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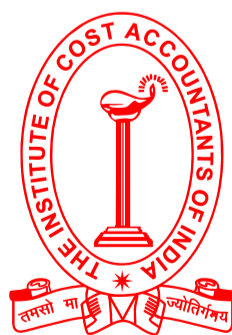


Happy New Year  
2021

CMA Student  
E - Bulletin

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



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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.



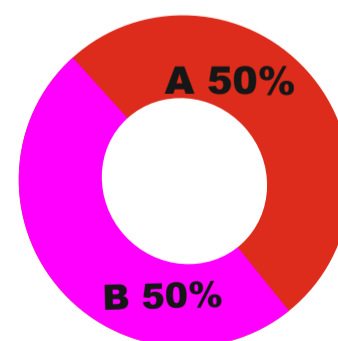
PAPER: 1, PART: I

# 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**

Hi Friends!!! Hope you have enjoyed the Christmas holidays. Do not get bogged down with your studies all the time. Have some recreation as well. Enjoy the holidays with your friends. Arrange a picnic or an outing. It will refresh your brain and mind which will supply extra energy to you so that your study will be a fun for you. You will start loving your studies. Proper recreation which includes games and sports like cricket football etc., helps the flexing the muscles of the brain and also the development of the neurons which increases your intellect. Any ways, we start our exercise of mock test.

**I. Choose the correct answer**

- 1. Micro distribution means**
  - A. Pricing of factors of production
  - B. Sharing of the national income among the factors of production
  - C. Distribution of national income among the poor
  - D. None of the above
- 2. Alfred Marshall was the follower of**
  - A. Pigou
  - B. John Stuart Mill
  - C. Adam Smith
  - D. J B Say
- 3. Growth definition of economics was proposed by**
  - A. Robbins
  - B. Samuelson
  - C. Malthus
  - D. None of the above
- 4. What are the constituents of money supply?**
  - A. Rupee notes and coins
  - B. Credit cards
  - C. Traveler cheques
  - D. All the above
- 5. The concept of consumer surplus was introduced by**
  - A. Alfred Marshall
  - B. John Maynard Keynes
  - C. John Stuart Mill
  - D. None of the above
- 6. The Law of Diminishing Marginal Utility was first introduced by**
  - A. Alfred Marshall
  - B. H H Gassan
  - C. J M Keynes
  - D. None of the above
- 7. The difference between Gross Investment and Net Investment is**
  - A. Net Capital
  - B. Capital Formation
  - C. Depreciation

- D. None of the above
8. At the point of inflexion, TP will normally
- Show decreasing trend
  - Show increasing trend
  - Remain unchanged
  - None of the above
9. Which market does not have the condition 'free entry and free exit' ?
- Perfect competition
  - Monopolistic competition
  - Monopoly
  - None of the above
10. Which market has the property of 'interdependence' ?
- Discriminating Monopoly
  - Oligopoly
  - Monopolistic competition
  - None of the above

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

#### II. Fill in the blanks

- Money serves as a medium of .....
- When the factor prices rise, inflation results. Such inflation is called ..... Inflation
- Moral Suasion is a ..... technique of controlling credit
- SDRs are used in place of Gold. Hence it is called ..... gold
- Economies of scale are the ..... in the per unit cost of production as the volume of production increases

KEY: 1. Exchange, 2. Cost-push, 3. Qualitative, 4. Paper, 5. Reduction or Decrease

#### III. True or False

- Perfect competitor is a price maker
- Monopoly has a normal supply curve
- Monopolistic competition is also called product differentiation
- Money is a store of value
- Semi-inflation is formed after the full employment situation is reached

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

#### IV. Matching

1. Central Bank	A. SDR
2. MC	B. Agricultural credit
3. Supply elasticity	C. $dTC/dQ$
4. NABARD	D. Note issue
5. IMF	E. $(dQ/dP) \times (P/Q)$

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

Friends, I do hope that you have enjoyed solving the mock test problems. You will find that it is quite difficult to answer the questions if you are not meticulous in going through the study material. But for Heaven's sake please do not consult the keys before you solve the questions. Try to keep a record of your performance in the mock tests so that you have an idea about the progress you are making. All the best !!!



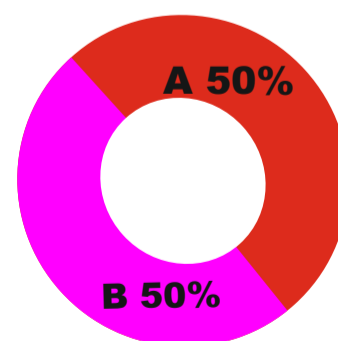
PAPER: 1, PART: II

# 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:

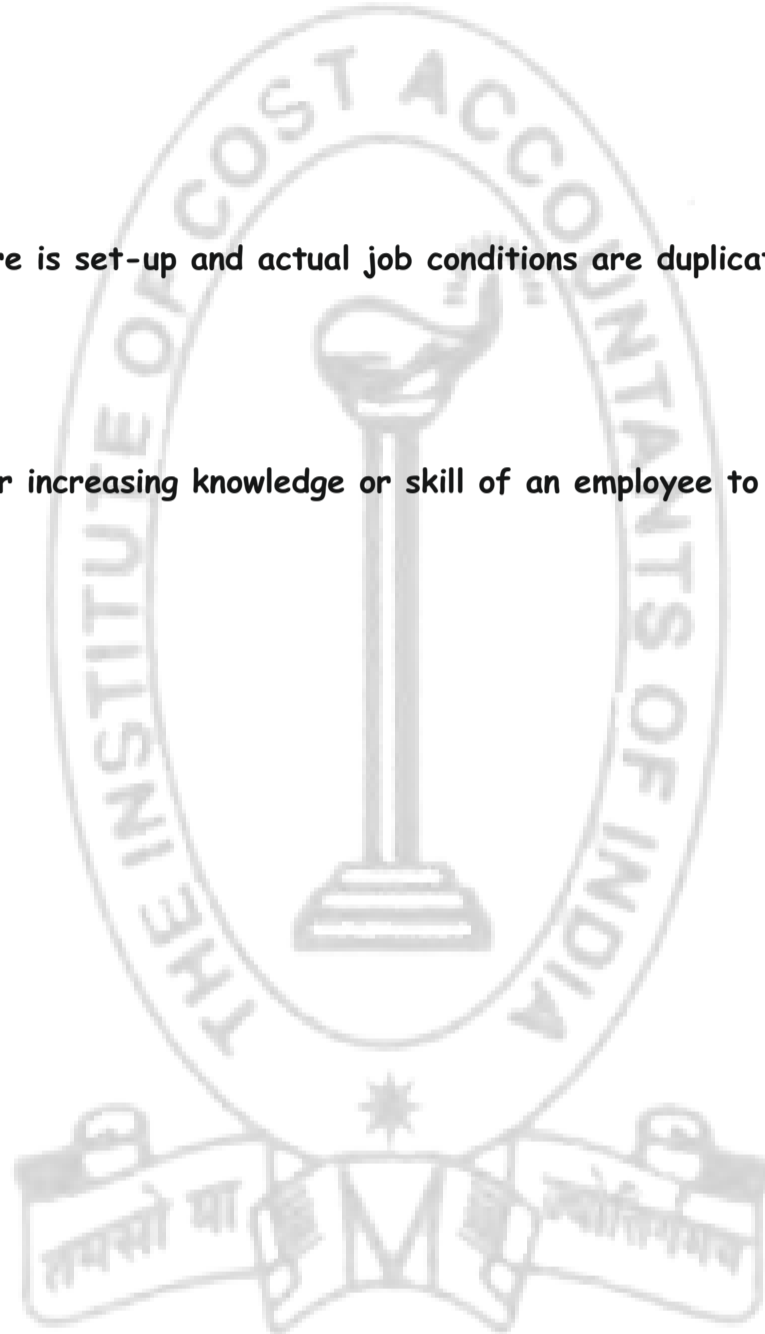
- Students will demonstrate their knowledge of business and management principles
- Students will reveal effective written and oral communication
- Students will exhibit an awareness of the global environment in which businesses operate
- Students will display the ability to recognize when change is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

**MANAGEMENT**

1. A case, in management studies, gives an account of:
  - (i) a manager's personal problems
  - (ii) a manager's interpersonal problems
  - (iii) management problems**
  - (iv) social events in the company
2. Cases dealing with an organization's experiences and efforts to solve problems are described as:
  - (i) organizational cases
  - (ii) factual cases**
  - (iii) functional cases
  - (iv) theoretical cases
3. All case studies involve documentation of the process of:
  - (i) evaluating a problem
  - (ii) strategic decision-making**
  - (iii) storytelling
  - (iv) exploring alternative choices
4. Logical links between two events/facts are established by discovering:
  - (i) causal links
  - (ii) traditional links
  - (iii) casual links**
  - (iv) hypothetical links
5. In the scientific study of a problem, opinions are not allowed because they are not:
  - (i) widely known
  - (ii) written
  - (iii) subjective
  - (iv) facts**
6. The executive summary helps the decision-maker:
  - (i) learn about various solutions to the problem
  - (ii) learn about the problem without reading the case fully**
  - (iii) avoid reading the case fully
  - (iv) learn about the problem
7. In a case study, the executive summary is placed:
  - (i) with the recommendations
  - (ii) at the beginning**
  - (iii) as part of the introduction
  - (iv) at the end
8. The first requirement for being able to write an analysis of a theoretical case is thorough knowledge of the concerned:
  - (i) methodology
  - (ii) subject**
  - (iii) case
  - (iv) objective
9. The ability to think critically reflects a:
  - (i) sharp business sense
  - (ii) questioning mind**
  - (iii) thoughtfulness
  - (iv) holistic personality
10. In the conclusions section of an industry-based case study, the recommended action plan is fully analyzed in terms of its:
  - (i) feasibility
  - (ii) benefit to the company
  - (iii) viability
  - (iv) viability, feasibility, and benefit to the company**



11. Which of the following statement is/are correct?  
(i) HRM is a strategic management functions  
(ii) Under HRM employee is treated as resources.  
(iii) HRM is the management of skills, talent and abilities.  
(iv) HRM lacks the organization to achieve its goals
12. The process of familiarizing the new employees to the organization rules and regulations is known as-  
(i) Placement  
(ii) Induction  
(iii) Recruitment  
(iv) Selection
13. OJT stands for-  
(i). On the job training  
(ii) On the job technique  
(iii) On the job technology  
(iv) Off the job training
14. In -----training, a training Centre is set-up and actual job conditions are duplicated or simulated in it:  
(i). Classroom  
(ii) Apprenticeship  
(iii) Internship  
(iv) Vestibule
15. -----is the process of imparting or increasing knowledge or skill of an employee to do a particular job.  
(i). Training  
(ii). Development  
(iii). Motivation  
(iv). Leadership



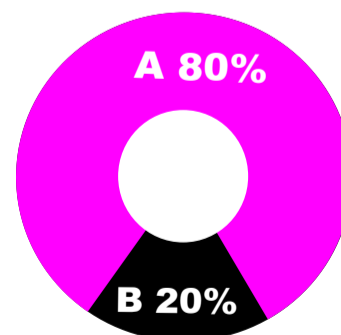


PAPER: 2

# 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.

**FINANCIAL ACCOUNTING**

Dear friends

Very happy new year to all. It is only a calendar that alerts our mind. It makes the instinct to be happy or sad. If it is 31<sup>st</sup> it is sad to bid good bye and if it is 1<sup>st</sup> it is happy to welcome. Time is set - its only us who interpret in our own way. Last year we could create less and remained upset that we wasted plenty of time without doing anything. However, I prefer to look the value of time and value of money in the following way:

*"A man walked to the top of a hill to talk to God.*

*The man asked, 'God, what's a million years to you?'*

*God said, 'A minute.'*

*Then the man asked, 'Well, what's a million dollars to you?'*

*God said, 'A penny.'*

*Then the man asked, 'God.....can I have a penny?'*

*God said, 'Sure... in a minute.'*

Here is again a series of brain work for you.

- 1 **When an owner withdraw goods, it is debited to his drawing account because of -**
  - (a) Continuity concept
  - (b) Conservatism
  - (c) Entity concept**
  - (d) None of the above
- 2 **Sale income is said to be realized when-**
  - (a) Goods are sold**
  - (b) Cash is received
  - (c) Production is completed
  - (d) None of the above
- 3 **Work in Progress is valued on the basis of cost incurred because of principle of -**
  - (a) Conservatism
  - (b) Realisation
  - (c) Going Concern**
  - (d) None of the above
- 4 **Fees not received is not treated as income in case of Chartered Accountants because of -**
  - (a) Concept of objectivity
  - (b) Realisation**
  - (c) Cost Concept
  - (d) All of the above
- 5 **Fixed Assets are not shown at their realizable value in accounts because of -**
  - (a) Concept of Objectivity
  - (b) Matching cost
  - (c) Going Concern**
  - (d) None of the above
- 6 **Why are the total of two sides of the balance sheet equal ?**
  - (a) Cost Concept
  - (b) Dual aspect concept**

- (c) Entity concept  
(d) All of the above
- 7 Pre-received income is deducted from income in the current year's P&L account, the underlying assumption being-  
**(a) Matching cost against revenue**  
(b) Conservatism  
(c) Realisation  
(d) None of the above
- 8 In business purchase should not be recorded without its voucher because it is violative of the principle of -  
(a) Cost  
(b) Consistency  
**(c) Objectivity**  
(d) None of the above
- 9 Bank credits income of doubtful interest to Interest Suspense Account because of -  
**(a) Concept of Conservatism**  
(b) Objectivity  
(c) Consistency  
(d) None of the above
- 10 The revenue from gold is recorded in the books, as soon as its production is complete, because of principle of -  
(a) Conservatism  
**(b) Realisation**  
(c) Objectivity  
(d) None of the above
- 11 The concept of suggests that provision for loss against claim accepted must be made is:-  
(a) Realisation  
(b) Periodicity  
**(c) Conservatism**  
(d) All of the above
- 12 Commission on sale is debited to Profit and Loss account in the year in which sale is effected because of -  
(a) Concept of conservatism  
**(b) Matching cost with revenue**  
(c) Realisation concept  
(d) None of the above
- 13 In the trading account, sales is written on credit side and on the opposite side purchases and purchase expenses are shown. What is the principle involved-  
(a) Concept of conservatism  
**(b) Matching cost with revenue**  
(c) Realisation concept
- 14 Which of the following items is not included in the 'Account Sale?'  
(a) Goods sold by consignee  
(b) Expenses of consignment incurred by consignee  
**(c) Claim paid by insurance company**  
(d) Advance against consignment paid to consignee
- 15 In case of 'del-credere' commission being allowed to consignee, any bad-debt in consignment business, following entry will be passed;  
(a) Consignor's account shall be debited  
(b) Debtor's account shall be debited  
**(c) Commission account shall be debited**  
(d) Consignor's account shall be credited
- 16 Which of the following accounts is not to be opened in case of separate books for joint venture business are kept?  
(a) Joint Venture Account  
(b) Joint Bank Account  
(c) Partner's Capital Account  
**(d) Memorandum Joint Venture Account**



17. Effects of dishnour of B/R is given -  
(a) Only in the B/R A/c  
**(b) In debtor A/c and B/R account**  
(c) Only in the Debtor A/c
18. Only in the B/P A/c Generally depreciation on fixed assets is calculated on which balance?  
**(a) Opening**  
(b) Closing  
(c) Only on additional  
(d) Amount realized on asset sold
19. Following particulars are obtained from the books of a firm:-  
Opening Stock Rs.20,000, Purchases Rs. 1,20,000, Closing Stock Rs.60,000, Gross Profit on sales is 20% . Then the amount of sales is-  
(a) Rs. 80,000  
**(b) Rs.1,00,000**  
(c) Rs.1,40,000  
(d) Rs. 180000
20. Which account is prepared to know cash purchase or cash sales ?  
(a) Trading Account  
(b) Debtor's Account  
(c) Creditor's Account  
**(d) Cash A/c**



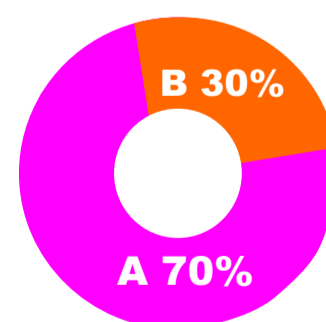


PAPER: 3

# 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.

**LAWS & ETHICS**

let us understand 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.**

It is not just that this subject- Ethics, carries a weightage of 30% and scoring 25 marks from this subject is not as difficult as it is to score from Section A subjects, the fact is that you can start with an initial lead by completing Section B first before concentrating on the Acts and their interpretations in Section A. So, keeping that in mind, let us discuss a little more about the Fundamentals of Ethics in this issue of the E-Bulletin, with a totally new approach.

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

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.

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 **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. 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 must proceed with - Skill, efficiency and diligence.**

**Good Business Ethical practices must -**

- a) Avoid Indulgence in malpractices,
- b) Help workers to work with Self-Confidence,
- c) Encourage customer satisfaction and confidence,
- d) Promote business,
- e) Protect consumer rights,
- f) Look into the interests of the Employees as well as the Owner/Stakeholders and also
- g) Enable steady growth of the organization amid of healthy completion.

Now, let us deal with the **Sale of Goods Act, 1930**

*In respect of such papers , the students are reminded that since they are taking an exam, they must first focus on securing marks. For that, they must study the relevant Sections of the Act , write what the question wants and then attempt to elaborate by analyzing and commenting on the interpretations of the Act.*

At the very start, let us be clear that **Sale of Goods Act** relate to sale and purchase of goods, but the contract of sale is regulated by the Indian Contracts Act, 1872.

At the very start, we must clear our conception about the following terms - **Goods, Specific Goods, Unascertained goods, Future**



goods and **Contingent goods**.

The immediate question coming to mind is - **What are goods** ? It is clarified that **every kind of movable property** is goods but - Actionable Claims and Money are excluded .( All things attached to the earth are not movable and are therefore not goods under the Act. However, standing crops, grass and fruits on trees that can be separated are covered under the definition of movable goods ).

So, the question arises - **What are Actionable Claims** ? Actionable claims are debt or a claim for money which a person may have from another person, which may be recovered by suit.

So, what is **Money** ? Money here simply means legal tender.

**Specific Goods** are goods that can be clearly identified and recognized

**Unspecific Goods** are those goods that can be indicated by description but cannot be separately identified. For example , as long as the bags of sugar, kept in a godown for sale, are not identified with any specific buyer, they remain Unspecified Goods. As soon as a some bags are brought out, marked, separated and issued to a buyer, they become identifiable and become Specific goods.

**Future Goods** are goods which have not yet been manufactured or produced or acquired by the seller after entering into a contract of sale. For example, X agrees to sell Apples to Z that he will grow in his orchard in the coming fruit season. Such a contract is for sale of future goods.

**Contingent Goods**, are goods that can be sold only depending on the happening of an uncertain event, called a Contingency. For example, M enters into a contract to sell a particular watch to N if M manages to buy it from C - the current owner of the watch. The watch here is considered - Contingent Goods.

That makes us raise a question - there is a contract of sale between a buyer and a seller , but **when does the property, pass on from the seller to the buyer in a contract for the sale of such goods** ? You will find the answer in Sec.18 to 25 of the Sale of Goods Act. You have to reply keeping in mind each type of goods .

1. **In case of Specific Goods**, where there is an unconditional contract for sale of specific goods in a deliverable state, the property passes as soon as the contract is made. The time of payment or the time of delivery is not material.
2. **In case of Unspecified/Unascertained Goods**, the property is not transferred until the goods are ascertained. For example, there are bags of cement in a godown. The property gets transferred to the buyer only when the requisite number of bags are separated ,taken out and kept aside for delivery to that buyer.
3. **The Intention of the Parties** is very important in case of sale of Specific goods. The property passes when the parties to the contract intend it to pass as stated in the terms of the contract.
4. In case of sale of Specific Goods, **if there is something which the seller has to do** , before making the goods ready in a deliverable condition, the property passes only after the seller has done that thing. For example, M agrees to sell 1000 tins of milk powder to N and promises to pack them in Card Board Boxes before delivery, the property passes only after those tins are properly packed and made ready for delivery.
5. In case of Specific goods, **where the seller has to measure, weigh or test the goods** , for the purpose of ascertaining the price, the property does not pass to the buyer as long as that thing has been done and the buyer is intimated.
6. Property in the goods is transferred to the buyer when the **goods is delivered to the carrier**. However, in case of conditional delivery, the property is transferred only if that condition is fulfilled. For example if M -the seller ,sends goods by courier to N -the buyer, the property is transferred as soon as the goods are handed over to the courier, but if there is a condition of Cash on Delivery (COD), the property passes only after N -the buyer pays the requisite Cash before collecting delivery of the goods.
7. Where **goods are sent on Approval or on Sale or Return Basis**, the property in the goods is transferred only - I ) when the buyer informs his approval or acceptance of the goods ; II ) In another case, if the buyer does not intimate his approval or acceptance of the goods, or his rejection of the same, but still retains those goods, the property passes after expiry of a reasonable time.

As long as the property in the goods is not transferred to the buyer, the goods remain at the risk of the seller. After the ownership passes to the buyer, the goods are at the Buyer's Risk, since Risk follows ownership.

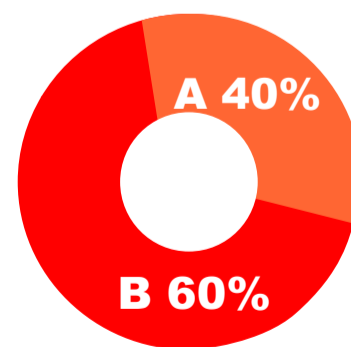


PAPER: 4

# FUNDAMENTALS OF BUSINESS MATHEMATICS AND STATISTICS (FBMS)

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## Your Preparation Quick Takes



### Syllabus Structure

A Fundamentals of Business Mathematics 40%

B Fundamentals of Business Statistic 60%

## Learning Objectives:

- To understand the basic concepts and needs of Business Mathematics.
- To Know the reasonableness and explanation in calculation.
- To know the application of various mathematical techniques.

## BUSINESS MATHEMATICS AND STATISTICS

In this issue we will discuss some conventional problems on Dispersion as recapitulation.

Q1. Calculate the mean and standard deviation from the following data:

Value	Frequency
90-99	2
80-89	12
70-79	22
60-69	20
50-59	14
40-49	4
30-39	1

Answer:

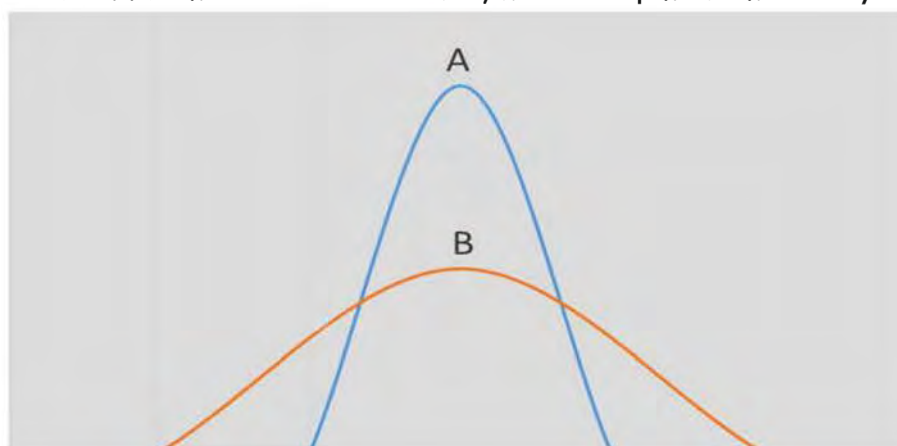
Class Limit	Class boundary	Mid value (m)	$d' = \frac{x - 64.5}{10}$	f	fd'	df <sup>2</sup>
90-99	89.5-99.5	94.5	3	2	6	18
80-89	79.5-89.5	84.5	2	12	24	48
70-79	69.5-79.5	74.5	1	22	22	22
60-69	59.5-69.5	64.5	0	20	0	0
50-59	49.5-59.5	54.5	-1	14	-14	14
40-49	39.5-49.5	44.5	-2	4	-8	16
30-39	29.5-39.5	34.5	-3	1	-3	9
Total				75	27	127

In the above computation  $A = \text{Assumed Mean} = 64.5$ ,  $h = 10$

$$\sigma = \sqrt{\frac{\sum fd^2}{N} - \left(\frac{\sum fd'}{N}\right)^2} \times h = \sqrt{\frac{127}{75} - \left(\frac{27}{75}\right)^2} \times 10 = \sqrt{1.6933 - 0.1296} \times 10 = 12.505$$

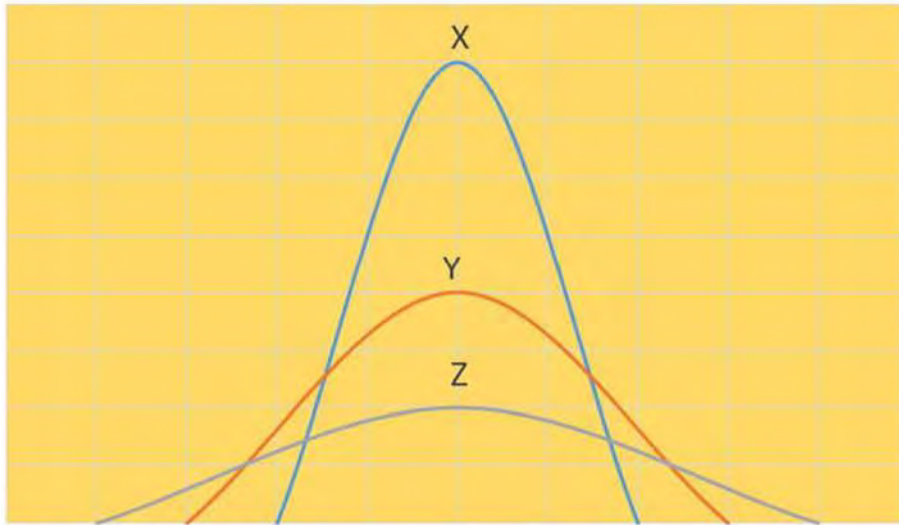
$$\bar{X} = A + \frac{\sum fd'}{N} \times h = 64.5 + \frac{27}{75} \times 10 = 68.1$$

Q2. A firm using two different methods to ship orders to its customers found the following distributions of delivery time for the two methods, based on past records. From available evidence, which shipment method you recommend?



Answer: A is more preferable as B has wider fluctuation

Q3. Of the three curves shown below choose one that would best describe the distribution of values for the ages of the following groups: Members of parliament, newly elected Cabinet Ministers and Chairmen of major parliamentary committees. In making your choices, disregard the common mean of the curves and consider only the variability of the distributions. Briefly state your reasons for your choices.



Answer:

Members of parliament: more no of members, more variation in ages, represented by Z;

Newly elected Cabinet Ministers: less no of members, less variation in ages compared to members of parliament, represented by Y;

Chairmen of major parliamentary committees: less no of members compared to newly elected Cabinet Ministers so less variation in ages compared to 2<sup>nd</sup> group, represented by X;

Q4. For the following data, compute the a) Interquartile range; b) Quartile deviation;

97	72	87	57	39	81	70	84	93	79
84	81	65	97	75	72	84	46	94	77

Answer: First arrange the data in ascending order and divide the data in four equal parts as given in the following table:

First Fourth	Second Fourth	Third Fourth	Last Fourth
39	72	81	87
46	72	81	93
57	75	84	94
65	77	84	97
70	79	84	97

↑  
1<sup>st</sup> Quartile  $Q_1$

↑  
3<sup>rd</sup> Quartile  $Q_3$

- a) Interquartile range =  $Q_3 - Q_1 = 84 - 70$
- b) Interquartile deviation =  $Q - Q_{1451} = 722$

Q5. The following table shows the results of purity test on some compound.

Observed percent of impurity				
0.04	0.14	0.17	0.19	0.22
0.06	0.14	0.17	0.21	0.24
0.12	0.15	0.18	0.21	0.25

Compute the standard deviation

Answer:



$$\sigma^2 = \frac{\sum (x - \mu)^2}{N} = \frac{0.051}{15} = 0.0034 \text{ percentsquared or}$$

$$\sigma^2 = \frac{\sum x^2}{N} - \mu^2 = \frac{0.4643}{15} - (0.166)^2 = 0.0034 \text{ percent squared}$$

$$\sigma = \sqrt{\sigma^2} = \sqrt{0.0034} = 0.058\%$$

Detailed computations are as follows:

Sl. No.	Observation	Mean (2.49 / 15)	Deviation from mean	Deviation Squared	Observation Squared
1	0.04	0.166	-0.126	0.016	0.0016
2	0.06	0.166	-0.106	0.011	0.0036
3	0.12	0.166	-0.046	0.002	0.0144
4	0.14	0.166	-0.026	0.001	0.0196
5	0.14	0.166	-0.026	0.001	0.0196
6	0.15	0.166	-0.016	0.000	0.0225
7	0.17	0.166	0.004	0.000	0.0289
8	0.17	0.166	0.004	0.000	0.0289
9	0.18	0.166	0.014	0.000	0.0324
10	0.19	0.166	0.024	0.001	0.0361
11	0.21	0.166	0.044	0.002	0.0441
12	0.21	0.166	0.044	0.002	0.0441
13	0.22	0.166	0.054	0.003	0.0484
14	0.24	0.166	0.074	0.005	0.0576
15	0.25	0.166	0.084	0.007	0.0625
$\Sigma$	2.49			0.051	0.4643

Q6. The analysis of the results of a budget survey of 150 families gave an average monthly expenditure of Rs.120 on food items with a standard deviation of Rs.15. After the analysis was completed it was noted that figure recorded for one household was wrongly taken as Rs.15 instead of Rs.105. Determine the correct value of the average expenditure and its standard deviation.

Ans: We are given  $n = 150$ ,  $\bar{X} = 120$  and  $\sigma = 15$

Wrong value used = 15 and correct value = 105

$$\text{Now } \bar{X} = \frac{\sum X}{n} \text{ or } 120 = \frac{\sum X}{150}$$

So that  $\sum X = 120 \times 150 = 18000$

Corrected  $\sum X = 18000 - 15 + 105 = 18090$

$$\text{Moreover } \sigma^2 = \frac{\sum X^2}{n} - \left(\frac{\sum X}{n}\right)^2$$

$$\text{Or, } (15)^2 = \frac{\sum X^2}{150} - (120)^2$$

So  $\sum X^2 = 2193750$

Therefore Corrected  $\sum X^2 = 2193750 - 15^2 + 105^2 = 2204550$

So Corrected Mean =  $\frac{18090}{150} = 120.6$

$$\text{Corrected Variance } = \sigma^2 = \frac{\sum X^2}{n} - \left(\frac{\sum X}{n}\right)^2 = \frac{2204550}{150} - (120.6)^2 = 152.64$$

So  $\sigma = \sqrt{152.64} = 12.35$

Q7. The mean and standard deviation of a sample of size 10 were found to be 9.5 and 2.5 respectively. Later on an additional

observation became available. This was 15 and was included in the original sample. Find out the mean and standard deviation of the 11 observations.

Answer: Let us suppose that the 10 old observations constitute Group-I and the only additional observation forms another group Group-II. Since the mean of one observation is the value of the observation itself and its standard deviation is always zero, hence we have  $n_1 = 10, n_2 = 1$  &

$$\sigma_1 = 2.5, \sigma_2 = 0, \bar{X}_1 = 9.5 \text{ \& } \bar{X}_2 = 15$$

The values are shown in the following table:

Characteristics	Groups		Combined Group
	Group I	Group II	
No of observations	$n_1 = 10$	$n_2 = 1$	11
Mean	$\bar{X}_1 = 9.5$	$\bar{X}_2 = 15$	$\bar{X}_{12} = ?$
S.D.	$\sigma_1 = 2.5$	$\sigma_2 = 0$	$\sigma_{12} = ?$

The mean of combined group =

$$\bar{X}_{12} = \frac{n_1 \bar{X}_1 + n_2 \bar{X}_2}{n_1 + n_2} = \frac{10 \times 9.5 + 1 \times 15}{10 + 1} = 10$$

Again the standard deviation of the combined group is

$$\sigma_{12} = \sqrt{\frac{(n_1 \sigma_1^2 + n_2 \sigma_2^2) + (n_1 d_1^2 + n_2 d_2^2)}{n_1 + n_2}}$$

$$\text{Where } d_1 = \bar{X}_1 - \bar{X}_{12} \text{ \& } d_2 = \bar{X}_2 - \bar{X}_{12}$$

$$\text{So } \sigma_{12} = \sqrt{\frac{(10 \times 2.5^2 + 1 \times 0) + 10 \times (9.5 - 10)^2 + 1 \times (15 - 10)^2}{10 + 1}} = 2.86$$

Q8. Calculate standard deviation from the following set of observations

8	9	15	23	5	11	19	8	10	12
---	---	----	----	---	----	----	---	----	----

Answer: These are ungrouped data. For these sort of data standard deviation is computed by the following formula - Direct method:

$$\sigma = \sqrt{\frac{\sum (X - \bar{X})^2}{n}}, \text{ where } \bar{X} \text{ is the arithmetic mean, } n \text{ number of items.....(A)}$$

$$\text{Or, } \sigma = \sqrt{\frac{\sum X^2}{n} - \left(\frac{\sum X}{n}\right)^2} \text{ .....(B)}$$

The detail computation as per formula (A) and (B) are given in the following tables

	Values X	Deviation $X - \bar{X}$	Deviation Squared $X^2$
	8	-4	16
	9	-3	9
	15	3	9
	23	11	121
	5	-7	49
	11	-1	1
	19	7	49
	8	-4	16

	10	-2	4
	12	0	0
Total	120		274
$\bar{X}$	12		

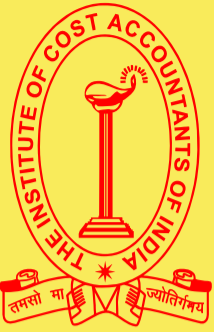
$$S_{00} = \sqrt{\frac{274}{10}} = 5.23$$

	Values (X)	Square of Values (X <sup>2</sup> )
	8	64
	9	81
	15	225
	23	529
	5	25
	11	121
	19	361
	8	64
	10	100
	12	144
Total	120	1714

$$S_{00} = \sqrt{\frac{\sum X^2}{n} - \left(\frac{\sum X}{n}\right)^2} = \sqrt{\frac{1714}{10} - \left(\frac{120}{10}\right)^2} = 5.23$$

**Suggestions:**

The study guide needs to be read thoroughly. Supplementary readings could be made from other resources. This issue is based totally on formulae taught in study guide issued by the institute and on recapitulation of some older problems. Standard books could be referred for additional expertise to attend conventional questions. Detailed discussions on different formulas are not done here to avoid repetition. 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.



# 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, Attend Webinar sessions**

**Solve Exercises given in Study Note**

02

03

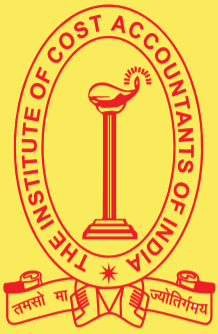
**Assess Yourself**

**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.

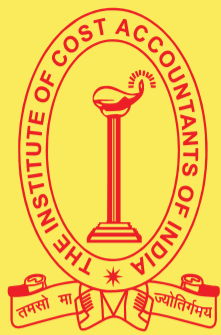
Please put your opinions so that we can make your e-bulletin everything that you want it to be.

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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,

We from the Directorate of studies know your expectations from us and accordingly we are trying to deliver 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 Books, MCQs and we have conducted Webinar sessions.

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 link mentioned below :

<https://icmai.in/studentswebsite/>

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

**You can win!**

**GOOD LUCK**

**Be Prepared and Get Success;**

**Disclaimer:**

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# Few Snapshots



CMA Biswarup Basu, President, CMA Balwinder Singh, Immediate Past President and CMA Chittaranjan Chattopadhyay, Chairman BFSI Committee & Indirect Taxation Committee of the Institute extending greetings to Shri Anurag Singh Thakur, Hon'ble Union Minister of State for Finance and Corporate Affairs on 30th December 2020.



Release of "Aide Memoire on Lending to Micro Small and Medium Enterprises Sector" (including restructuring of MSME credits) at the hands of Shri Anurag Singh Thakur, Hon'ble Union Minister of State for Finance and Corporate Affairs on 30th December 2020.



Presented copy of Inaugural Volume of CMA Agri Bulletin to Hon'ble Minister of State for Finance and Corporate Affairs Shri Anurag Singh Thakur on 30th December 2020.

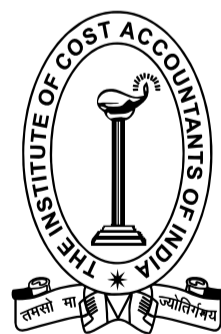


CMA Biswarup Basu, President, CMA P.Raju Iyer, Vice-President of the Institute extending greetings to Shri Manoj Pandey, Joint Secretary to the Government of India, Ministry of Corporate Affairs on 21st September 2020.



CS Ashish Garg, President, ICSI along with CS Manish Gupta, Council Member, ICSI and CS Asish Mohan, Secretary, ICSI visited Delhi office of the Institute to meet CMA Biswarup Basu, President, CMA P Raju Iyer, Vice President and CMA Balwinder Singh, Immediate Past President of the Institute.





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