development, Agriculture and Farmers Welfare & Panchayati Raj



CMA Balwinder Singh, President of the Institute met Shri Prakash Javadekar, Hon'ble Union Minister of Environment, Forest and Climate Change, Information & Broadcasting and Heavy Industries & Public Enterprises along with CMA P Raju Iyer, CCM, CMA H Padmanabhan, CCM and CMA D. V. Joshi, Past President of the Institute



Glimpses of Symposium on Cost Audit organised by the Technical Cell of the Institute in Mumbai on 20th December 2019 Shri Suresh Prabhu, Hon'ble Member of Parliament, Rajya Sabha inaugurates the symposium as Chief Guest in the presence of the Guest of Honor, Dr TS Balasubramanian, Member - TAMP, President, Vice-President, Chairman-Technical Cell and Council Members



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