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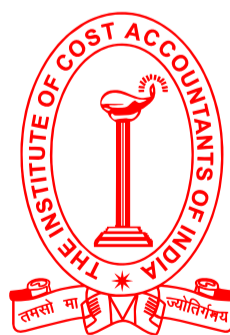
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# KNOWLEDGE Update



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.



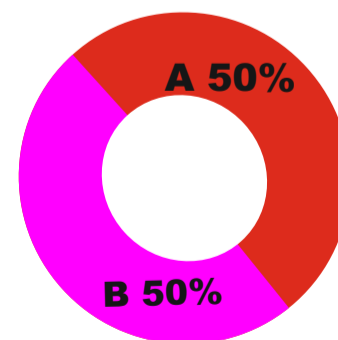
PAPER: 1, PART: I

# 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!!! Hope you are all hale and hearty and doing well with your studies. But beware of Omicron, the new devil after covid, which is the newest variant of corona virus, mesmerizing by doing havoc in the entire Europe. Britain, Germany, France, Austria - all are reeling under Omicron attack. In India, Delta variant covid positive cases are on the rise. If Omicron joins hand at this stage, the result will be pathetic. As in India, the medical facility is extremely poor compared to the huge population, the onset of the pandemic of Omicron will lead to a disaster. So friends, be very very careful. Always use mask whenever you go out. Maintain safe distance from crowd. Use sanitizer frequently to wash both the hands. Remember, health comes first, next comes education. So stay safe if you want to excel in studies. Let us start our usual mock test.

**I. Choose the correct answer:**

- 1. Who was the proponent of welfare definition of economics?**
  - A. Keynes
  - B. Pigou
  - C. Marshall
  - D. Samuelson
- 2. Who introduced Multiplier theory of Investment?**
  - A. Samuelson
  - B. Keynes
  - C. Mill
  - D. Marshall
- 3. Suppose the demand function is given as  $D_x = 100 - 8.P_x$ . What will be the market demand if the market price is Rs.5?**
  - A. 60
  - B. 40
  - C. 80
  - D. None of the above
- 4. Suppose the market demand curve is  $D = 100 - 2P$  and the market supply curve is  $S = 10P + 28$ . Find out the equilibrium Price in that market**
  - A. Rs. 4
  - B. Rs. 5
  - C. Rs. 6
  - D. Rs. 7
- 5. Suppose the demand curve is  $P = 60 - 2Q$ . If this is a free good, then find out how much will be produced.**
  - A. 60
  - B. 50
  - C. 40
  - D. 30
- 6. Suppose the cost function of a seller is  $C = q^2 + 8q + 2$ , find out the total fixed cost(TFC)**
  - A. 8
  - B. 2
  - C. 4
  - D. 1
- 7. In question no. 6 from the cost function, find out the total variable cost (TVC) when the output level is 5 units**
  - A. 65

- B. 67  
C. 40  
D. 25

8. In question no. 6 from the cost function, find out the total cost (TC) when output level is 10 units

- A. 100  
B. 80  
C. 182  
D. None of the above

9. The cost function in question no. 6, belongs to

- A. Very long run  
B. Long run  
C. Short run  
D. None of the above

10. Profit maximizing situation demands that

- A.  $MC=MR$   
B.  $AC=MR$   
C.  $MC=AR$   
D. None of the above

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

II. Fill in the blanks:

- Increasing returns to scale means when we double the inputs, the output will be ..... than double
- OPEC countries form a cartel to maximize ..... profits
- The purchasing power of money is called ..... of money
- How much foreign currency can be obtained in exchange of a unit of home currency is called ..... value
- Trade unions ..... the cost of production by demanding an increase in the wage rate

KEY: 1. More, 2. Joint, 3. Value, 4. External Exchange, 5. Increase

III. True or False:

- Public expenditure comes under monetary policy
- Excise duty is an indirect tax
- Money market refers to institutional arrangements which deal with short term funds
- Through Monetary policy, Govt. controls the purchasing power of money
- If the country is passing through recession, the RBI would buy bonds

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

IV. Matching :

1. Capital	A. necessary good
2. Rent for the use of own land	B. SDR
3. Inelastic demand	C. Input
4. IMF	D. Marshall
5. Law of diminishing MU	E. Implicit cost

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

So guys, hope you have enjoyed solving the problems in this mock test. We have tried to include some non-conventional problems based on mathematics. If you can solve these problems at ease, you will have a robust knowledge on the concepts of economics. However, you have to flex the muscles of your brain a bit. Wish you all the best for your preparation in the New Year!!



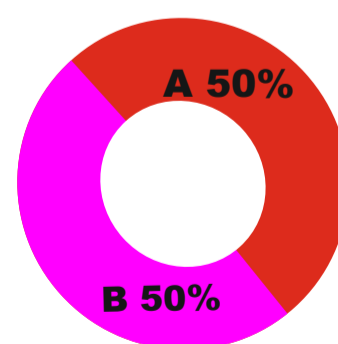
PAPER: 1, PART: II

# 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

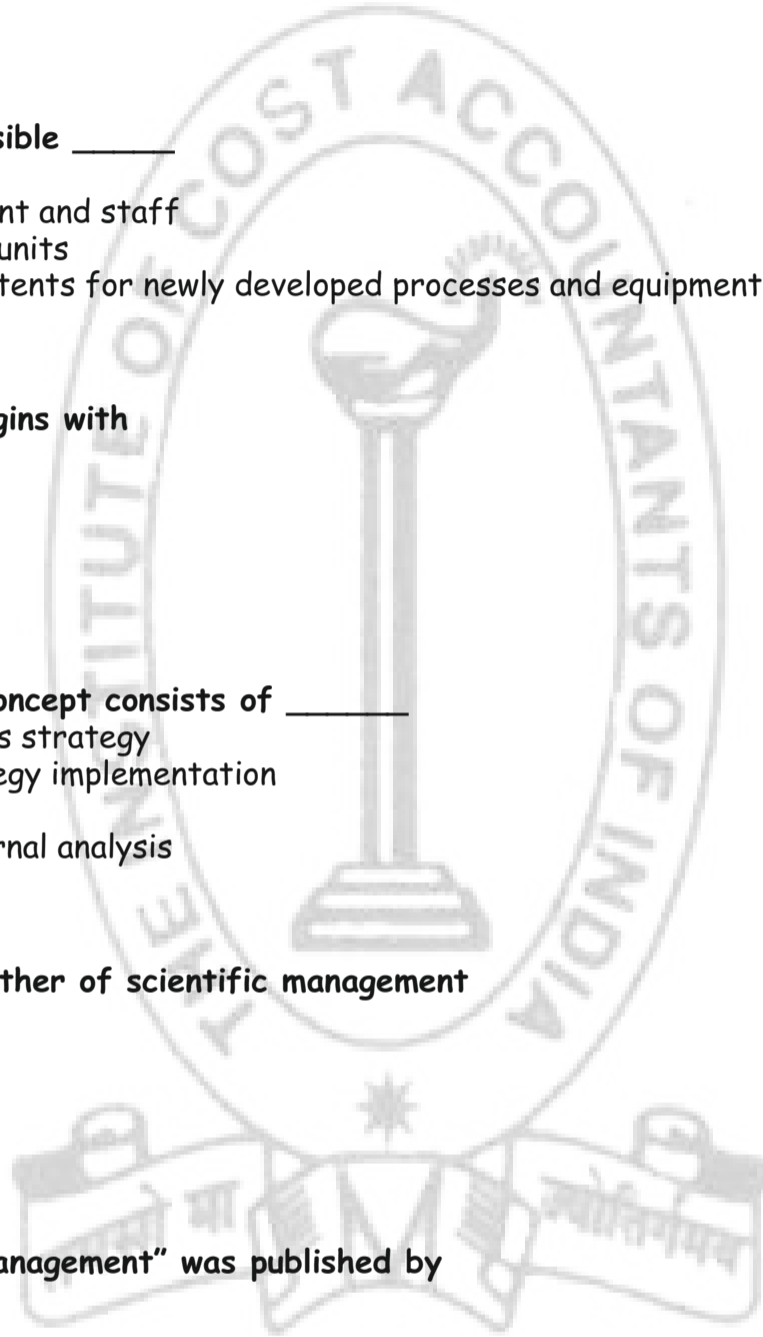
**MANAGEMENT**

1. Management functions include \_\_\_\_\_  
A. planning & organizing  
B. directing  
C. controlling  
D. All of the above  
**Answer: D**
2. Management skills applies to managers at \_\_\_\_\_  
A. Middle levels in an organization  
B. Top levels in an organization  
C. Executive levels in an organization  
D. All levels in an organization  
**Answer: D**
3. \_\_\_\_\_ is about grouping of jobs  
A. Organizing  
B. Directing  
C. Planning  
D. Controlling  
**Answer: A**
4. Managerial skills involve \_\_\_\_\_  
A. Technical skills  
B. Human skills  
C. Conceptual skills  
D. All of the above  
**Answer: D**
5. Management satisfies \_\_\_\_\_ characteristics of a profession  
A. Few  
B. Many  
C. All  
D. Zero  
**Answer: C**
6. \_\_\_\_\_ represents the lower level management covering execution and implementation functions.  
A. Administrative Management  
B. Operative management  
C. Co-operative management  
D. All of the above  
**Answer: B**
7. \_\_\_\_\_ is the important interpersonal role of manager  
A. Leader role  
B. Liaison role  
C. Figurehead role  
D. All of the above  
**Answer: D**
8. Which is NOT an informational role of manager?  
A. Monitor's role  
B. Disturbance's handler role  
C. Disseminator's role  
D. spokesman's role  
**Answer: B**





9. MOST stands for \_\_\_\_\_  
A. Machinery, Office, Staff and Technology  
B. Mission, Objectives, Strategies and Tactics  
C. Maximum Output Strategy Tools  
D. Manager, Operator, Seller and Trader  
**Answer: B**
10. Management \_\_\_\_\_ in order to achieve the goals  
A. Registers trademark  
B. Develops tactics  
C. Formulates strategies  
D. Outsources operations  
**Answer: C**
11. Functional managers are responsible \_\_\_\_\_  
A. For a single area of activity  
B. To the upper level of management and staff  
C. For complex organizational sub-units  
D. For obtaining copyrights and patents for newly developed processes and equipment  
**Answer: A**
12. The problem-solving process begins with  
A. Clarification of the situation  
B. Establishment of alternatives  
C. Identification of the difficulty  
D. Isolation of the cause  
**Answer: C**
13. Strategic planning as a broad concept consists of \_\_\_\_\_  
A. Corporate strategy and business strategy  
B. Strategy formulation and strategy implementation  
C. Inputs and outputs  
D. Environmental analysis and internal analysis  
**Answer: B**
14. \_\_\_\_\_ is called as father of scientific management  
A. Elton Mayo  
B. Hendry Fayol  
C. F. W. Taylor  
D. Robert Owen  
**Answer: C**
15. The book "The Psychology of management" was published by  
A. William Gilbreth  
B. Hendry Fayol  
C. F. W. Taylor  
D. Robert Owen  
**Answer: A**



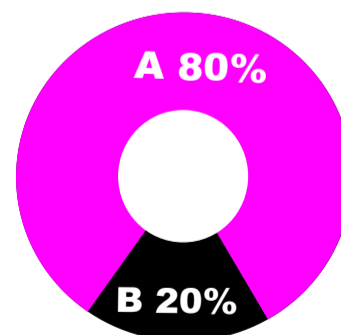


PAPER: 2

# 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 OF ACCOUNTING**

"You are never too old to set another goal or to dream a new dream." -C.S. Lewis

Life is such. Its dynamic. Life never teaches us to put a halt. In this new year let us cheer again with new dreams and hopes to fulfil- come whatever may. When you will read this paper your foundation examination will be over. However, this may help you to revive to rethink to reconstruct. Wish you all the best.

Classify the following expenses items in their respective groups, such as Production; Administrative; Selling and Distribution and costs excluded from Cost Accounts:

1. Fuel and Power; - production cost
  2. Office Salaries; - Administration cost
  3. Foreman's Wages; - Production cost
  4. Drawing Office Expenses; - Administration cost
  5. Depreciation of Plant; - Factory cost
  6. Donations; - Administration cost/ Selling cost
  7. Bank Charges; - finance cost
  8. Holiday and Leave pay of Workers; - Factory cost
  9. Market Research Expenses; - Selling cost
  10. Dividend Paid; -Finance cost
  11. Technical Director's Fees; - administration cost
  12. Wages of Idle Time; - factory cost
  13. Cash Discount Allowed; - Finance cost
  14. Stores Expenses; - Prime cost
  15. Carriage Outwards. - Selling Cost
16. The works cost plus administration expenses represents
- (A) Total cost
  - (B) **Cost of production**
  - (C) Cost of sales
  - (D) Factory cost
17. Joint venture account is of the nature of
- (A) Personal account
  - (B) **Nominal account**
  - (C) Real account
  - (D) Suspense account
18. The Mathematical Expression defining the comparative relationship between Assets and Liabilities of any person, institution or Business concern is called-
- (a) Accounting
  - (b) **Accounting Equation**
  - (c) Book-keeping
  - (d) None of these.



19. The entry which is passed for bringing forward the balances of personal and Real Account as shown in the last year's balance sheet is called -

- (a) Closing entry  
(b) Journal entry  
(c) Opening entry  
(d) None of these.

20. Match the following table

1.Salary account	a)Artificial personal account
2.Drawings account	b) Representative personal account
3.Furniture account	c) Personal account
4.Income received in advance	d) Real account
5. Modern Academy	e) Nominal account

1. e 2. C 3. D 4. B 5. A

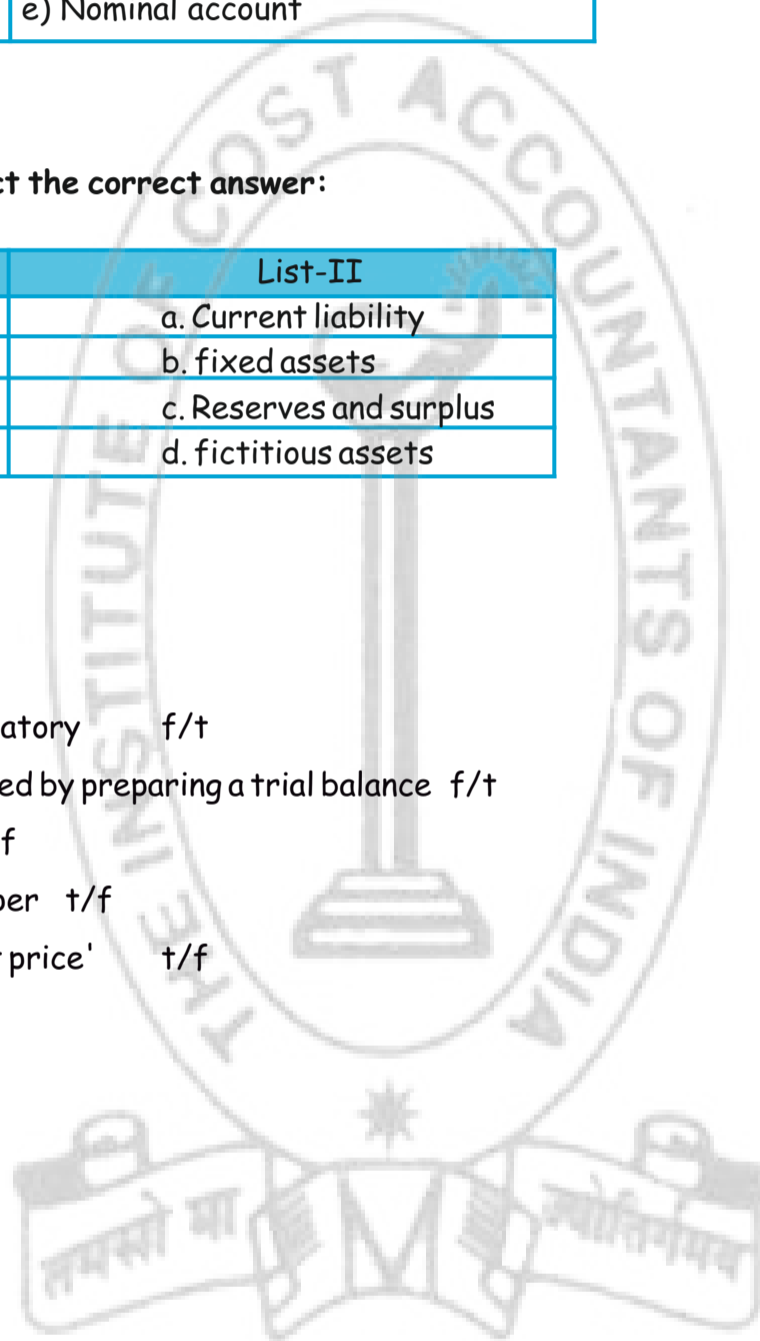
21. Match List I with List II and select the correct answer:

List-I	List-II
a. Goodwill	a. Current liability
b. Overdraft	b. fixed assets
c. Preliminary expenses	c. Reserves and surplus
d. Premium on issue of Shares	d. fictitious assets

[a-b, b-a, c-d, d-c.]

22. Write true or false:

- A. Preparation of trial balance is mandatory f/t  
 B. Error of omission can easily be traced by preparing a trial balance f/t  
 C. Patent is a non-current asset t/f  
 D. Bad debt is recorded in journal proper t/f  
 E. Trade discount is calculated on 'list price' t/f



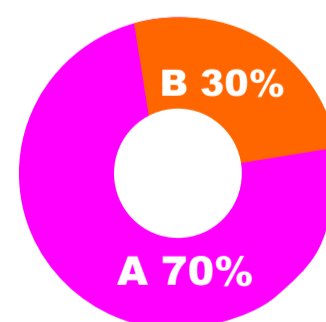


PAPER: 3

# 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**

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.*

Let us recapitulate something we read earlier in The Indian Contracts Act, 1872 :

**Performance of Contracts**

One obvious question that immediately come to mind is - **By whom is a contract to be performed?** Here many things are to be considered - 1. There may be cases where the promisor himself has to perform the contract. Such cases involve personal skill, individual taste and specialization etc. of the promisor. The parties to the contract must expressly state about their intentions in the contract or otherwise convey their intentions as per the circumstances in the case. In all other cases, the promisor or his representative may perform as per the terms of the contract. Let us understand easily with the help of some examples: Tom promises to paint a picture for Jerry. In this case, Tom must paint the picture himself. On the other hand, if Tom promises to pay Rs.5000 to Jerry, he (Tom) can either personally pay Rs.5000 to Jerry or arrange payment of Rs.5000 through another person. It must be kept in mind that if the promisee accepts performance by a Third Party, he cannot later on insist on its performance by the promisor only. Another important point to be kept in mind is that, contracts involving personal skills, comes to an end if the promisor dies, since such contracts cannot be performed by the heirs or the legal representatives of the deceased promisor. Therefore, all other contracts not involving personal skills of the promisor, are bound to be performed by the heirs or the legal representatives of the deceased promisor. The heirs or the legal representatives are not individually liable as their liability is restricted to the assets obtained from the deceased. Let's take an example. Tom promises to deliver some goods to Jerry before 15<sup>th</sup> May, 2018 against payment of Rs.10,000. Tom dies on 1<sup>st</sup> May, 2015 but his representative delivers the goods before 15<sup>th</sup> May, 2018. Jerry is bound to pay Rs.10,000 to Tom's representative.

**Discharge of Contracts**

Let us now understand **Termination or discharge of contracts**. Simply remember that when the obligation stated under a contract comes to an end, that contract is said to be terminated or discharged. Therefore, the next question that comes to mind is - **In what ways can a contract be terminated or discharged?** The following is the answer -

1. When the party to the contract, performs his promise that is called **Termination by Performance**.
2. If there is impossibility of performance, such contract can be terminated on grounds of impossibility. Suppose a singer enters into a contract to sing at a Concert against payment of a fixed amount in advance and if the singer's voice gets choked and singing is not possible, the contract can be terminated due to **Impossibility of Performance**.
3. If there is a **Breach of Contract**. Here one party to the contract fails to meet his obligations under the contract. Here breach can be immaterial but still material. For example, you placed an online order to buy a shirt and the delivery was supposed to be on 23<sup>rd</sup> January, 2018 but it was delivered on 24<sup>th</sup> January, 2014. The delay is immaterial, but suppose there was an online order for Print Cartridges by a Printing factory and the urgency was intimated to the supplier, yet the delivery was delayed and caused loss of business there is definitely a Material Breach of Contract.
4. **Prior Agreement** - Contract can be terminated if the other party has a prior written agreement which calls for termination because of "Specific Reasons" and the grounds for termination must be specified. In such cases, one party must submit notice of termination in writing to the other party.
5. By **Rescission** of a contract, where the contract is terminated or cancelled because an individual - misrepresented, acted illegally or made a mistake. A contract Rescission may also take place if one party is not old enough to enter into a contract or if the party is an elderly person and too old and incapacitated to take legal decisions and enter into a contract.
6. **Lapse of time** - where the contract is not performed within a fixed or reasonable time, the contract stands discharged. Supposing A enters into a contract in February, 2018 to coach B for the CMA Intermediate Examination to be held in June, 2018, and accepts an advance payment. The contract stands discharged after the June, 2018 Examination is over.
7. **Discharge of a contract by operation of law** - can be due to Death, Insolvency, Unauthorized material alteration of the terms of

contract or where merger of inferior rights takes place due to superior rights laid under a new contract.

8. On **Completion of a contract**, once all the obligations stated in the contract are fulfilled and completed and the contract is terminated and/or discharged. However, there must be enough evidence to place before the Court of Law to prove satisfactory completion of all obligations, in the event of any dispute by the other party.

### Breach of Contract

Let us recapitulate - all agreements between two or more parties, to do or not to do something, that are enforceable by law are contracts. All agreements are promises to do or provide something. If the promise is broken, there is a Breach of Contract. It may include -

- I. Failure to deliver goods and or services ;
- II. Failure to complete a job ;
- III. Failure to pay on time ;
- IV. Supply of goods and/or services, that do not confirm to the agreement.
- V. The promisor repudiates his liability under the contract before the time of performance of the contract becomes due or if the promisor, by his own deeds disables himself from performing. This is called Anticipatory Breach of Contract. Actual Breach of Contract occurs when the promisor actually fails to perform or refuses to perform during the performance of the contract. Example : Tom agrees to deliver 100 Bags of Cement on 15<sup>th</sup> May, 2018 to Jerry for Rs.15,000. He fails to supply on 15<sup>th</sup> May, 2018. This is breach of contract.

### Remedies for Breach of Contract

After a Breach of Contract takes place, the aggrieved party also called the Injured party, becomes entitled to the following reliefs :

1. The injured party is freed from all obligations under the contract. Example : Tom agrees to deliver 100 Bags of Cement on 15<sup>th</sup> May, 2018 to Jerry for Rs.15,000. He fails to supply on 15<sup>th</sup> May, 2018. This is breach of contract, therefore there is Rescission of the contract and Jerry need not pay the price.
2. The aggrieved party or the Injured party can file a suit for damages and receive compensation for any loss or damage caused due to the breach of contract.
3. If a contract is partly completed, the aggrieved party can file a suit for the price of the services performed before the breach of contract.
4. In special circumstances, the court can direct a party to perform the contract as per the agreed terms.
5. The Court can even pass an order upon a party, prohibiting him from doing anything that amounts to Breach of Contract.

Let us revise something more about Ethics -

**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.

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.





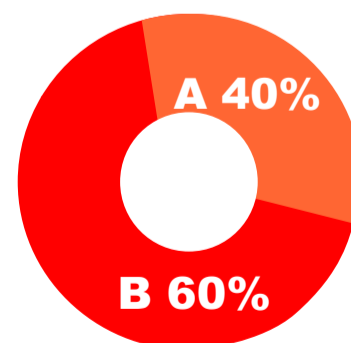


PAPER: 4

# 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

Q1. Which one of the following is correct?

- (a) Correlation Coefficient is a figure which determines the closeness of the relationship between a variable and its mean  
 (b) Correlation Coefficient is a figure which determines the closeness of the relationship between two or more than two variables  
 (c) Correlation Coefficient is a figure which determines the closeness of the relationship between a variable and its central tendencies  
 (d) Correlation Coefficient is a figure which determines the direction of fluctuation of a variable under statistical experiment

Q2. For a group of 10 items,  $\Sigma X = 452$ ,  $\Sigma X^2 = 24270$ , and Mode = 43.7; Find the Pearson's coefficient of Skewness

$$\text{Ans: Mean } (\bar{X}) = \frac{\Sigma X}{n} = \frac{452}{10} = 45.2$$

$$\text{S.D. } (\sigma) = \sqrt{\frac{\Sigma X^2}{n} - \left(\frac{\Sigma X}{n}\right)^2} = \sqrt{\frac{24270}{10} - (45.2)^2} = 19.59$$

Pearson's coefficient of skewness:

$$Sk = \frac{\text{Mean} - \text{Mode}}{\text{Standard Deviation}} = \frac{45.2 - 43.7}{19.59} = 0.08$$

Q3. 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

↑  
First Quartile  $Q_1$

↑  
Third Quartile  $Q_3$

a) Interquartile range =  $Q_3 - Q_1 = 84 - 70 = 14$

b) Interquartile deviation =  $\frac{Q_3 - Q_1}{2} = \frac{14}{2} = 7$

Q4. In a recent meeting of union members supporting Mr X for union president, X's leading supporter said "chances are good" that X will defeat the single opponent facing him in the election

- a) What are the events that could take place with regard to the election?  
 b) Is your list collectively exhaustive? Are the events in your list mutually exclusive?  
 c) Disregarding the supporter's comments and knowing no additional information, what probabilities would you assign to each of your events?

Ans: Outcomes are: (1) Mr X win, (2) Mr X lost, (3) Mr X and his opponent each get same no of votes;  
 b) List above is collectively exhaustive and events are mutually exclusive;

c) Probability of each event is  $1/3$

Q5. The personnel department of a company has records which show the following analysis of its 200 female engineers:

Age	Bachelor's degree only	Master's Degree	Total
Under 30	84	16	100
30 to 40	26	24	50
Over 40	40	10	50
Total	150	50	200

If one engineer is selected at random from the company, find

- The probability she has only a bachelor's degree;
- The probability she has a master's degree, given that she is over 40;
- The probability she is under 30, given that she has only a bachelor's degree;

Ans:

i) Let B is the event of getting an engineer with bachelor's degree only.

There are 150 engineers out of 200 total engineers who are holding bachelor's degree only.

$$\text{So, } P(B) = \frac{150}{200} = \frac{3}{4}$$

ii) This is a problem on conditional probability under statistical dependence

Let M is the event of getting an engineer with a master's degree and F is the event of getting an engineer over forty.

So we have to find

$$P\left(\frac{M}{F}\right) = \frac{P(MF)}{P(F)}$$

$$\text{we know that } P(F) = \frac{50}{200} \text{ \& } P(MF) = \frac{10}{200}$$

$$\text{So, } P\left(\frac{M}{F}\right) = \frac{\frac{10}{200}}{\frac{50}{200}} = 0.2$$

iii) This is also a problem on conditional probability under statistical dependence

Let B is the event of getting an engineer with a bachelor's degree and T is the event of getting an engineer under thirty.

So we have to find

$$P\left(\frac{T}{B}\right) = \frac{P(TB)}{P(B)}$$

$$\text{we know that } P(B) = \frac{150}{200} \text{ \& } P(TB) = \frac{84}{200}$$

$$\text{So, } P\left(\frac{T}{B}\right) = \frac{\frac{84}{200}}{\frac{150}{200}} = 0.56$$

Q6. Facet of Statistics namely computing the chance that something will occur in the future is called

- Statistical probability
- Statistical Interpretation
- Statistical Inference
- Statistical measurement

Q7. Consider the following observation:

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

The Karl Pearson's Coefficient of correlation of this set of observations is - 0.92

Multiply each value of X with 2 and add 6. Multiply each value of Y with 3 and subtract 15. The Karl Pearson's Coefficient of correlation of the new set of observation thus obtained is

- 0

- (b) 0.92  
(c) -0.871  
(d) -0.92

Q8. The pass result of 50 students who took up a class test is given below:

Marks	4	5	6	7	8	9
No of Students	8	10	9	6	4	3

If the average marks for all the fifty students were 5.16, the average mark of the student who failed is

- (a) 0.42;  
(b) 3.06;  
(c) 4.74;  
(d) 2.1;

Q9. Mr S quality control manager of a manufacturing unit questions the reliability of the two quality control checks in the food processor manufacturing process. One check is performed by a worker who manually checks the processors and a second check is performed by a computer monitor. S knows that 5 percent time the worker is apt to miss a defective processor and that 2 percent of time the computer will malfunction and fail to detect defective processors.

- a) If S finds that the computer was malfunctioning what is the probability that the worker will have missed a defective processor?  
b) If S knows that the worker missed a defective processor what is the probability that it will be found that the computer had malfunctioned?  
c) What is the probability that the worker will miss a defective processor and the computer will malfunction at the same time?

Ans: Let A is the event that the worker will miss a defective processor;

B is the event that the computer has malfunctioned;

a)  $P(A)$  = marginal probability = 0.05;

b)  $P(B/A)$  = Conditional Probability under Statistically independent events =  $P(B)$  = 0.02;

c)  $P(AB)$  = Joint Probability under Statistically independent events =  $P(A) \times P(B)$  =  $0.05 \times 0.02$  = 0.001

Q10. When there are more than two variables and the relationship between any two of the variables is studied assuming other variables as constant it is a case of

- (a) Total Correlation  
(b) Linear Correlation  
(c) Partial Correlation  
(d) Simple Correlation

Q11. Which one of the following is not a property of Karl Perason's Coefficient?

- (a) Karl Perason's Coefficient of correlation measures both the direction as well as degree of change  
(b) Karl Perason's Coefficient of correlation is based on a suitable measure of variation as it takes into account all items of the variable  
(c) In case of accidental correlation the Karl Perason's Coefficient of correlation saves from taking fallacious conclusions  
(d) Karl Perason's coefficient of correlation does not prove causation but it is simply a measure of co-variation

Q12. Calculate the population variance for the following set grouped data:

Class	0-199	200-399	400-599	600-799	800-999
Frequency	8	13	20	12	7

Ans:

We know that population variance is computed as  $\sigma^2 = \frac{\sum f(x - \mu)^2}{N} = \frac{\sum fx^2}{N} - \mu^2$

Class	Class		Mean	Mean			$f(x - \mu)^2$	$f(x - \mu)^2$
	Class	Mark (x)		Frequency (f)	$(f) * (x)$	$\mu$		
0-199	99.5	8	796	489.5	-390	152100	1216800	
200-399	299.5	13	3893.5	489.5	-190	36100	469300	
400-599	499.5	20	9990	489.5	10	100	2000	
600-799	699.5	12	8394	489.5	210	44100	529200	
800-999	899.5	7	6296.5	489.5	410	168100	1176700	
Total		60	29370				3394000	

$$\text{So } \sigma^2 = \frac{\sum f(x - \mu)^2}{N} = \frac{3394000}{60} = 56566.67$$

**Q13.** Kolkata telephones is considering the distribution of funds for a campaign to increase long distance calls in the state. The following table lists the markets in the state that the company considers worthy of focused promotions:

Market Segment	Cost of Special Campaign aimed at group
A) Minorities	Rs.500000
B) Businesspeople	Rs.750000
C) Women	Rs.250000
D) Professionals	Rs.250000
E) Working Class	Rs.500000

There is up to Rs1 million available for these special campaigns.

- a) Are the market segments listed in the table collectively exhaustive? Are they mutually exclusive?  
 b) Make a collectively exhaustive and mutually exhaustive list of the possible events of the spending decision.  
 c) Suppose the company has decided to spend the entire Rs1 million on special campaigns. Does this change your answer to part (b)? If so what is your new answer?

Ans:

- a) The market segments listed in the table is collectively exhaustive. They are not mutually exclusive  
 b) A, B, C, D, E, AC, AD, AE, ACD, BC, BD, CD, CE, CDE, DE;  
 c) AE, ACD, BC, BD, CDE;

**Q14.** Scatter diagram is

- (a) A diagrammatic representations of a bivariate distribution  
 (b) A diagrammatic representations of a multivariate distribution  
 (c) A diagrammatic representations of a frequency distribution  
 (d) A diagrammatic representations of correlated variables

**Q15.** If in a scatter diagram the trend of the points is upward rising from bottom left to top right then

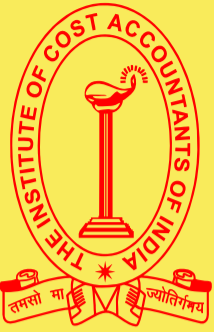
- (a) Correlation is +1  
 (b) Correlation is negative  
 (c) Correlation is - 1  
 (d) Correlation is positive

Answers to MCQ

Q1	Q6	Q7	Q8	Q10	Q11	Q14	Q15
b	c	d	d	c	c	a	d

Suggestions:

*This study note need 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. Students should try to understand the illustrations considered. This 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

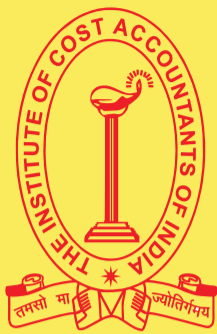
03

**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.

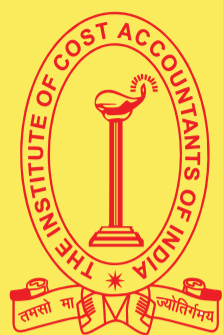
Please put your opinions so that we can make your e-bulletin everything that you want it to be.

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Send your Feedback to:  
e-mail: [studies.ebulletin@icmai.in](mailto:studies.ebulletin@icmai.in)  
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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,

On the occasion of **New Year 2022**, we, from the Directorate of Studies of the Institute of Cost Accountants of India, wishing you all A Happy, Healthy & Prosperous New Year, 2022. We wish you a year filled with the blessings of God and may the new year also bring you peace, joy, and happiness.

On this New Year, may you change your direction, change your commitments, change your attitude, and bring about a change in your faith, your force, and your focus. May you live up to the promises you have made and may you create for you and your loved ones the happiest New Year ever.

The current coronavirus (COVID-19) pandemic is having a profound impact, not only on people's health, but also on how they learn, work and live. We request to all our students to be very careful because your carefulness may save others life, in the society as well.

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. If you sincerely follow those tips, we hope, you will be successful in your endeavour.

To celebrate 75 years of independence and commemorate it as '**Azadi Ka Amrut Mahotsav**', India is celebrating, across the country and amid the coronavirus pandemic and also organizing various events. India's freedom fighters fought a long and hard struggle for the country's independence from the British and, for years, their words have inspired us. We hope that our students will also participate and pay their homage to the freedom fighters.

**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!**

**The Institute is pleased to inform that the University Grants Commission (UGC) Ministry of Education, Govt. of India has announced that CMA qualification be Considered equivalent to PG Degree.**

**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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# CMA LEADS

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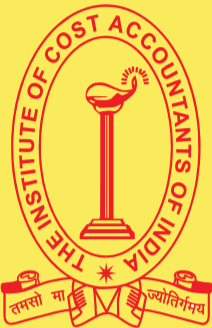
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# Few Snapshots



CMA P. Raju Iyer, President along with CMA Vijender Sharma, Vice President and CMA (Dr.) K Ch A V S N Murthy, Council Member of the Institute extending greetings to Shri Parmod Kumar Arora, Member (Actuary), Insurance Regulatory and Development Authority of India on 16th December, 2021.



CMA P. Raju Iyer, President along with CMA (Dr.) K Ch A V S N Murthy, Council Member of the Institute, CMA K Rajagopal, Chairman of SIRC, CMA S. Ramesh, Former Chairman of SIRC and CMA B.R. Prabhakar, Former Chairman of SIRC of the Institute extending greetings to Shri C.B. Ananthakrishnan, Director (Finance) & CFO of Hindustan Aeronautics Limited on 17th December, 2021.



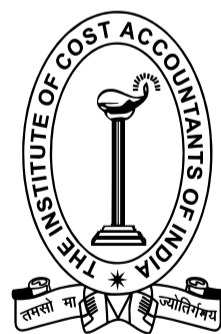
CMA P. Raju Iyer, President of the Institute extending greetings to Shri Arjun Ram Meghwal, Hon'ble Union Minister of State for Culture and Parliamentary Affairs on 27th December, 2021 during a courtesy meeting and to extend an invitation of the Hon'ble MoS for the Skill Development Program to be organised by the Institute in the month of January 2022.



CMA Neeraj Joshi, Chairman, MAC, CMA Dr. D.P.Nandy, Sr Director, CMA Chittaranjan Chattopadhyay, Chairman, BFSIB, Dr. Partha Ray, Director and Member Secretary, NIBM, Dr. Kaushik Mukherjee, Associate Professor, NIBM and Dr. Arindam Bandyopadhyay, Associate Professor (Finance)



CMA Chittaranjan Chattopadhyay, Chairman, BFSIB and CMA Debasish Mitra, Chairman, Board of Advanced Studies & Research of the Institute felicitating Dr. CKG Nair, Director, NISM alongwith other officials of the Institute and NISM.



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