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## The Institute of Cost Accountants of India

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## Knowledge Update

## KNOWLEDGE <br> 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.

## Fundamentals of Economics \& Management (FEM)

Amrit Mahotsav

PAPER: 1, PART: I

FUNDAMENTALS
OF ECONOMICS \& MANAGEMENT - (FEM) - ECONOMICS

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## Your Preparation Quick



## 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 behavior 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


## Economies

Hi friends! Hope you are enjoying your puja holidays. Particularly when the restrictions for the corona virus have been withdrawn by the Govt. Still, to be on the safe side, you must follow the minimum preventive measures like wearing masks whenever you negotiate a crowded area, use sanitizer whenever you touch a foreign surface or whenever you take food outside. Remember, the New Zealanders protested against the compulsory use of masks and sanitizers and they had to pay a price. Covid 19 spread out like wild fire in no time in New Zealand. Hope wisdom will prevail on you in this regard. Do enjoy your puja celebration but be cautious at the same time.

Let us start our usual exercise of mock test.
I. Choose the correct answer:

1. Regressive tax is one, the burden of which falls more on the
A. Rich class
B. Poor class
C. Middle class
D. Corporate sector
2. Scarcity of resources leads to

A. Dissatisfaction of human wants
B. Evaluation of alternative uses of scarce resources
C. Both (A) and (B)
D. None
3. Elasticity of demand is greater if goods are
A. Essential
B. Luxury
C. Inferior goods
D. Normal goods
4. Definition of economics given by Robbins deals with
A. Human behaviour
B. Utilization of resourcesde
C. All of the above
5. Disposable income is
A. Income minus tax liability
B. Income minus expenditure
C. Excess of expenses over income
D. Excess of income over expenditure
6. The constituents of money supply are
A. Rupee notes and coins with the public
B. Credit cards
C. Traveller's cheques
D. All of the above
7. Determinants of demand are
A. Price of the commodity
B. Income of the consumer
C. Price of related goods
D. All of the above
8. Under perfect competition the demand curve of a firm is
A. Horizontal
B. Vertical
C. Diagonal
D. Sloping downwards from left to right
9. Average cost during short period comprises of
A. Average fixed cost
B. Average variable cost
C. Both (A) and (B)
D. None of the above

## 10. Saving is defined as

A. Consumption minus income
B. Consumption plus income
C. Income minus consumption
D. Balance in the bank

KEY:

| $1 . \mathrm{B}$ | $2 . \mathrm{C}$ | $3 . \mathrm{B}$ | $4 . \mathrm{D}$ | $5 . \mathrm{A}$ | $6 . \mathrm{D}$ | $7 . \mathrm{D}$ | $8 . \mathrm{A}$ | $9 . \mathrm{C}$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

## II. Fill in the blanks:

1. Demand for money for precautionary motive has elasticity. $\qquad$ one
2. No close substitute is the feature of $\qquad$
3. Under perfect competition, all firms sell goods
4. Higher the cash reserve ratio,$\ldots \ldots \ldots \ldots \ldots$.............. the credit created.
5. Consumers' surplus and price are $\qquad$ related

## KEY:

| 1. Less than | 2. Monopoly | 3. Homogeneous | 4. Lower | 5. Inversely |
| :--- | :--- | :--- | :--- | :--- |

## III. True or False:

1. When too much money chases too few goods, it is called inflation.
2. Impact and incidence of an indirect tax fall on the same person.
3. Want satisfying power of a commodity is called its utility
4. Fiscal policy is formulated and implemented by the Central bank
5. Deficit financing denotes more spending by government through created money

KEY:


## KEY:

| 1. C | 2. A | 3. E | 4. B | 5. D |
| :---: | :---: | :---: | :---: | :---: |

So friends!! I hope you have enjoyed this mock test. I have given very easy problems for you, considering the Diwali celebration week that you have a couple of weeks ahead. Nevertheless, the problems will definitely extract the basic knowledge that you have acquired so far. Please try to go through the study material thoroughly. All the questions will be based on the study material only. Try to follow the logic behind all the theories. If you understand the basic logic, you are through. Best of luck!!

## Fundamentals of Economics \& Management (FEM)

PAPER: 1, PART: II

## FUNDAMENTALS

OF ECONOMICS \& MANAGEMENT - (FEM) - MANAGEMENT

## Your Preparation Quick <br> 

## 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. Which of the following is true about Principles of Management?
A. The principles of management are in a continuous process of evolution
B. The principles of management have evolved
C. The principles of management have not evolved
D. None of the above
2. The Principles of Management emphasize logical decision making and avoiding bias or prejudice at all costs. The above statement points out that knowledge of these principles help in $\qquad$
A. Scientific decision making
B. Providing managers with a valuable information
C. Meet the changing requirements of a business environment
D. All of the above
3. Which of the following describes the principle of harmony, not discord?
A. The management should properly investigate any task
B. The management should engage in scientific enquiry
C. The management should focus on observation and analysis
D. The management should share the gains or profits of a company with their workers
4. Which of the following is true about managers within an organization?
A. Management skills apply to managers at top levels in an organization
B. Management skills apply to managers at all levels in an organization
C. Management skills apply to managers at middle levels in an organization
D. Management skills apply to managers at executive levels in an organization
5. Henri Fayol is known as $\qquad$
A. The father of general management
B. The father of shop floor management
C. The father of scientific management
D. All of the above
6. Which of the following is the correct meaning of concentration of decision-making authority?
A. Span of management
B. Centralization
C. Decentralization
D. None of the above
7. Which of the following is the main objective of standardization within a business?
A. It helps to establish standards of excellence within a company
B. It helps to reduce products to fixed sizes, features or types
C. It helps to bring in more significant exchangeability of various parts
D. All of the above
8. Which of the following is the main reason for the existence of an organization?
A. The vision of an organization
B. The mission of an organization
C. The objectives of an organization
D. The Chief Executive Officer (CEO) of an organization
9. Coordination is $\qquad$
A. The essence of management.
B. An objective of management.
C. Social objective.
D. A management function.

$\qquad$
C. Four
D. One
10. The element that aims at integrating group efforts to achieve group objectives is called $\qquad$
A. Coordination
B. Management
C. Directing
D. Cooperation
11. Which one of the following is not important to management?
A. Developing society
B. Disciplining employees
C. Inculcating creativity
D. Integrating various interest groups
12. The element that aims at integrating group efforts to achieve group objectives is called $\qquad$
A. Coordination
B. Management
C. Directing
D. Cooperation
13. Which one of the following statements is not correct?
A. Management is a continuous process
B. Management is a dynamic process
C. Management is a rigid process
D. Management is a goal-oriented process

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| A | A | D | B | A | B | D | B | A | D | B | A | B | A |

## Fundamentals of Accounting (FOA)

Azadi Ka
Amrit Mahotsav

## PAPER: 2

FUNDAMENTALS OF ACCOUNTING (FOA)

## Your Preparation Quick



## 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

Hope you all are keeping well. Shuvo Vijoya to you all. Let this Dussehra or Bijoya becomes a real celebration of victory by killing all the demons. Kill also the demons which bubbling up inside your mind. Be confident on 'self and behave with maturity. Handle situations with more tolerance and tact. Be a true fighter - who never thinks to lose. Wish you all success and victory. Stay blessed.

Here is some practice material for you:
Let's concentrate on this now:

Select the best choice to complete each sentence or answer each question below.
(i) The profitability and solvency of a business should be measured.
(a) After each transaction;
(b) At the end of the accounting period;
(c) At the end of each month
(d) None of these
(ii) Sales are recognised as income:
(a) At the point of sale or at the performance of a service
(b) After the expiry of the credit period allowed to debtors
(c) After the money collected from the debtors
(d) None of these

(iii) The matching principle results from the
(a) Accounting period principle;
(b) Duality principle;
(c) Historical cost principle.
(d) None of these
(iv) The accounting standards are intended to apply only to items which are
(a) Material;
(b) Insignificant;
(c) Measured in terms of money.
(d) None of these
(v) Which of the following item should not be entered in the Receipts and Payments Account of a club?
(a) Sale of old newspaper
(b) Loss on sale of old furniture
(c) Subscription received in advance
(d) Expenses paid for the previous year

## KEY:



## State whether the following statements are True' or 'False':

1. Receipts and payments account is nothing but a consolidated summary of the cash book.
2. Receipts and payments account is a real account.
3. Income and expenditure account is a real account.
4. Entrance fees unless otherwise stated is to be taken as a capital receipt.
5. Donations unless otherwise stated is to be taken as a capital receipt.
6. Sale of old materials must be credited to capital fund in the balance sheet.
7. Income and expenditure relating to special funds should not be dealt with in the income and expenditure account.
8. Receipts and payments account is a summary of all capital receipts and payments.
9. Any subscriptions received in advance are treated as capital receipts and are therefore taken to the liabilities side of the balance sheet.
10. Payment of honorarium is treated as a capital expenditure.
(11) The 'entity concept' of accounting is not applicable to sole trading concerns and partnership concerns.
(12) The 'dual aspect' concept results in the accounting equation Capital + Liabilities $=$ Assets.
(13) Assets are to be shown in the balance sheet at the values realisable on liquidation.
(14) The convention of conservatism has usually the effect of overstating losses and undertaking the income.
(15) 'Money measurement' concept takes into account changes in the value of monetary unit.
(16) Accounting records are, to a great extent, affected by the personal judgment of the accountant.
(17) The principle of consistency is particularly valuable when alternative accounting method is equally acceptable.
(18) The balance sheet based on 'cost concept' is of no use to a potential investor.

| 1 | 2 | 3 | ${ }^{2}$ | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| True | True | False | False | True | False | True | False | False | False | False | True | False | True | False | True | True | True |



## Fundamentals of Laws and Ethics (FLE)

## PAPER: 3

FUNDAMENTALS OF LAWS AND ETHICS (FLE)

## Your Preparation Quick

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 and Ethics

Under the changed environment, where life is becoming unpredictable due to many factors, the future is uncertain but still life must go on. The examinations must ensure that the quality and standard of the professional examination is not compromised. Dear students, you have to initiate a Special Method of Preparation totally different from the essay type examination pattern. MCQ exams contain many more questions than essay exams. You can no longer resort to selective study based on past questions. You are expected to be studying in greater depth and gather more range of knowledge with no more chance to camouflage your ignorance .

Under the MCQ pattern, you will be given several questions first and then asked to answer among a set of options where there may be one or more wrong answers. You must try to lay emphasis on details and therefore keep studying regularly every day and make short notes and keep revising repeatedly until your brain can retain it for a long term. You must pay particular emphasis on getting your concept clear with sound fundamentals. You must learn to think logically in normal sequence and develop the knack to distinguish between similarities and differences which might be confusing, yet, be the basis used to distinguish correct choices from among the choices given with each question. Always remember that MCQ tests are designed to test your knowledge and ability.

Now, you will realize the importance of reading the Sections and definitions so that you understand what the Sections lays and/or what the definition means. You will notice that the question-setter will actually be rephrasing the words in the Section and/or definition and placing them before you as MCQs. Therefore, please study carefully because under the MCQ pattern you can fall prey to misleading options that will distract you as the options will look similar to the correct answer.

So, now please note the few suggestive Rules to be kept in mind for taking MCQ type exams :

1. Start a few deep breathing exercise before starting to read the entire question. Never read the answers before reading the question.
2. After reading the question, repeat the question mentally and find the correct answer .Now check whether your answer matches with any of the options given. Select the best answer.
3. In this manner keep answering the questions you know confidently. If you have doubts, simply mark (CROSS OUT) that question with a PENCIL and continue with the next question. DO NOT WASTE ANY TIME. Attempt to any these Crossed Out questions at the end.
4. In case you have confusion with words, in the options given, try to find your own logic. Answers that seem logical are generally ultimately incorrect. If your mind prompts you with a logical alternative, that means that, that word is just to misguide you. Therefore, that option is not correct.
5. Please remember that when you are given options such as "All the above" and "None of the above", never select "All the above" if you think that any one answer is incorrect. Similarly never select "None of the above" option, if you feel that at least one option is true. Interestingly, if you notice two correct options to a MCQ , you can choose "All the above".
6. A study of MCQ pattern reveals that generally the correct answer gives out more information than the other options given with that question.

Now, let us start revising part by part, what we have read in the previous issues.
Negotiable Instruments Act,1932
Now, let us discuss about - Crossing - Meaning, Definition and Type of Crossing .

Crossing - Is done on a cheque, by putting two parallel lines across the face of the cheque leaf. There can be two types of cheques -1 . Open Cheque ; 2. Crossed Cheque.
An Open cheque is one which can be presented across the counter for encashment.
A Crossed Cheque is one which has to be presented to the bank through another banker. Here, there are two types of Crossing - General Crossing and Special Crossing.
In case of General Crossing, the cheque can be presented to the bank through any banker. However, in case of Special Crossing, the name of the bank is written between the parallel lines and therefore that cheque has to be presented for encashment only through the bank named between the parallel lines.
A Special Crossing cheque is sometimes crossed - Account Payee. In such cases the words "Account Payee" is written in between the parallel lines drawn across the face of the cheque leaf. Here, the Drawer clearly directs the paying bank to pay to a particular person only and credit the amount to the bank account of the payee. In such cases, the cheques become non-transferable.
In a Special Crossing Cheque, the banker's name and payee's name is sometimes mentioned on the cheque. Since the bankers have full Know Your Customer (KYC)
details of every customer's viz. name, verified address and signature, any forgery can now be detected.

Special Crossing helps in preventing fraudulent transactions and makes misappropriation difficult .

Now, let us continue to revise partly, what we read about the Law of Contracts - Indian Contract Act, 1872
A question that will come to mind is - What are the Essentials of a Contract ?
Just remember the following:

OAL3 - where $O$ is Offer, A is Acceptance , first $L$ is Legal Relationship and second $L$ is Lawful Consideration and the third $\mathbf{L}$ is Legally Capable . Next remember

CFL - where $\mathbf{C}$ is Capacity, $\mathbf{F}$ is Free Consent , $\mathbf{L}$ is Legality Next remember

WNP - where W is Written and Registered, $\mathbf{N}$ is- Not Vague and $\mathbf{P}$ is Possibility of Performance.

Please Note: Oral contract is legal but not always valid, for example - Sale of House Property has to be written and registered.
If you revise and recapitulate what you have read above, you can now raise the following question - On what grounds can you revoke an offer? The answer is given in Sec. 6 and those are:

1. When the offer is expressly revoked;
2. When the proposer prescribes a time for acceptance of the offer, that proposal expires as soon as the time expires.
3. If there is no prescribed time, in that case the offer expires after a reasonable time depending on the circumstances of the case,
4. If the proposer lays some conditions and the acceptor fails to fulfill any condition; and
5. An offer lapses on the death or insanity of the proposer provided the acceptor gets to know about the death or insanity before acceptance.

So, two questions immediately arise - regarding Communication of Revocation (please read Sec. 3 of the Contract Act,1872) and regarding Revocation of Acceptance please read Section 5 of the Contract Act,1872

## Void and Voidable Agreements

Read Sec.2(g) and you will know that an agreement not enforceable by law is said to be void.
Here, the question arises - What are void agreements?
The answer is - a) An agreement made by a minor (b) an agreement made without consideration (with certain exceptions);(c) certain agreements with unlawful object ; (d) agreement in restraint of marriage (except marriage of a minor); (e)agreement in restraint of trade (with exceptions); (f)agreement in restraint of legal proceedings ; (g)agreements where the meaning contained therein is not certain or cannot be made certain (h) agreement where the money payable depends on the happening or non-happening of a future or uncertain event (example -gambling etc.) ;(i) agreement that cannot be enforced due to change of law ;and (j) agreement to do an impossible act. Please remember that a void agreement is not necessarily illegal but an illegal agreement is always void.

There is something which is called Voidable Contracts, let us understand that with a simple example. Suppose Mr.A enters into an agreement at Gunpoint with Mr.Z to sell his Stationery Shop. Mr. Z can avoid the agreement and Mr.A cannot enforce it. However, if Mr. $Z$ desires, he can enforce it against Mr. A. Avoidable Contracts can be due to Coercion, Undue Influence, etc. The example above is a case of coercive threat to cause injury.
Under essential elements of Contract, we read that there must be a Lawful Consideration. So, what is consideration?

Section 2(d) of the Contracts Act 1872 defines consideration. All past, present and future promise, desire to do or abstain from doing something is a consideration for the promise. For example: A agrees to sell his Motorcycle to B for Rs. 15,000. For The consideration is Rs. 15,000 for the promise and for B the consideration is the Motorcycle.

The question arises - What is past consideration?

This can be explained with an example: X is asked by Z to do certain special extra work which X performs in the month of December,2017. In January, 2018 X is paid Rs. 5000 by Z to compensate for the work done in December,2017. In this case, the consideration of X is past consideration.

Almost all contracts require consideration, so the question is - what agreements are valid without consideration? Please read Sec.25(1), Sec.25(3) and Sec 25(explanation 2)
Section 25(1) specifies those cases where agreement without consideration is valid and those are:

1. The agreement is freely made in writing
2. The written document is registered with the Appropriate Authority
3. The agreement is made on account of natural love and affection;
4. The parties to the agreement stand in near relation to one another.

At this point, an interesting question comes to mind - Can a stranger to a contract sue on a contract? A stranger to a contract is a person who is not a party to the contract and so he cannot go to court to enforce it. However, if a stranger is a party to the contract, he can sue to enforce it. For example: There is an agreement between Anil, Billu and Chand, where Anil pays money to Billu to deliver to Chand. In this case, Chand can enforce the agreement even though he did not pay any part of the consideration.
Therefore, the next question is - What are the exceptions to the rule that a stranger to the contract cannot sue upon it?

## The exceptions are as follows:

1. An agreement to create a trust can be enforced by the beneficiary;
2. A party to a contract can transfer his rights under the contract to third parties. For example: A bearer cheque drawn on an individual can be transferred to any person he wishes.
3. In case of family disputes settled by mutual agreement, where the terms of settlement are written down in a document, such Family Settlements can be enforced by those persons who were not original parties to the settlement.

It may be noted that except for the three exceptions mentioned above, a contract does not give any right upon a person who is not a party to the contract.
Now, let us appreciate that we are all in the Computerized Environment. Therefore, Offers, Acceptances and Contracts can be electronically performed. Such e-contracts are paperless in the electronic form -made, communicated, executed, deployed through software systems. All the essential elements of contract are satisfied but in order to give it the legal validity, The Information Technology Act,2000 has laid regulations for such econtracts. It requires the parties to the contract to obtain Digital Signatures from the Competent Authority and affix the digital signature instead of the conventional manual signature. Digital Signatures are legally valid and cannot be denied as the signature is in digital form and delivered electronically. In this case, the lawful process of negotiation, acceptance of the terms and the final Contract is through E-mails which are valid in law.

## Capacity of Parties and Free Consent

Capacity - It must be remembered that the parties to an agreement must be legally capable of entering into an agreement. If that capacity is wanting/absent, the agreement in that case cannot be enforced by a Court of Law. So the question naturally arises - In what way Want of Capacity arises?

The simple answer is that want of capacity arises from - Minority, Lunacy, Idiocy, Drunkenness etc. In such cases the of disability, the agreement with such person cannot be enforced by law, except in special cases.

Free Consent - Unless an agreement is based on Free Consent of all the parties to an agreement, it is not enforceable.

So, here again the obvious question coming to mind is - When can we say that there is absence of Free Consent?

The answer is - If an agreement is induced by Coercion, Undue influence, Mistake, Misrepresentation and / or fraud in such circumstances it can be said that there is absence of Free Consent. The party guilty of coercion, undue influence, fraud etc. cannot enforce the agreement as the essence of the agreement is vitiated by such factors. However, the other aggrieved party to the agreement can enforce it, subject to certain rules laid in the Act.

## Sale of Goods Act, 1930

Let us recapitulate - The difference between a Condition and a Warranty.

Sec. 12 of the Sale of Goods Act defines conditions and warranties.
In a Contract of Sale, the terms or the stipulations laid, with reference to purchase and sale of goods, can be conditions or warranties.

We must understand that; a Condition is a stipulation which is Essential to the main objective/purpose of the contract. Any breach/violation of such condition/s may call for repudiation of the contract.

On the other hand, a Warranty is also a stipulation but such stipulation is Collateral to the main objective/purpose of the contract. Any breach/violation of such warranty may call for Claim for damages, but the contract can neither be repudiated nor can the goods be rejected.

So, we understand that both Condition and Warranty are terms/stipulations laid in a Contract of Sale, but whether the terms/stipulations are conditions or stipulations, depends on how the terms are laid, meant and construed to be understood in the contract. In many cases it is seen that a term in a contract is called as warranty but is actually a condition laid and such interpretations are left for the courts to decide.

Sec. 11 of the Sale of Goods Act, lays that a stipulation as to time of payment, must not be deemed as conditions unless the terms of contract throws some indication to such intentions. Both conditions and warranties can be indicated in writing or may be implied on case to case basis, depending on the terms of the contract.


Suppose a contract of sale specifies a condition that goods sold shall be repaired at the premises of the buyer . This condition can be waived by the buyer who decides to carry the goods to the repair shop himself for repairs. In such a case the condition can be treated as a warranty. A buyer may even decide to treat a breach of condition as a breach of warranty and in such cases the buyer cannot repudiate or reject the goods but can accept the goods and sue for damages suffered.

## Fundamentals of Business Mathematics and Statistics (FBMS)

Amrit Mahotsav

PAPER: 4

FUNDAMENTALS
OF BUSINESS MATHEMATICS AND STATISTICS (FBMS)

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## Your Preparation Quick



## 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 discuss MCQ problems on Arithmetic Progression
Q1. The sum of integers from 1 to 100 that are divisible by 2 or 5 is
(a) 3050
(b) 3000
(c) 2550
(d) 1050

Q2. The sum of first $\boldsymbol{p}$ terms of an A.P is $\boldsymbol{q}$ and the sum of first $\boldsymbol{q}$ terms of the A.P is $\boldsymbol{p}$. The sum of the first $(\boldsymbol{p}+\boldsymbol{q})$ terms of the AP
(a) $(p+q)$
(b) $-\frac{p}{q}$
(c) $-p q$
(d) $-(p+q)$

Q3. The sum of the following series up to $n$ terms:
$1+\frac{1}{1+2}+\frac{1}{1+2+3}+\cdots \ldots$
(a) $\frac{n}{2 n+1}$
(b) $\frac{2 n}{n+1}$

(c) $2 \mathrm{n}(\mathrm{n}+1)$
(d) $\frac{n+1}{2 n}$

Q4. The coefficient of $x^{99}$ in the polynomial $(x-1)(x-2)(x-3) \ldots \ldots(x-n)$
(a) 5125
(b) -5050
(c) -3500
(d) -2500

Q5. The sum of $n$ terms of the progression: $\left(1^{2}-2^{2}\right)+\left(3^{2}-4^{2}\right)+\left(5^{2}-6^{2}\right)+\cdots \ldots \ldots$ is
(a) $-n(n-1)$
(b) $-2 n(n+1)$
(c) $-n(n+1)$
(d) $-n(2 n+1)$

Q6 (a). The sum of $n$ terms of the progression: $1^{2}-2^{2}+3^{2}-4^{2}+5^{2}-6^{2}+\cdots \ldots$ when $n$ even, is
(a) $-\frac{n}{2}(n+1)$
(b) $-n(n+1)$
(c) $-n(n-1)$
(d) $-\frac{n}{2}(n-1)$

Q6 (b). The sum of $n$ terms of the progression: $1^{2}-2^{2}+3^{2}-4^{2}+5^{2}-6^{2}+\cdots \ldots$ when $n$ odd, is
(a) $n(n-1)$
(b) $\frac{n}{2}(n-1)$
(c) $\mathrm{n}\left(\frac{\mathrm{n}+1}{2}\right)$
(d) $n(n+1)$

Q7. The sum of 2 n terms of the progression: $1^{2}-2^{2}+3^{2}-4^{2}+5^{2}-6^{2}+\cdots \ldots$ is
(a) $-(2 n+1)$
(b) $-n$
(c) $-n(2 n+1)$
(d) $-n(2 n-1)$

Q8. If $a_{1}, a_{2}, a_{3} \ldots \ldots$. be an arithmetic progression, then $a_{1}{ }^{2}-a_{2}{ }^{2}+a_{3}{ }^{2}-a_{4}{ }^{2}+\cdots \ldots+a_{2 n-1}{ }^{2}-$ $a_{2 n}{ }^{2}$ is equal to
(a) $\frac{n}{2 n-1}\left(a_{1}{ }^{2}+a_{2 n}{ }^{2}\right)$
(b) $n\left(a_{1}{ }^{2}-a_{2 n}{ }^{2}\right)$

(c) $\frac{n}{2 n-1}\left(a_{1}{ }^{2}-a_{2 n}{ }^{2}\right)$
(d) $\frac{n}{2 n+1}\left(a_{1}{ }^{2}-a_{2 n}{ }^{2}\right)$

Q9. An A.P consists of 200 terms. The sum of terms occupying even places is 3000 and that of the terms occupying odd places is equal to 2800 . The middle terms of even and odd series
(a) 30,28
(b) 28,30
(c) 28,26
(d) 25,26

Q10. A piece of equipment costs a certain factory of R600, 000 . If it depreciates in value, $15 \%$ the first year, $13-1 / 2 \%$ the next year , $12 \%$ the third year and so on, all percentages applying to the original cost. Then its value at the end of the $10^{\text {th }}$ years is
(a) R120000
(b) R115000
(c) R105000
(d) R110000

Answers:
Q1. Answer:
Sum of series divisible by 2 only: $S_{2}=2+4+6+\cdots \ldots .100$
Sum of series divisible by 5 only: $S_{5}=5+10+15+\cdots \ldots .100$
Sum of series divisible by $2 \& 5$ both: $S_{10}=10+20+30+\cdots \ldots .100$
So the required sum is $S=S_{2}+S_{5}-S_{10}$
$S_{2}=2+4+6+\cdots \ldots .100$
First term $t_{1}=2, t_{n}=100$
So $t_{n}=100=a+(n-1) d=2+(n-1) 2$
Or, $98=(n-1) 2$
Or, $n-1=49$
Or, $n=50$
So
$S_{2}=2+4+6+\cdots \ldots .100$
Or, $\frac{n}{2}[2 a+(n-1) d]=\frac{50}{2}[2 * 2+(50-1) 2]=25[4+98]=2550$
$S_{5}=5+10+15+\cdots$
First term $t_{1}=5, t_{n}=100$
So $t_{n}=100=a+(n-1) d=5+(n-1) 5$
Or, $95=(n-1) 5$
Or, $n-1=19$
Or, $n=20$
So
$S_{5}=5+10+15+\cdots \ldots .100$
Or, $\frac{n}{2}[2 a+(n-1) d]=\frac{20}{2}[2 * 5+(20-1) 5]=10[10+95]=1050$
$S_{10}=10+20+30+\cdots \ldots .100$
First term $t_{1}=10, t_{n}=100$
So $t_{n}=100=a+(n-1) d=10+(n-1) 10$
Or, $90=(n-1) 10$
Or, $n-1=9$
Or, $n=10$
So
$S_{10}=10+20+30+\cdots \ldots .100$
Or, $\frac{n}{2}[2 a+(n-1) d]=\frac{10}{2}[2 * 10+(10-1) 10]=5[20+90]=550$

So the required sum is $S=S_{2}+S_{5}-S_{10}=2550+1050-550=3050$

Q2. Answer:
Let $a$ be the first term and $d$ be the common difference of the AP. Then by question we could write
$q=\frac{p}{2}[2 a+(p-1) d]$. $\qquad$
$p=\frac{q}{2}[2 a+(q-1) d]$
By (1) - (2) we will get
$[2 a+(p-1) d]-[2 a+(q-1) d]=\frac{2 q}{p}-\frac{2 p}{q}$
Or, $d(p-q)=\frac{2\left(q^{2}-p^{2}\right)}{p q}$
$O r, d=-\frac{2(p+q)}{p q}$
Putting this value of $d$ in (1) we get
Or, $2 a-2(p-1) \frac{(p+q)}{p q}=\frac{2 q}{p}$
Or, $a-(p-1) \frac{(p+q)}{p q}=\frac{q}{p}$
Or, $a=\frac{q}{p}+(p-1) \frac{(p+q)}{p q}$
So sum of first $(p+q)$ terms of the AP is
$S=\frac{(p+q)}{2}\left[2\left\{\frac{q}{p}+(p-1) \frac{(p+q)}{p q}\right\}-2(p+q-1) \frac{(p+q)}{p q}\right]$
$\operatorname{Or}(p+q)\left[\left\{\left\{\frac{q}{p}+(p-1) \frac{(p+q)}{p q}\right\}\right\}-(p+q-1) \frac{(p+q)}{p q}\right]$
Or, $(p+q)\left[\frac{p q+(p-1)(p+q)-(p+q-1)(p+q)}{p q}\right]$
Or, $(p+q)\left[\frac{q^{2}+p^{2}-p+p q-q-p^{2}-p q+p-p q-q^{2}+q}{p q \text { सा }}\right.$
Or,$\frac{(p+q)}{p q} *(-p q)$
Or, $-(p+q)$

## Q3. Answer:

The series is
$1+\frac{1}{1+2}+\frac{1}{1+2+3}+\cdots \ldots$
Or, $1+\frac{1}{1+2}+\frac{1}{1+2+3}+\cdots \ldots+\frac{1}{1+2+3+\cdots \ldots \ldots n}$
So $n$th term of the series $\frac{1}{1+2+3+\cdots \ldots \ldots . n}$
i.e. $t_{n}=\frac{1}{\frac{n(n+1)}{2}}=\frac{2}{n(n+1)}=2\left[\frac{1}{n}-\frac{1}{n+1}\right]$

Or, we can write
$t_{1}=2\left[\frac{1}{1}-\frac{1}{2}\right]$
$t_{2}=2\left[\frac{1}{2}-\frac{1}{3}\right]$
$t_{3}=2\left[\frac{1}{3}-\frac{1}{4}\right]$
$\qquad$
.........................................
$t_{n}=2\left[\frac{1}{n}-\frac{1}{n+1}\right]$

By (1) + (2) + (3) +. $\qquad$ (n) we get
$S=2\left[1-\frac{1}{n+1}\right]=\frac{2 n}{(n+1)}$

Q4. Answer:
Let us take $(x-1)(x-2)=x^{2}-3 x+2=x^{2}-(1+2) x+2$
Similarly from $\left.(x-1)(x-2)(x-3)=x^{3}-6 x^{2}+11 x-6\right)=x^{3}-(1+2+3) x^{2}+11 x-6$
From above we could conclude
coefficient of $x=-(1+2)$ i.e. $x^{1}$ when there are two factors $(x-1)(x-2)$
coefficient of $x^{2}=-(1+2+3)$ i.e. $x^{2}$ when there are three factors $(x-1)(x-2)(x-3)$ So
coefficient of $x^{99}=-(1+2+3+4 \ldots \ldots \ldots 100$ terms $)$
$x^{99}$ when there are hundred factors $(x-1)(x-2)(x-3) \ldots \ldots \ldots .(x-n)$
So coefficient of $x^{99}=-(1+2+3+4 \ldots \ldots \ldots 100$ terms $)$
Or, $-\frac{n(n+1)}{2}=-\frac{100(101)}{2}=-5050$

Q5. Answer:
$n$th term of the series is
$(n \text {th term of the sequence } 1+3+5+\cdots \ldots . .)^{2}-(n \text {th term of sequence } 2+4+6+\cdots . .)^{2}$
Or, $[1+(n-1) 2]^{2}-[2+(n-1) 2]^{2}$
Or, $[1+2 n-2]^{2}-[2+2 n-2]^{2}$
Or, $(2 n-1)^{2}-(2 n)^{2}$
Or, $4 n^{2}-4 n+1-4 n^{2}$
So $t_{n}=-4 n+1$
i.e.
$t_{1}=-4.1+1$
$t_{2}=-4.2+1$
$t_{3}=-4.3+1$
$\qquad$
$\qquad$
$t_{n}=-4 . n+1$
So $S_{n}=-4(1+2+3+\cdots \ldots \ldots . n)+n$
$S_{n}=-\frac{4 n(n+1)}{2}+n$
Or, $-2 n(n+1)+n$
Or, $S_{n}=-2 n(n+1)+n$
So $S_{n}=-2 n^{2}-2 n+n=-2 n^{2}-n=-n(2 n+1)$

Q6. Answer:
We have to find
$1^{2}-2^{2}+3^{2}-4^{2}+5^{2}-6^{2}+\cdots \ldots \ldots$ to $n$ terms
Case I: if $n$ is even, then assume $n=2 p$
So the problem is $S_{n}=1^{2}-2^{2}+3^{2}-4^{2}+5^{2}-6^{2}+\cdots \ldots \ldots$ to $2 p$ terms
Or, $S_{n}=\left(1^{2}-2^{2}\right)+\left(3^{2}-4^{2}\right)+\left(5^{2}-6^{2}\right)+\cdots \ldots \ldots$ terms $]$
Or, $S_{n}=-3-7-11 \ldots \ldots$ terms
Or,$S_{n}=\frac{p}{2}[2 *(-3)+(p-1)(-4)]$
Or,$S_{n}=\frac{p}{2}[-6-4 p+4]$
Or, $S_{n}=\frac{p}{2}[-4 p-2]$
Or,$S_{n}=-p(2 p+1)$
Or, $S_{n}=-\frac{n}{2}\left(2 * \frac{n}{2}+1\right)=-\frac{n}{2}(n+1)$

Case II: if $n$ is odd, then assume $n=2 p+1$
So the problem is $1^{2}-2^{2}+3^{2}-4^{2}+5^{2}-6^{2}+\cdots \ldots \ldots$ to $2 p+1$ terms
So the problem is $S_{n}=1^{2}-\left[2^{2}-3^{2}+4^{2}-5^{2}+6^{2}+\cdots \ldots \ldots\right.$ to $2 p$ terms $]$
Or, $S_{n}=1-\left[\left(2^{2}-3^{2}\right)+\left(4^{2}-5^{2}\right)+\cdots \ldots \ldots p\right.$ terms $]$
Or, $S_{n}=1-(-5-9-13 \ldots \ldots p$ terms $)$
Or, $S_{n}=1-\frac{p}{2}[2 *(-5)+(p-1)(-4)]$
Or,$S_{n}=1-\frac{p}{2}[-10-4 p+4]$
Or, $S_{n}=1-\frac{p}{2}[-4 p-6]$
$O r, S_{n}=1+p(2 p+3)$
Or, $S_{n}=2 p^{2}+3 p+1=(2 p+1)(p+1)=\left(2 \frac{n-1}{2}+1\right)\left(\frac{n-1}{2}+1\right)=n\left(\frac{n+1}{2}\right)$

Q7. Answer:
$S_{2 n}=1^{2}-2^{2}+3^{2}-4^{2}+5^{2}-6^{2}+\cdots \ldots \ldots$ to $2 n$ terms
Or, $S_{2 n}=\left(1^{2}-2^{2}\right)+\left(3^{2}-4^{2}\right)+\left(5^{2}-6^{2}\right)+\cdots \ldots \ldots$ to $n$ terms
Or, $S_{2 n}=-3-7-11 \ldots \ldots \ldots$ to $n$ terms
Or, $S_{2 n}=\frac{n}{2}[2(-3)+(n-1)(-4)]$

Or, $S_{2 n}=\frac{n}{2}[-6-4 n+4]$
Or, $S_{2 n}=\frac{n}{2}[-4 n-2]=-n(2 n+1)$

Q8. Answer:
$a_{1}{ }^{2}-a_{2}{ }^{2}+a_{3}{ }^{2}-a_{4}{ }^{2}+\cdots \ldots+a_{2 n-1}{ }^{2}-a_{2 n}{ }^{2}$
Or, $\left(a_{1}{ }^{2}+a_{3}{ }^{2}+\cdots \ldots . .+a_{2 n-1}{ }^{2}\right)-\left(a_{2}{ }^{2}+a_{4}{ }^{2}+\cdots \ldots \ldots+a_{2 n}{ }^{2}\right)$
Or, $\frac{n}{2}\left(a_{1}{ }^{2}+a_{2 n-1}{ }^{2}\right)-\frac{n}{2}\left(a_{2}{ }^{2}+a_{2 n}{ }^{2}\right)$ [Since 2 n terms are there, each sum is of n terms]
Or, $\frac{n}{2}\left(a_{1}^{2}+a_{2 n-1}{ }^{2}-a_{2}{ }^{2}-a_{2 n}{ }^{2}\right)$
Or, $\frac{n}{2}\left[\left(a_{1}{ }^{2}-a_{2}{ }^{2}\right)-\left(a_{2 n}{ }^{2}-a_{2 n-1}{ }^{2}\right)\right]$
Or, $\frac{n}{2}\left[\left\{a_{1}{ }^{2}-\left(a_{1}+d\right)^{2}\right\}-\left\{a_{2 n}{ }^{2}-\left(a_{2 n}-d\right)^{2}\right\}\right] \quad[d$ is common difference of series $]$
Or, $\frac{n}{2}\left[a_{1}{ }^{2}-a_{1}{ }^{2}-2 a_{1} d-d^{2}-a_{2 n}{ }^{2}+a_{2 n}{ }^{2}-2 a_{2 n} d+d^{2}\right]$
Or, $\frac{n}{2}\left[-2 d\left(a_{1}+a_{2 n}\right)\right]$
Now since $a_{1}, a_{2}, a_{3} \ldots \ldots$. be an arithmetic progression we could write
$a_{2 n}=a_{1}+(2 n-1) d$
Or, $d=\frac{a_{2 n}-a_{1}}{2 n-1}$
Putting this value in $(A)$ we get
$\frac{n}{2}\left[-2 * \frac{a_{2 n}-a_{1}}{2 n-1}\left(a_{2 n}+a_{1}\right)\right]$
Or, $\frac{n}{2}(-2) \frac{1}{2 n-1}\left(a_{2 n}{ }^{2}-a_{1}{ }^{2}\right)$
Or, $\frac{n}{2 n-1}\left(a_{1}{ }^{2}-a_{2 n}{ }^{2}\right)$
Q9. Answer:
Let $a$ be the first term and $d$ the common difference of the series
By question we can write
$a+(a+2 d)+(a+4 d)+(a+6 d)+\cdots \ldots \ldots . .100$ terms $=2800 \ldots \ldots .($ A $)$ the odd series
$(a+d)+(a+3 d)+(a+5 d)+(a+7 d) \ldots . .100$ terms $=3000 \ldots \ldots .(B)$ the odd series
Or
From $A$ we can write $100 a+(0 d+2 d+4 d+6 d+\cdots \ldots . . .100$ terms $)=2800 \ldots . .(C)$
From $B$ we can write $100 a+(1 d+3 d+5 d+7 d+\cdots \ldots \ldots .100$ terms $)=3000$
By (C) - (D) we get
$d+d+d+d \ldots \ldots \ldots . . . .$.
Or, $100 d=200$
Or, $d=2$
Putting this value of $d$ in (C) we get
$100 a+(2+6+10+\cdots \ldots \ldots . .100$ terms $)=3000$
Or, $100 a+\frac{100}{2}[2 * 2+(100-1) 4]=3000$

Or, $100 a+20000=3000$
Or, $100 a=-17000$
Or, $a=-170$
So even series is
$(-170+2)+(-170+3 * 2)+(-170+5 * 2) \ldots \ldots \ldots . .100$ terms
Or, -168-164-160 $\qquad$ 100 terms
Mid term or $t_{50}=-168+(50-1) *(4)=28$
So odd series is
$(-170)+(-170+2 * 2)+(-170+4 * 2)$ $\qquad$ 100 terms
Or, $-170-166-162$... ... ... ... ... 100 terms
Mid term or $t_{50}=-170+(50-1) *(4)=26$

Q10. Answer:
The depreciation in the first year $=600000 * 0.15=90000$.
The depreciation in the second year $=600000 * 0.135=81000$
The depreciation in the third year $=600000 * 0.12=72000$
In this way if we proceed for ten years the value of the machine will be:
$600000-600000(0.15+0.135+0.12+\cdots .$. $\qquad$ ten terms)
( $0.15+0.135+0.12+\cdots$ $\qquad$ ten terms) forms an AP series wherein first term is 0.15 and common difference is (-)0.015.
So we can write $S_{10}=\frac{10}{2}[2 * 0.15+(10-1) *(-) 0.015]$
Or, $S_{10}=5[0.3+(10-1) *(-) 0.015]$
Or, $S_{10}=5[0.3-0.135]$
Or, $S_{10}=0.825$
So value of the machine at end of $10^{\text {th }}$ year $=$
$600000-600000(0.15+0.135+0.12+\cdots \ldots \ldots \ldots \ldots$ ten terms $)=600000-600000 * 0.825=$ 105000

## Suggestions:

The study guide needs to be read thoroughly. Supplementary readings could be made from other resources. In this issue discussions are held on arithmetic progression without going detailing of formulae. Formulae are available in guide book. These sort of problems could facilitate MCQs. This could be used as supplement to the study guide. Students should go thoroughly for clear concept on formula from Guide book on the paper 4-Fundamental of
Business mathematics and Statistics written and issued by Institute on Syllabus -16.

## Examination Time Table



## Examination Time Table

| Day \& Date | Foundation ExaminationSyllabus-2016 |  |
| :---: | :---: | :---: |
|  | Time 10.00 A.M. to 12.00 Noon. <br> Paper - 1 \& 2 ( 200 Marks) | Time 2.00 P.M. to 4.00 P.M. <br> Paper - 3 \& 4 ( 200 Marks) |
| Friday, <br> 13th January, 2023 | Paper-1: Fundamentals of Economics \& Management <br> (100 Marks 50 Multiple Choice Questions) | Paper-3: Fundamentals of Laws \&Ethics <br> (100 Marks 50 Multiple Choice Questions) |
|  | Paper-2: Fundamentals of Accounting <br> (100 Marks 50 Multiple Choice Questions) | Paper - 4 : Fundamentals of Business Mathematics \& Statistics <br> (100 Marks 50 Multiple Choice Questions) |

## Practical Advice



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## $7 \sqrt{2}$ Azadi Ka <br> Amrit Mahotsav

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## Submissions



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## Message form Directorate of Studies

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You must be aware that India is celebrating Azadi Ka Amrit Mahotsav, which is an initiative of the Government of India to celebrate and commemorate 75 years of independence and the glorious history of its people, culture and achievements. Along with pan India, your Institute has also observed and took part in various meaningful activities throughout the year. We also expect that our students should also take part in the development of the nation and make the country proud.
"Freedom has
let you all observe the message cited above.
Certain general guidelines are listed below and which will help you in preparing for the examinations:
Conceptual understanding and overall understanding of the subjects should be clear,

- Students are advised to go through the study material provided by the Institute meticulously,
- Students should know and learn the basic understandings of the subjects with focus on core concepts,
- Students are expected to give to the point answer which is a pre-requisite for any professional examination,
- To strengthen the answers, students are advised to answer precisely and in the structured manner,
- Proper time management is also important while answering.

Please refer the link mentioned below:
Index.php

## GOOD LUCK

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The Institute of Cost Accountants of India is a premier professional Institute and a y body constituted under an Act of Parliament under the administrative control of Ministry of Corporate Affairs (MCA), Govt. of India to regulate and develop the profession of Cost and Management Accountancy (CMA) in the country. The Institute established in 1944 is now celebrating the Platinum Jubilee year of its glorious presence.

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## Few Snapshots



London Global Convention 2022 on the theme 'Building an Effective Board that Works \& Top Global 'Trends' during 09-12 November, 2022 in London (UK)


Glimpses of the MOU signing ceremony between the Institute and Kalinga Institute of Social Sciences
(Deemed to be University) held on 17.09.2022 at Bhubaneswar, Odisha.


Glimpses of the MOU signing ceremony between the Institute and Jio Platforms Limited held on 29.09.2022 at CMA Bhawan, New Delhi.


Glimpses of the All Odisha CMA Practitioners Meet organised by the Bhubaneswar Chapter of the Institute on the theme 'From Better to the Best Journey of Practicing CMAs' on 18.09.2022 at Bhubaneswar, Odisha.

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