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The Institute of Chartered Accountants of India (Set up by an act of Parliament)

The Chartered Accountant STUDENT

Your monthly guide to CA news, information and events

FINAL
Strategic Financial Management

INTERMEDIATE
Indirect Taxes

FOUNDATION
Business Mathematics and Logical Reasoning & Statistics

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SWACHH BHARAT - A STEP TOWARDS CLEANLINESS

Dear Students,

Warmest Greetings to you all.

As this journal reaches you, the May 2023 examinations for Intermediate and Final students would have been over and students of Foundation course must be gearing up for their June exams. I wish the Foundation students all the very best for their exams. I must assure the new entrants that Chartered Accountancy is one of the most prestigious career choices for Commerce students as after qualifying as a Chartered Accountant (CA), you are not only qualified to get a high-paying job for yourself but also you become a job giver by setting up your own practice or opting entrepreneurship. The choice is always with you.

Utilization of Time Post Examinations

For the Intermediate and Final course students, it is time to relax and then regroup all your energies for further preparations and for achieving the greater goal. As you begin afresh, it is advisable to create a schedule of your daily activities. Remember, it is important to set a time for all the necessary tasks; effective time management and proper planning is essential for success in exams. While planning out the daily activities, do not forget to strike the right balance between study and leisure time, as there should be some time for your hobbies and extra-curricular activities as well.

You must also inculcate the habit of reading atleast one business newspaper daily, especially the editorial page, as it is an invaluable source of education for students. It carries information about politics, economy, business, industry, trade and commerce, which enhances your overall knowledge base for your holistic development. It also helps in critical thinking, and creating national and global awareness and social consciousness.

"Our goals can only be reached through a vehicle of a plan, in which we must fervently believe, and upon which we must vigorously act. There is no other route to success."

– Pablo Picasso

75 Years Celebration of Serving the Nation

ICAI will be entering into 75th year of its Foundation shortly and we are planning to celebrate as many years of our establishment and our service to the nation; the year-round celebrations for which will begin from 1st July this year. Hope you are all aware that the Institute has been set up by an Act of Parliament, through The Chartered Accountants Act, 1949 for regulating the profession of Chartered Accountancy in the country. While celebrating 75 years of our service to the nation, we accounting professionals must also take pride in being part of the growth and success story of India.

"Education is the most powerful weapon you can use to change the world."

— Nelson Mandela

BoS Knowledge Portal for Comprehensive Learning Needs

It gives me immense satisfaction to note that students of all 3 courses are increasingly using the BoS Knowledge Portal for their learning needs. The number of students visiting the portal have been overwhelmingly increasing since it was revamped in July last year. So far, close to 4 lakh students have registered in BoS Knowledge Portal, which is an encouraging trend. I further advise all of you to actively use the portal, which is a comprehensive repository of study content. It is a single platform for accessing live and recorded lectures, syllabus, announcements, study material, revision test papers, mock test papers, schedules, important news, student testimonials, student journal, other portals etc.

Online Mock Test Dashboard – A Platform for Self-Assessment

As informed in last month's edition, the Board of Studies (Academic) has recently revamped its Online Mock Test Module for students of all 3 levels where you now have your own Dashboard from where you can access the Schedule of Mock Test Papers Series. Questions Papers and Answer Keys, uploaded within the allotted time, can also be downloaded by the students from the Dashboard. I am happy to note and share that more than 30,000 students of Intermediate and Final courses have already registered themselves at the Dashboard through the BoS Knowledge Portal and ICAI BOS Mobile App for taking the Mock Test Papers Series – I & II, and more than 14,000 Foundation students registered to take the self-assessment tests. It is recommend to register yourselves for the Mock Tests at the earliest as these are meant to prepare you well for the upcoming exam.

Career Counselling Centre- Opening at Jorhat Assam

I am pleased to inform you that our first Career Counselling Center was opened at Jorhat, Assam on 27th April, 2023. The opening of the Career Counselling Center will give good visibility and enhance the branding of ICAI besides popularizing the CA Course and providing career guidance to students.

Practice Self-Discipline for Success in Exams

In the end, I would advise you to have self-discipline in your lives as it will help you tremendously in your academic career to start with. Self-discipline helps you in setting your priorities and how to manage your time and spend it on the valuable activities that yield positive results.

As a student, it will help you visualise your goals and work towards accomplishing them.

"Discipline is the bridge between goals and accomplishment."

– Jim Rohn

Wishing you the very best for your bright future ahead!

Yours sincerely

CA. ANIKET S. TALATI
PRESIDENT, ICAI

VICE PRESIDENT 'S COMMUNICATION

My Dear Students,

The future of a developing economy is strengthened by the entrepreneurial spirit of the younger generation.

You may all be aware that India is being recognised as a startup hub. Various government initiatives encourage innovation across sectors and are aimed at bringing together young, celebrated entrepreneurs to brainstorm, innovate, and excel in their preferred domains. India has immense talent, capability, innovative spirit and creativity in its youth.

The month of **June** holds special significance in this context as the International Micro, Small and Medium Enterprises (MSME) Day is observed every year across the world on **June 27**. This day marks the importance of MSMEs in the development of the country in terms of creating employment opportunities.

The MSME and Startup sector has emerged as a highly vibrant and dynamic sector of the Indian economy over the last five decades. It contributes significantly to the economic and social development of the country by fostering entrepreneurship and generating largest employment opportunities at comparatively lower capital cost, next only to agriculture.

As you are going to be an important constituent of a profession that has been playing its role as a sincere partner in nation building, I would like to share some noteworthy points for your reference as below:

a) **Indian Startups witness 300 times growth in last 9 years:**

It is also said that the success rate of startups in India was much higher than in other countries. There has been a quantum jump from around 452 start-ups registered in 2016 to over 90,000 in 2023 with more than 100 unicorns presently. As per reports, there has been a substantial increase in the investment and the number of ventures in certain critical areas such as Environment, Technology, Life Sciences, Aviation, Maritime & Defence etc.

b) **MSME Sector:** The MSMEs sector can not only play a vital role in making India a US$5 trillion economy in the next five years but can also become a growth engine for making India a developed country by 2047. The MSME sector comprises nearly 63 million enterprises, which contribute 30 per cent to India's GDP, 45 per cent to manufacturing, 40 per cent to exports, and provides employment to over 113 million people as per government reports.

The above statistics are an embodiment of the fact that this sector is going to offer numerous opportunities for qualified professionals in accordance with their passion or area of interest.

CA Course Curriculum conducive to Entrepreneurship

ICAI has been consistently incorporating requisite knowledge in its curriculum from time to time. The course curriculum of Chartered Accountancy endows our students with all the technical, financial and business acumen and diverse knowledge which allows them to set up successful business ventures and startups. Their analytical skills and financial prudence and discipline are their unique qualities.

There are several prominent Business ventures founded/co-founded by Chartered Accountants which were once a Start Up. However, over the years they have turned into highly successful entities with an inspirational journey of growth throughout.

ICAI aims to inculcate an Entrepreneurial Mindset amongst its students

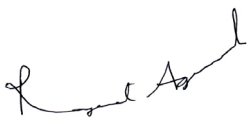
Entrepreneurship encourages creativity, innovation, and collaboration. I believe that encouraging an entrepreneurial mindset in students like you, can be highly advantageous for your career in the future. It shall prompt you to explore education beyond the classroom walls and acquire skills that would propel your ideas.

Before I conclude, I would like to convey my best wishes to all the students who appeared for the May 2023 Final and Intermediate Examinations. I would say that you have embarked on a fulfilling and rewarding journey that will shape your career and contribute to the progress of our nation.

Stay focused, stay motivated, and stay true to your passion for excellence. I am confident that you have the potential to make a significant impact on the profession and society at large.

Always remember ***"Optimism is the faith that leads to achievement. Nothing can be done without hope and confidence - Hellen Keller***

With Best Wishes



CA. RANJEET KUMAR AGARWAL
VICE PRESIDENT, ICAI

My Dear Students

Warm Greetings!!

At the outset, I along with my Vice-Chairman, CA. Dayaniwas Sharma, would like to compliment our Intermediate and Final level students for exhibiting their hard work, dedication, and perseverance during May 2023 examination. We acknowledge that examination time has always been challenging and exhausting, however we are hopeful that your arduous work and persistent efforts will bring you favorable outcome.

We are conveying our best wishes to our Foundation level students for their forthcoming June 2023 examination. We are sure that you would have attended BoS live classes conducted for June 2023 examination and in case you were not able to watch the live sessions, may see the recorded lectures available on the BoS Knowledge Portal/BoS Mobile App.

"Results happen over time, not overnight. Work hard, stay consistent and be patient."

For Intermediate and Final level students planning to appear in November 2023 examination, I would recommend you to attend BoS Live Classes which are readily available on BoS Knowledge portal *https://boslive.icai.org/* or ICAI–BoS Mobile App and can also be viewed at ICAI CA Tube/YouTube Channel. Along with your studies, I would advise you to adopt some exercises in your daily activities to keep yourself fit in all respects. Developing a meditation routine with addition to some physical postures will help you reduce stress and improve your concentration. At the same time, you shall be habitual of reading newspaper daily to keep yourself abreast with the latest developments in India as well as globally.

BoS For Your Success for Foundation Level Students

I am pleased to inform you that BoS(A) organized subject-specific sessions under the Banner – BoS for your Success from 15th May onwards for its Foundation level students appearing in forthcoming June 2023 examination. An overwhelming response was received from the students in which approximately 9,000 students actively participated and received significant tips from BoS Faculties for their examination. For those who could not watch these sessions live, can watch them through the BoS Knowledge Portal or ICAI–BoS Mobile App or ICAI CA Tube/ YouTube Channel.

Mock Test Papers (MTPs)

The BoS(A) organized the second series of MTP for its Foundation Level students appearing in June 2023 examination from 22nd May 2023 onwards. Consequently, large number of students appeared in the Mock Test Papers conducted across 107 branches and Regional Councils to analyze their level of preparedness for the June 2023 examination.

Commencement of Live Learning Classes for Foundation course

The Board is commencing BOS Live Learning Classes (LLC Batch – 7) from 12th June 2023 with full coverage of the syllabus for the students of Foundation course appearing in December 2023 examination. I am sure you will make best use of the learning classes.

Capsule Insights

One of the highlights of this issue are comprehensive Capsules based on Paper 2: Strategic Financial Management for CA Final, Paper 4B: Indirect Tax for CA Intermediate and Paper 3: Business Mathematics and Logical Reasoning and Statistics for CA Foundation.

- Capsule of Final Course - Paper 2: Strategic Financial Management conveys the concepts of Chapter 5: Portfolio Management to the students in a lucid and simple manner that will help the students in undergoing a quick revision of this chapter.
- Capsule of Intermediate Course - Paper 4B: Indirect Tax covers significant procedural aspects of Registration under GST and Tax invoice; Debit and Credit notes by means of flowcharts, diagrams, and pictorial representations of the relevant provisions.
- Capsule of Foundation Course - Paper 3: Business Mathematics and Logical Reasoning and Statistics covers the concepts of Ratio, Proportions, Indices and Logarithms used in the field of accounting and finance with the help of few solved questions.

Before I conclude, I would like to advise our students to sincerely undertake their practical training which is the uniqueness of the Chartered Accountancy Course. It is a well-known fact that the CA course provides holistic education by providing a perfect blend of theoretical education and practical training. Theoretical learning is how knowledge is gained, and practical learning is how knowledge is applied. Knowledge is intangible but practical experience makes it tangible by applying those skills in day-to-day practice. The practical hands-on experiences gained during the training is essential for ensuring accomplishment of professional competence expected from a chartered accountant, which ultimately enhances credibility of the profession and protects public interest. Examinations majorly test your conceptual understanding of the subject(s) whereas the practical training under the member of the ICAI lays the foundation of your success in future. Furthermore, I advise you to appear for practical training assessments to self-assess your knowledge and intellectual skills acquired during practical training.

"Knowledge is of no value unless you put it into practice."

– Anton Chekov

Wishing all of you success in your future endeavors.

Stay safe, stay healthy.

CA. VISHAL DOSHI
CHAIRMAN, BOARD OF STUDIES (ACADEMIC)

CHAIRMAN SSEB (BOARD OF STUDIES-OPERATIONS) COMMUNICATION

Dear CA Students,

We stand at a pivotal moment in our academic and professional lives, facing challenges and opportunities that shape our future. As Dr. A P J Abdul Kalam once said, "We should not give up, and we should not allow the problem to defeat us." With this inspiring quote in mind, let us embark on a transformative journey together. At SSEB, we firmly believe that each one of you possesses unique gifts and talents. You are exceptional individuals, encompassing physical, emotional, social, and intellectual dimensions. Our goal is to unearth the hidden gem within each student and provide unwavering support. We understand that you face various challenges along the way, and it is our duty to assist you in overcoming them.

As you conclude months of dedicated efforts in your studies for exams, we hope you feel a sense of relaxation and anticipate great achievements. Exciting programs await you in the coming months. SSEB has lined up valuable conferences across India in June 2023. We urge you to participate and learn from leaders in the fields of accountancy, finance, economics, public administration, and analytics. Upcoming State-Level CA Students' Conference being organized at Amravati on 3rd - 4th June, 2023, Meerut on 17th – 18th June, 2023, Mega Conference of CA Students at Guwahati on 10th - 11th June, 2023, Nagpur on 16th - 17th June, 2023, and National Conference of CA Students at Ernakulam on 16th - 17th June, 2023, Indore on 17th - 18th June, 2023, Mangalore on 23rd - 24th June 2023, and Kolkata (EIRC) on 24th -25th June,2023 respectively. You can participate as a paper presenter, a volunteer or a participant to sharpen your knowledge on contemporary topics and at the same time listen the words of wisdom of eminent speakers and leader of profession on contemporary topics, opportunity and challenges emerging ahead. Stay connected with your branches and regional councils for participation details.

In its endeavour to provide support services in the remote locations of the nation, the SSEB is coming out with new policy of Additional Reading Rooms, meticulously designed to establish a nurturing and propitious learning atmosphere for aspiring CA students.

Further, driven by the overwhelming enthusiasm demonstrated by students nationwide, new formats slated to be introduced for the CA Students National Talent Hunt, 2023. This remarkable event aims to showcase the exceptional abilities of CA students and will encompass an array of captivating activities meticulously curated to foster their intellectual growth and skill development.

The envisaged activities within this grand event include:

Pitch Deck Competition: This invigorating contest will challenge participants to showcase their astute business acumen and persuasive skills by presenting compelling pitch decks. By synthesizing their knowledge of finance, accounting, and strategy, participants will have the opportunity to demonstrate their ability to craft innovative and compelling business proposals.

Dashboard Visualization Competition: In this visionary competition, CA students will be called upon to exhibit their prowess in the realm of data analysis and interpretation. Through the artful presentation of complex information using visually engaging dashboards, participants will illuminate key insights, enabling informed decision-making and strategic planning.

Fast Reading Skills to Analyze, Interpret & Summarize for Academic & Non-academic Purposes: This enlightening segment will equip CA students with the invaluable ability to rapidly read, analyze, interpret, and succinctly summarize diverse materials for both academic and non-academic purposes. By honing their speed-reading techniques and comprehension abilities, participants will enhance their overall learning efficiency and knowledge assimilation.

With the introduction of this innovative reading room policy and the exhilarating CA Students National Talent Contest, 2023, the SSEB aims to empower and nurture the next generation of exemplary CA professionals, ensuring their holistic growth and success in the competitive landscape of the financial world.

In addition to conferences and talent contests, SSEB is conducting Practical Training Modules on Accounting, Auditing, Direct Taxes, Indirect Taxes (GST), and Corporate Law. These modules provide valuable insights into the practical aspects of your articleship training. Expert-led live webinars address complex issues and answer student queries.

To stay updated on all SSEB activities, please visit our committee page at *www.icai.org* website. As June unfolds, we extend our best wishes to foundation-level students preparing for their examinations. May your hard work and focused approach bring you success and laurels. Remember, as Chartered Accountancy students, it is crucial to develop the professional qualities in global demand. The expectations placed upon you are immense, and we can meet them by cultivating the necessary competencies and skills.

"Believe in Yourself, Embrace Challenges, and Excel in Your Journey"

On behalf of SSEB, I wish you all the best for your future endeavors.

(CA MANGESH PANDURANG KINARE)
CHAIRMAN, SSEB

FINAL - PAPER 2 - STRATEGIC FINANCIAL MANAGEMENT

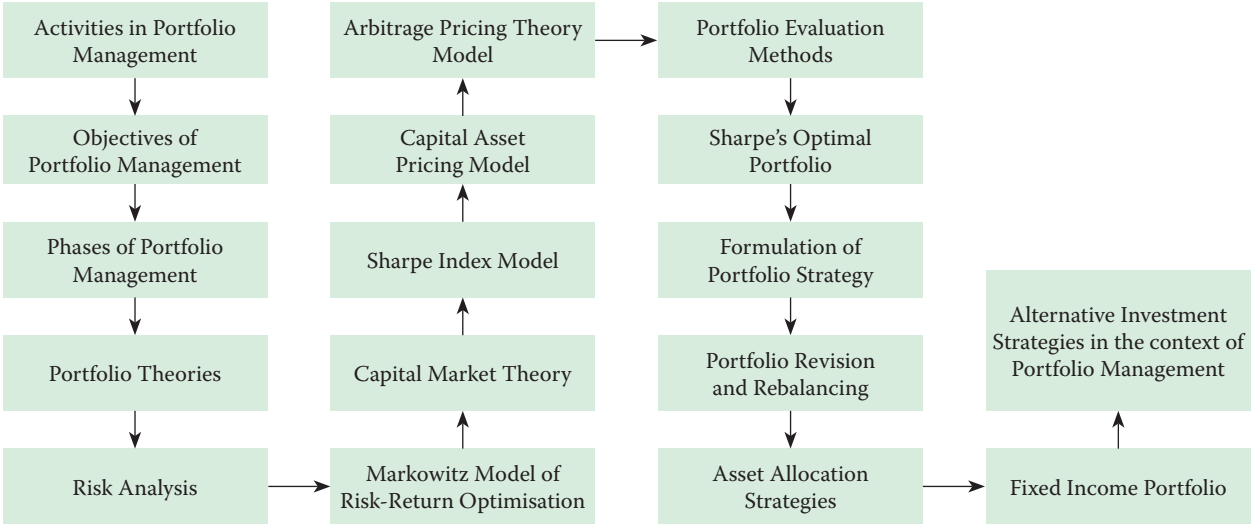
The subject "Strategic Financial Management" basically involves applying the knowledge and techniques of financial management to the planning, operating and monitoring of the finance function in particular as well as the organisation in general. So, strategic financial management basically involves planning the utilisation of company's resources in such a manner that it brings maximum value to the shareholders in the long run.

In this regard, an attempt has been made to convey the concepts of Strategic Financial Management to the students in a lucid and simple manner in the form of capsules. It will help the students in undergoing a quick revision of a particular chapter.

Although every effort has been made to portray the concepts to the students in the capsule form in the simplest possible manner, it cannot be taken as a substitute for the Study Material. Students are therefore advised to refer the ICAI Study Material and other publications such as Suggested Answers, Revisionary Test Papers, Mock Test Papers, etc.

CHAPTER 5: PORTFOLIO MANAGEMENT

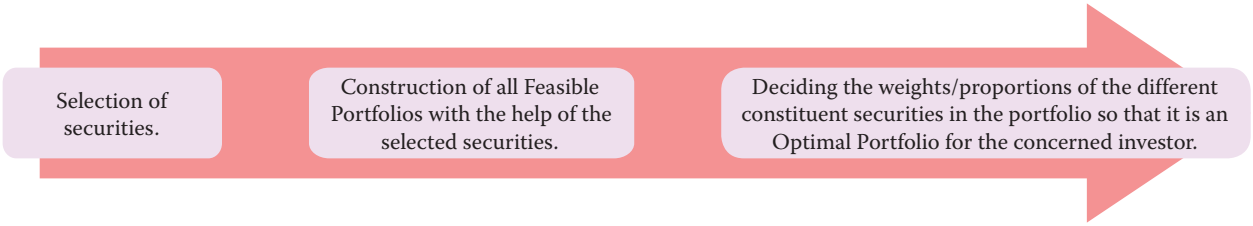
Chapter Overview



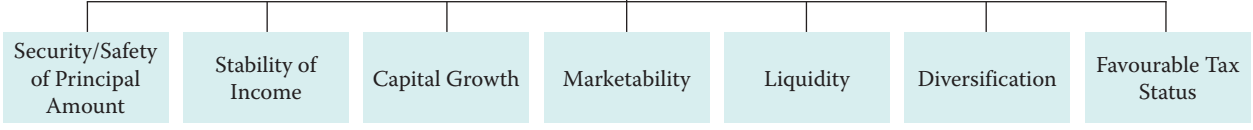
1. Introduction

Investment in the securities such as bonds, debentures and shares etc. is lucrative as well as exciting for the investors. Investment in a portfolio can reduce risk without diluting the returns. Every investment is characterized by return and risk. In general, risk refers to the possibility of the rate of return from a security or a portfolio of securities deviating from the corresponding expected/ average rate and can be measured by the standard deviation/variance of the rate of return.

Activities in Portfolio Management



Objectives of Portfolio Management



2. Phases of Portfolio Management

Security Analysis	• The initial phase of the portfolio formation process and consists in examining the risk-return characteristics of individual securities and also the correlation among them.
Portfolio Analysis	• The next step is to combine these to form a suitable portfolio. From any chosen set of securities, an indefinitely large number of portfolios can be constructed. All such portfolios that can be constructed are termed as Feasible Portfolios.
Portfolio Selection	• Identifcation of the Efficient portfolios out of the whole set of Feasible Portfolios and then to zero in on the Optimal Portfolio suiting his risk appetite.
Portfolio Revision	• To ensure that identified portfolio does not lose it optimality, it becomes necessary for the investor to constantly monitor the portfolio.
Portfolio Evaluation	• It involves quantitative measurement of actual return realized and the risk borne by the portfolio over the period of investment.

3. Portfolio Theories

Traditional Approach	• The traditional approach to portfolio management concerns itself with the investor, definition of portfolio objectives, investment strategy, diversification and selection of individual investment.
Modern Approach (Markowitz Model or Risk-Return Optimization)	• The essence of this theory is that risk of an individual asset hardly matters to an investor. What really matters is the contribution it makes to the investor's overall risk.

4. Risk Analysis

The essence of risk in an investment is the variation in its returns. This variation in returns is caused by a number of factors. These factors which produce variations in the returns from an investment constitute different types of of risk

Total Risk = Total Systematic risk + Total Unsystematic risk

Types of Risk

Systematic Risk

That portion of variability in security returns caused by economic, political, and social changes macro level factors. Systematic risk can be further subdivided into following:

(i) **Interest Rate Risk:** This arises due to variability in the interest rates from time to time. A change in the interest rates establishes an inverse relationship in the price of security i.e. price of securities tends to move inversely with change in rate of interest.

(ii) **Purchasing Power Risk:** It is also known as Inflation Risk, as it also emanates from the very fact that inflation affects the purchasing power adversely. This risk is more in in respect of bonds and fixed income securities. Hence, it is not desirable to invest in such securities during inflationary periods.

(iii) **Market Risk:** This is a type of systematic risk that affects prices of any particular share move up or down consistently for some time periods in line with other shares in the market.

Unsystematic Risk

Sometimes the return from a security of any company may vary because of certain factors particular to this company. Variability in returns of the security on account of these factors (micro in nature), is known as unsystematic risk.

(i) **Business Risk:** Business risk emanates from variability in the operating profits of a company. Such a risk can be measured using operating leverage.

(ii) **Financial Risk:** It arises due to presence of debt in the capital structure of the company. It is also known as leveraged risk and expressed in terms of debt-equity ratio.

Diversion of Risk

By combining many securities in a portfolio the unsystematic risk can be avoided or diversified which is attached to any particular security

Risk & Return

It is very common that an intelligent investor would attempt to anticipate the kind of risk that he/she is likely to face and would also attempt to estimate the extent of risk associated with different investment proposals. With the help of available probability distribution two statistical measures one expected return and the other risk of the investment can be calculated.

(1) Expected Return

The expected return of the investment is the probability weighted average of all the possible returns. If the possible returns are denoted by Xi and the related probabilities are p(Xi) the expected return may be represented as and can be calculated as:

$$\overline{X} = \sum_{i=1}^{n} x_i\, p(X_i)$$

It is the sum of the products of possible returns with their respective probabilities.

(2) Risk

The most popular measure of risk is the variance or standard deviation of the probability distribution of possible returns. Variance of each security is generally denoted by σ^2 and is calculated by using the following formula:

$$\sigma^2 = \sum_{i=1}^{n} [(X_i - \overline{X})^2\, p(X_i)]$$

(3) Measurement of Systematic Risk

The systematic risk of a security is measured by a statistical measure which is called Beta (β). There are two statistical methods i.e. correlation method and the regression method, which can be used to calculate Beta.

3.1 Correlation Method

Using this method beta can be calculated from the historical data of returns by the following formula:

$$\beta_i = \frac{r_{im}\sigma_i}{\sigma_m}$$

Where,

r_{im} = Correlation coefficient between the returns of the stock i and the returns of the market index.

σ_i = Standard deviation of returns of stock i

σ_m = Standard deviation of returns of the market index

3.2 Regression Method

This model is based on the postulation that there exists a linear relationship between a dependent variable and an independent variable. The model helps to calculate the values of two constants, namely Alfa (α) and Beta (β). The formula of the regression equation is as follows:

$Y = \alpha + \beta X$

Where,

Y = Dependent variable
X = Independent variable
α and β are constants.

The formula used for the calculation of α and β are given below.

$$\beta = \frac{{}_n\Sigma^{XY} - (\Sigma^{X})(\Sigma^{Y})}{{}_n\Sigma^{X2} (\Sigma^{X})^2}$$

$\alpha = Y - \beta X$

Where,

n = Number of items.
Y = Dependent variable scores.
X = Independent variable scores.

Portfolio Analysis

(1) Portfolio Return

The formula for the calculation of expected portfolio return is as follows:

$$\overline{r}_p = \sum_{i=1}^{n} x_i \overline{r}_i$$

$\overline{r}_p$ = Expected return of the portfolio.
X_i = Proportion of funds invested in security
$\overline{r}_i$ = Expected return of security i.
n = Number of securities in the portfolio.

(2) Portfolio Risk

Covariance

Covariance between two securities or two portfolios or a security and a portfolio indicates how the rates of return for the two concerned entities behave relative to each other.

The covariance between two securities A and B can be calculated using the following formula:

$$COV_{AB} = \frac{\sum [R_A - \overline{R}_A][R_B - \overline{R}_B]}{N}$$

Where,

COV_{AB} = Covariance between A and B.

R_A = Return of security A

R_B = Return of security B

$\overline{R}_A$ = Expected or mean return of security A

$\overline{R}_B$ = Expected or mean return of security B

N = Number of observations.

Coefficient of Correlation

A statistical measure between two securities or two portfolios or a security and a portfolio indicate degree of relationship with each other. It is expressed as:

$$r_{AB} = \frac{Cov_{AB}}{\sigma_A \sigma_B}$$

Where,

r_{AB} = Coefficient of correlation between A and B.

Cov_{AB} = Covariance between A and B.

σ_A = Standard deviation of A.

σ_B = Standard deviation of B.

On the basis of above formula, the covariance can be expressed as shown below:

$$Cov_{AB} = \sigma_A \sigma_B r_{AB}$$

The variance of a portfolio with only two securities in it can be calculated with the following formula.

$$\sigma_p^2 = x_1^2\sigma_1^2 + x_2^2\sigma_2^2 + 2x_1 x_2(r_{12}\sigma_1 \sigma_2)$$

Where,

σ_p^2 = Portfolio variance.

x_1 = Proportion of funds invested in the first security.

x_2 = Proportion of funds invested in the second security ($x_1 + x_2 = 1$).

σ_1^2 = Variance of first security.

σ_2^2 = Variance of second security.

σ_1 = Standard deviation of first security.

σ_2 = Standard deviation of second security.

r_{12} = Correlation coefficient between the returns of the first and second securities.

(3) Reduction or Dilution of Portfolio Risk through Diversification

The process of combining more than one security in to a portfolio is known as diversification. The main purpose of this diversification is to reduce the total risk by eliminating or substantially mitigating the unsystematic risk, without sacrificing portfolio return. We shall discuss following three cases taking two securities in the portfolio:

3.1 Perfectly Positively Correlated

In case two securities returns are perfectly positively correlated the correlation coefficient between these securities will be +1 and the returns of these securities then move up or down together.

3.2 Perfectly Negatively Correlated

When two securities' returns are perfectly negatively correlated, two returns always move in exactly opposite directions and correlation coefficient between them becomes -1.

3.3 Returns are uncorrelated i.e. independent

When the returns of two securities are entirely uncorrelated, the coefficient of correlation of these two securities would be zero.

(4) Portfolio with more than two securities

The benefits from diversification increase as more and more securities with less than perfectly positively correlated returns are included in the portfolio. As the number of securities added to a portfolio increases, the standard deviation of the portfolio becomes smaller and smaller. Hence, an investor can make the portfolio risk arbitrarily small by including a large number of securities with negative or zero correlation in the portfolio.

(5) Calculation of Return and Risk of Portfolio with more than two securities

The expected return of a portfolio is the weighted average of the returns of individual securities in the portfolio, the weights being the proportion of investment in each security. The formula is:

$$\bar{r}_p = \sum_{i=1}^{n} x_i \bar{r}_i$$

Where

$\bar{r}_p$ = Expected return of portfolio.

x_i = Proportion of funds invested in each security.

$\bar{r}_i$ = Expected return of each security.

n = Number of securities in the portfolio.

5. Markowitz Model of Risk-Return Optimization

Unlike the CAPM, the Optimal Portfolio as per Markowitz Theory is investor specific. The portfolio selection problem can be divided into two stages:

(a) finding the mean-variance efficient portfolios and

(b) selecting one such portfolio.

Investors do not like risk and the greater the riskiness of returns on an investment, the greater will be the returns expected by investors. There is a trade-off between risk and return which must be reflected in the required rates of return-on-investment opportunities.

Thus, as a rule, a portfolio is not efficient if there is another portfolio with:

- A higher expected value of return and a lower standard deviation (risk).
- A higher expected value of return and the same standard deviation (risk).
- The same expected value of return but a lower standard deviation (risk).

Assumptions of the Model

This model is based on the following assumptions:

(i) The return on an investment adequately summarises the outcome of the investment.

(ii) The investors can visualise a probability distribution of rates of return.

(iii) The investors' risk estimates are proportional to the variance of return they perceive for a security or portfolio.

(iv) Investors base their investment decisions on two criteria i.e. expected return and variance of return.

(v) All investors are risk averse. For a given expected return he prefers to take minimum risk, for a given level of risk the investor prefers to get maximum expected return.

(vi) Investors are assumed to be rational in so far as they would prefer greater returns to lesser ones given equal or smaller risk and are risk averse. Risk aversion in this context means merely that, as between two investments with equal expected returns, the investment with the smaller risk would be preferred.

(vii) 'Return' could be any suitable measure of monetary inflows like NPV but yield has been the most commonly used measure of return, so that where the standard deviation of returns is referred to it is meant the standard deviation of yield about its expected value.

Efficient Frontier

As a rule, a portfolio is dominating another portfolio in terms of mean and variance if there is another portfolio with:

- A lower expected value of return and same or higher standard deviation (risk).
- The same or higher standard deviation (risk) but a lower expected return.

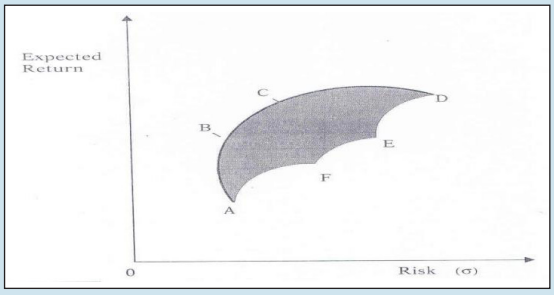
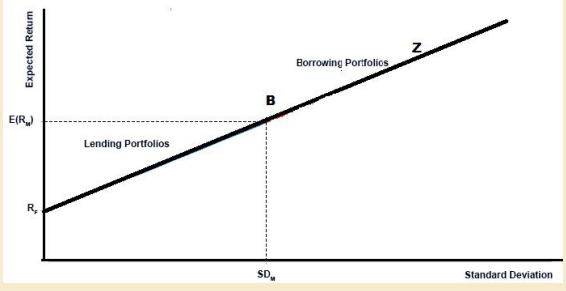


Fig. Markowitz Efficient Frontier

6. Capital Market Theory

This theory exhibits the relationship between Risk and Return for efficient portfolio graphically as shown following figure:



Point B represents the market portfolio and if a line tangent to this point is drawn and extended upto y-axis the point at which it will touch will be the riskless rate of interest. The slope of the capital market line can be regarded as the reward per unit of risk borne and it is computed as follows:

$$\text{Slope} = \frac{R_M - R_f}{\sigma_M}$$

Where,

R_M = Market Return

R_f= Risk Free Rate of Return

σ_M = Standard Deviation of Market

From the Capital Market Line the expected return of a portfolio can be found as follows:

$$E(R) = R_f + \frac{R_M - R_f}{\sigma_M} X\sigma_p$$

Where, σ_p = Standard Deviation of Portfolio

7. Single Index Model (Sharpe Index Model)

This model assumes that co-movement between stocks is due to change or movement in the market index. Since stock prices are related to the market index, this relationship could be used to estimate the return on stock by using following equation:

$R_i = \alpha_i + \beta_i R_m + \epsilon_i$

Where,

R_i = expected return on security

α_i = intercept of the straight line or alpha co-efficient

β_i = slope of straight line or beta co-efficient

R_m = the rate of return on market index

ϵ_i = error term or return expected on account of unsystematic risk

8. Capital Asset Pricing Model (CAPM)

CAPM provides a conceptual framework for evaluating any investment decision where capital is committed with a goal of producing future returns. The return on a security is taken as a dependent variable and the return on market is taken as independent variable then:

$$R_j = R_f + \beta (R_m - R_f)$$

The portfolio beta is merely the weighted average of the betas of individual securities included in the portfolio.

Portfolio Beta (β_p) = Σ Proportion of Security × Beta for Security.

Assumptions

CAPM is based on certain assumptions to provide conceptual framework for evaluating risk and return. Some of the important assumptions are discussed below:

(i) The first assumption is that the market is efficient.

(ii) Investor has rational investment goals hence desires higher return for any acceptable level of risk or the lowest risk for any desired level of return.

(iii) Risk aversion in efficient market is adhered to although at times risk seeking behaviour is adopted for gains.

(iv) CAPM assumes that all assets are divisible and liquid assets.

(v) Investors are able to borrow freely at a risk less rate of interest i.e. borrowings can fetch equal return by investing in safe Government securities.

(vi) Securities can be exchanged without payment of brokerage, commissions or taxes and without any transaction cost.

(vii) Securities or capital assets face no bankruptcy or insolvency.

(viii) CAPM assumes that the Capital Market is in equilibrium.

Risk Free Rate of Return

In CAPM, there is only one risk free rate. It presumes that the returns on a security include both dividend payments and capital appreciation.

Under Valued and Over Valued Stocks

By comparing the required return as per CAPM with the expected return the following investment decisions can be made:

(a) When required return as per CAPM < Actual Return – Buy

(b) When required return as per CAPM > Actual Return – Sell

(c) When required return as per CAPM = Actual Return – Hold

Advantages and Limitations of CAPM

Advantages of CAPM:

(i) **Risk Adjusted Return:** It provides a reasonable basis for estimating the required return on an investment which has risk in built into it. Hence it can be used as Risk Adjusted Discount Rate in Capital Budgeting

(ii) **No Dividend Company:** It is useful in computing the cost of equity of a company which does not declare dividend.

Limitations of CAPM:

(a) **Reliability of Beta:** All shortcomings that apply to Beta value applies to CAPM too.

(b) **Other Risks:** By emphasizing on systematic risk only, unsystematic risks are of importance to shareholders who do not possess a diversified portfolio.

(c) **Information Available:** It is extremely difficult to obtain important information on risk free interest rate and expected return on market portfolio as there is multiple risk free rates for one while for another, markets being volatile it varies over time period.

9. Arbitrage Pricing Theory Model (APT)

APT is used as an alternative to CAPM. While the CAPM formula helps to calculate the market's expected return, APT uses the risky asset's expected return and the risk premium of a number of macroeconomic factors. The formula for APT is represented as -

$E(R_i) = R_f + \lambda_1 \beta_1 + \lambda_2 \beta_2 + \lambda_3 \beta_3 + \lambda_n \beta_n$

Where,

R_f = Risk Free Rate

λ_n = nth factor price or risk premium

β_n = Sensitivity of the Factor n

10. Portfolio Evaluation Methods

Portfolio Evaluation Methods

Sharpe Ratio

Measures the Risk Premium per unit of Total Risk (Systematic and Unsystematic) for a security or a portfolio of securities.

Formula

$$\frac{R_i - R_f}{\sigma_i}$$

Where

R_I = Return on Security / Portfolio

R_f = Risk Free Rate of Return

σ_i = Standard Deviation of the rates of return for the i Security or Portfolio

Treynor Ratio

Measures the Risk Premium per unit of Systematic Risk (β) for a security or a portfolio of securities.

Formula

$$\frac{R_i - R_f}{\beta_i}$$

Where

R_I = Return on Security / Portfolio

R_f = Risk Free Rate of Return

β_i = Beta of the Security or Portfolio

Jensen Alpha

This is the difference between a portfolio's actual return and those that could expected in line with systematic risk of a security or portfolio using CAPM. Hence, purely a reward for bearing market risk.

Formula

(Actual Return on Portfolio - Expected Return on Portfolio)

11. Sharpe's Optimal Portfolio

William Sharpe has developed a simplified variant of Markowitz model that reduces substantially its data and computational requirements.

This model is based on desirability of an investor for excess return of risk-free rate of return to beta. Accordingly, the ranking of securities shall be based on the Sharpe Ratio and unique cut off point C*.

The steps for finding out the stocks to be included in the optimal portfolio are given below:

(a) Find out the "excess return to beta" ratio for each stock under consideration i.e. Treynor's ratio.

(b) Rank them from the highest to the lowest.

(c) Proceed to calculate Ci for all the stocks according to the ranked order using the following formula:

$$C_i = \frac{\sigma_m^2 \sum_{i=1}^{N} \frac{(R_i - R_f)\beta_i}{\sigma_{ei}^2}}{1 + \sigma_m^2 \sum_{i=1}^{N} \frac{\beta_i^2}{\sigma_{ei}^2}}$$

Where,

σ_m^2 = variance of the market index

σ_{ei}^2 = variance of a stock's movement that is not associated with the movement of market index i.e., stock's unsystematic risk.

(d) Compute the cut-off point which the highest value of Ci and is taken as C*. The stock whose excess-return to risk ratio is above the cut-off ratio are selected and all whose ratios are below are rejected. The main reason for this selection is that since securities are ranked from highest excess return to Beta to lowest, and if particular security belongs to optional portfolio all higher ranked securities also belong to optimal portfolio.

(e) Once we came to know which securities are to be included in the optimum portfolio, we shall calculate the percent to be invested in each security by using the following formula:

$$X_i^o = \frac{Z_i}{\sum_{j=1}^{N} Z_i}$$

where

$$Z_i = \frac{B_i}{\sigma_{ei}^2}\left(\frac{R_i - R_o}{B_i} - C^*\right)$$

The first portion determines the weight each stock and total comes to 1 to ensure that all funds are invested and second portion determines the relative investment in each security.

12. Formulation of Portfolio Strategy

(1) Active Portfolio Strategy

There are four principles of on active strategy.

(a) Market Timing: This involves departing from the normal i.e., strategy for long run asset mix to reflect assessment of the prospect of various assets in the near future. Market timing is based on an explicit or implicit forecast of general market movement. A variety of tools are employed for market timing analysis namely business cycle analysis, moving average analysis, advance-decline analysis, Econometric models.

(b) Sector Rotation: Sector or group rotation may apply to both stock and bond component of the portfolio. It is used more compulsorily with respect to strategy. The weighting for various industry sectors is based on their asset outlook.

With respect to bond portfolio sector rotation, it implies a shift in the composition of the bond portfolio in terms of quality as reflected in credit rating, coupon rate, term of maturity etc.

(c) Security Selection: Security selection involves a search for under-priced security. Such stock will be over weighted relative to their position in the market portfolio. Like wise stock which are perceived to be unattractive will be under weighted relative to their position in the market portfolio.

As far as bonds are concerned security selection calls for choosing bonds which offer the highest yields to maturity and at a given level of risk.

(d) Use of Specialized Investment Concept: To achieve superior return, one has to employ a specialized concept/philosophy particularly with respect to investment in stocks. The advantage of cultivating a specialized investment concept is that it helps to:

(i) Focus one's effort on a certain kind of investment that reflects one's ability and talent.

(ii) Avoid the distraction of perusing other alternatives.

(iii) Master an approach or style through sustained practice and continual self-criticism.

The greatest disadvantage of focusing exclusively on a specialized concept is that it may become obsolete. The changes in the market risk may cast a shadow over the validity of the basic premise underlying the investor philosophy.

(2) Passive Portfolio Strategy

Passive strategy, rests on the tenet that the capital market is fairly efficient with respect to the available information. Hence they search for superior return. Basically, passive strategy involves adhering to two guidelines.

(a) Create a well diversified portfolio at a predetermined level of risk.

(b) Hold the portfolio relatively unchanged over time unless it became adequately diversified or inconsistent with the investor risk return preference.

(3) Selection of Securities

(a) Selection of Bonds

Factors to be Evaluated

- **Yield to Maturity**
- **Risk of Default**
- **Tax Shield**
- **Liquidity**

(b) Selection of Stock (Equity Share)

Approaches to be applied

- Technical Analysis
- Fundamental Analysis
- Random Selection Analysis

Level of Market Efficiency and Approach to Security Selection

Approach / *Levels of Efficiency*	*Technical Analysis*	*Fundaments Analysis*	*Random Selection*
1) Inefficiency	Best	Poor	Poor
2) Weak form efficiency	Poor	Best	Poor
3) Semi-strong efficiency	Poor	Good	Fair
4) Strong Form efficiency	Poor	Fair	Best

13. Portfolio Revision and Rebalancing

The relative proportion of bond and stocks may change as stock and bonds fluctuate in response to such changes. Therefore, Portfolio rebalancing is necessary.

(a) Buy and Hold Policy - Sometime this policy is also called 'do nothing policy' as under this strategy no balancing is required and therefore investor maintain an exposure to stocks and therefore linearly related to the value of stock in general.

(b) Constant Mix Policy - This strategy involves periodic rebalancing to required (desired) proportion by purchasing and selling stocks as and when their prices goes down and up respectively.

(c) Constant Proportion Insurance Policy - Under this strategy investor sets a floor below which he does not wish his asset to fall called floor, which is invested in some non-fluctuating assets such as Treasury Bills, Bonds etc.

14. Asset Allocation Strategies

Many portfolios containing equities also contain other asset categories, so the management factors are not limited to equities. There are four asset allocation strategies:

Integrated Asset Allocation	Under this strategy, capital market conditions and investor objectives and constraints are examined and the allocation that best serves the investor's needs while incorporating the capital market forecast is determined.
Strategic Asset Allocation	Under this strategy, optimal portfolio mixes based on returns, risk, and co-variances is generated using historical information and adjusted periodically to restore target allocation within the context of the investor's objectives and constraints.
Tactical Asset Allocation	Under this strategy, investor's risk tolerance is assumed constant and the asset allocation is changed based on expectations about capital market conditions.
Insured Asset Allocation	Under this strategy, risk exposure for changing portfolio values (wealth) is adjusted; more value means more ability to take risk.

15. Fixed Income Portfolio

Fixed Income Portfolio is same as equity portfolio with difference that it consist of fixed income securities such as bonds, debentures, money market instruments etc. Since, it mainly consists of bonds; it is also called Bond Portfolio.

(1) Fixed Income Portfolio Process

1. Setting up objective
2. Drafting guideline for investment policy
3. Selection of Portfolio Strategy - Active & Passive
4. Selection of securities and other assets
5. Evaluation of performance with benchmark

(2) Calculation of Return on Fixed Income Portfolio

Although there can be many types of measuring returns as per requirements but some of the commonly used measures are:

(i) Arithmetic Average Rate of Return

(ii) Time Weighted Rate of Return

(iii) Rupee Weighted Rate of Return

(iv) Annualized Return

(3) Fixed Income Portfolio Management Strategies

(3.1) Passive Strategy

Common strategies applied by passive investors of fixed income portfolios are as follows:

Buy and Hold Strategy	• This technique is do nothing technique and investor continues with initial selection and do not attempt to churn bond portfolio to increase return or reduce the level of risk.
Indexation Strategy	• This strategy involves replication of a predetermined benchmark well known bond index as closely as possible.
Immunization	• This strategy cannot exactly be termed as purely passive strategy but a hybrid strategy. • This strategy is more popular among pension funds.
Matching Cash Flows	• Another stable approach to immunize the portfolio is Cash Flow Matching. This approach involves buying of Zero Coupon Bonds to meet the promised payment out of the proceeds realized

(3.2) Active Strategy

(I) Forecasting Returns and Interest rate

This strategy involves the estimation of return on basis of change in interest rates.

Based on short term yield movement following three strategies can be adopted:

(a) Bullet Strategy: This strategy involves concentration of investment in one particular bond. This type of strategy is suitable for meeting the fund after a point of time such as meeting education expenses of children etc.

(b) Barbell Strategy: As the name suggests this strategy involves investing equal amount in short term and long term bonds.

(c) Ladder Strategy: This strategy involves investment of equal amount in bonds with different maturity periods.

(II) Bond Swaps

This strategy involves regularly monitoring bond process to identify mispricing and try to exploit this situation. Some of the popular swap techniques are as follows:

(a) **Pure Yield Pickup Swap** - This strategy involves switch from a lower yield bond to a higher yield bonds of almost identical quantity and maturity. This strategy is suitable for portfolio manager who is willing to assume interest rate risk as in switching from short term bond to long term bonds to earn higher rate of interest, he may suffer a capital loss.

(b) **Substitution Swap** - This swapping involves swapping with similar type of bonds in terms of coupon rate, maturity period, credit rating, liquidity and call provision but with different prices. This type of differences exits due to temporary imbalance in the market. The risk a portfolio manager carries if some features of swapped bonds may not be truly identical to the swapped one.

(c) **International Spread Swap** – In this swap portfolio manager is of the belief that yield spreads between two sectors is temporarily out of line and he tries to take benefit of this mismatch. Since the spread depends on many factor and a portfolio manager can anticipate appropriate strategy and can profit from these expected differentials.

(d) **Tax Swap** – This is based on taking tax advantage by selling existing bond whose price decreased at capital loss and set it off against capital gain in other securities and buying another security which has features like that of disposed one.

16. Alternate Investment Strategies in Context of Portfolio Management

Plainly speaking, Alternative Investments (AIs) are Investments other than traditional investments (stock, bond and cash).

Though here may be many features of Alternative Investment but following are some common features

- High Fees
- Limited Historical Rate
- Illiquidity
- Less Transparency
- Extensive Research Required
- Leveraged Buying

Types

(1) Real Estates

As opposed to financial claims in the form of paper or a dematerialized mode, real estate is a tangible form of assets which can be seen or touched. Real Assets consists of land, buildings, offices, warehouses, shops etc.

Valuation Approaches

Following are some characteristics that make valuation of Real Estate quite complex:

a. Inefficient Market

b. Illiquidity

c. Comparison

d. High Transaction Cost

e. No Organised market

Valuation of Real Estates - Approaches

(1) Sales Comparison Approach – It is like Price Earning Multiplier as in case of equity shares. Benchmark value of similar type of property can be used to value Real Estate.

(2) Income Approach – This approach like value of Perpetual Debenture or unredeemable Preference Shares. In this approach the perpetual cash flow of potential net income (after deducting expense) is discounted at market required rate of return.

(3) Cost Approach – In this approach, the cost is estimated to replace the building in its present form plus estimated value of land. However, adjustment of other factors such as good location, neighborhood is also made in it.

(4) Discounted After Tax Cash Flow Approach – In comparison to NPV technique, PV of expected inflows at required rate of return is reduced by amount of investment.

(2) Distressed Securities

It is a kind of purchasing the securities of companies that are in or near bankruptcy. Since these securities are available at very low price, the main purpose of buying such securities is to make efforts to revive the sick company.

Risks Analysis of Investment in Distressed Securities

Liquidity Risk - These securities may be saleable in the market .

Event Risk - Any event that particularly effect the company not economy as a whole.

Market Risk - This is another type of risk though it is not important.

Human Risk- The judge's decision on the company in distress also plays a big role.

CA INTERMEDIATE – PAPER 4B: INDIRECT TAXES

The subject-wise capsules published in the Students' Journal every month are one among the many initiatives of Board of Studies which aim at providing quality academic inputs to students of Chartered Accountancy Course. The Capsule is an educational aid that assist students in quick revision of select topics of a subject. This Capsule covers the topics "Tax invoice, credit and debit notes" and "Registration" of Paper 4B: Indirect Taxes of Intermediate Course.

The Capsule is based on the GST law as amended by the significant notifications/circulars issued till 30th April, 2023 and is thus, relevant for students appearing in November, 2023 examination. This Capsule should not be taken as a substitute for the detailed study of these topics.

Tax invoice, credit and debit notes

1. Who can raise a tax invoice?

Registered Person

- Supplying taxable goods or services
- Receiving taxable goods or services from unregistered supplier

2. Time limit for issuance of invoice

Taxable supply

- Goods
  - Involving movement of goods → At the time of removal
  - No movement of goods → At the time of delivery
  - Sale or return supplies → Before or at the time of supply, or within 6 months from the removal – whichever is earlier
- Services → Within 30 days from the supply of services
  - Insurance, Banking - 45 days

In case of continuous supply of goods

- before/at the time each successive statements of accounts is issued or each successive payment is received

In case of continuous supply of services

due date of payment is ascertainable from the contract	on/before due date of payment
not so ascertainable	before/at the time of receipt of payment
payment is linked to the completion of an event	on/before the date of completion of that event

3. Important contents of tax invoice

Name, address & GSTIN of supplier	Consecutive Serial Number & date of issue	Name, address & GSTIN of recipient, if registered	Name & address of recipient alongwith delivery address, name & State code, if not registered
HSN	Description of goods or services	Quantity in case of goods	Total Value of supply
Taxable Value of supply	Tax rate – Central tax & State tax or Integrated tax, cess	Amount of tax charged	Place of supply
Address of delivery where different than place of supply	Tax payable on reverse charge basis	Signature of supplier or authorised signatory - not req. if e-invoice issued as per IT Act, 2000	QR code having embedded IRN in it - in case if e-invoice issued

4. Manner of issuing the invoice

Supply of Goods	Supply of services
Triplicate	**Duplicate**
Original copy for recipient Duplicate copy for transporter; and Triplicate copy for supplier	Original copy for recipient; and Duplicate copy for supplier
The serial number of invoices issued during a month / quarter shall be furnished electronically in FORM GSTR-1.	

5. E-invoicing

A. Class of persons mandatorily required to issue e-invoice [Notified Taxpayers]

All registered businesses

+

with an aggregate turnover (based on PAN) greater than ₹ 10 crore → Required to issue E-invoice

+

in any preceding financial year from 2017-18 onwards

B. Important terms

E-invoice schema

- Uniform standard format
- Form GST INV-1
- containing mandatory specified fields to be reported in electronic format to IRP
- applicable for all businesses across the country

Invoice Registration Portal [IRP]

website

for uploading or reporting of invoices

by notified persons

Invoice Reference Number [IRN]

Unique reference number

generated and returned by IRP

on successful registration of e-invoice

GST invoice will be valid only with a valid IRN

C. Advantages of e-invoicing

- Auto-reporting of invoices into GST return
- Auto-generation of e-way bill
- Substantial reduction in transcription errors
- Early payment
- Cost reduction
- Improved efficiency of business
- Reduction of tax evasion
- Elimination of fake invoices

D. Situations in which e-invoices are applicable

Supply of goods and/or services to a registered person by notified person [B2B supplies]	• Applicable
Exports by notified persons	• Applicable
B2C supplies by notified persons	• Not applicable
Invoices issued by Input Service Distributor	• Not applicable
Supplies made by notified person, tax on which is payable under reverse charge under section 9(3)	• Applicable
Where specified category of supplies are received by notified persons from unregistered persons [attracting reverse charge under section 9(4)] or through import of services	• Not applicable
Import of goods (Bills of Entry)	• Not applicable

E. No requirement of issuing invoice copies in triplicate/duplicate

Where e-invoicing is applicable → No need of issuing invoice copies in triplicate/duplicate

F. Exemption from e-invoicing

- Special Economic Zone units
- Insurer/banking company/financial institution including NBFC
- GTA supplying services in relation to transportation of goods by road in a goods carriage
- Supplier of passenger transportation service
- Person supplying services by way of admission to exhibition of cinematograph films in multiplex screens
- **Government Department and local authority**

G. Overall work flow of e-invoice

Taxpayers (suppliers) create GST invoices on their own Accounting/ Billing/ERP systems as per e-invoice schema [Form GST INV-01] → Taxpayers upload the e-invoice schema to IRP → IRP generates IRN → IRP digitally signs the e-invoice and add QR code → IRP returns e-invoice to supplier → Supplier shares the e-invoice with recipient (along with QR code)

H. Generation of e-way bill/populating relevant parts of GST return through e-invoicing data

IRP sends e-invoice data along with IRN

- GST System
  - Auto-populate data into GSTR-1 of supplier
  - Auto-populate data into GSTR-2A of respective receiver
- E-way bill system
  - Parameters e.g. 'Transporter ID' and 'Vehicle Number', etc. reported in e-invoice schema facilitate generation of e-way bill

I. Cancellation of reported invoice

Cancellation of reported invoice → allowed by seller → by reporting IRN on IRP within specified time

J. Amendment of reported invoice

Amendment of e-invoice already uploaded on IRP

- Possible only on GST portal
- Not possible through the IRP

6. Revised Tax Invoice

Revised Tax Invoices to be issued in respect of taxable supplies effected during this period

- **Effective date of registration**
- **Date of issuance of certificate of registration**

Consolidated Revised Tax Invoice (CRTI) may be issued in respect of taxable supplies made to an **unregistered recipient** during this period

In case of Inter-State supplies, where the value of a supply does not exceed ₹ 2,50,000, a **CRTI** may be issued separately in respect of all unregistered recipients located in a State.

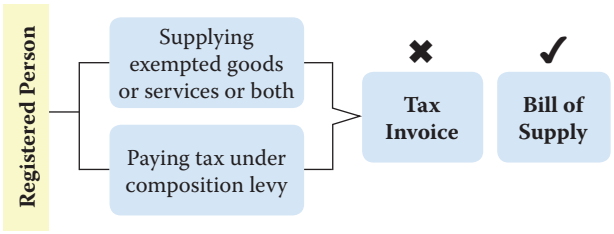
7. Consolidated Tax Invoice

Tax invoice is not required to be issued

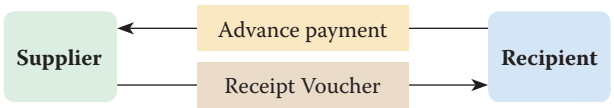
- Value of supply < ₹200
- Recipient is unregistered
- Recipient does not require such invoice

Consolidated Tax Invoice shall be issued for such supplies at the close of each day in respect of all such supplies

8. Bill of Supply



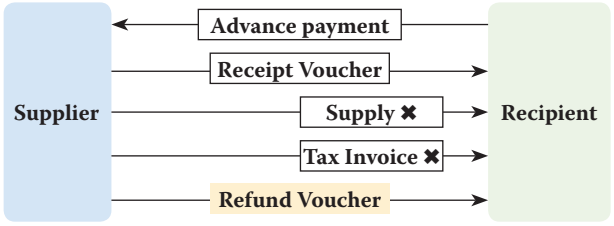
9. Receipt Voucher



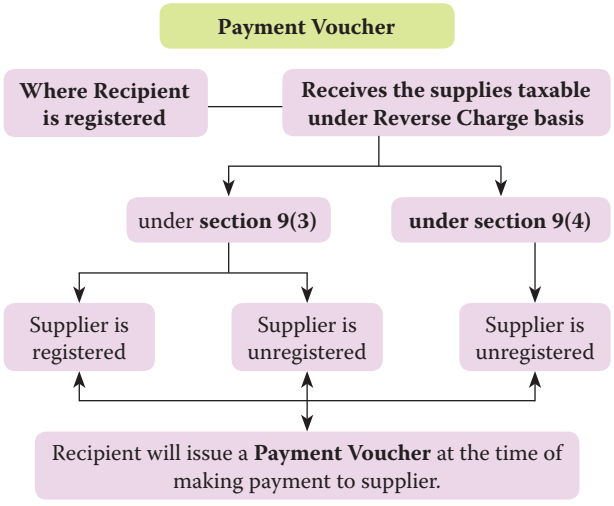
Where at the time of receipt of advance, rate of tax/ nature of supply is not determinable

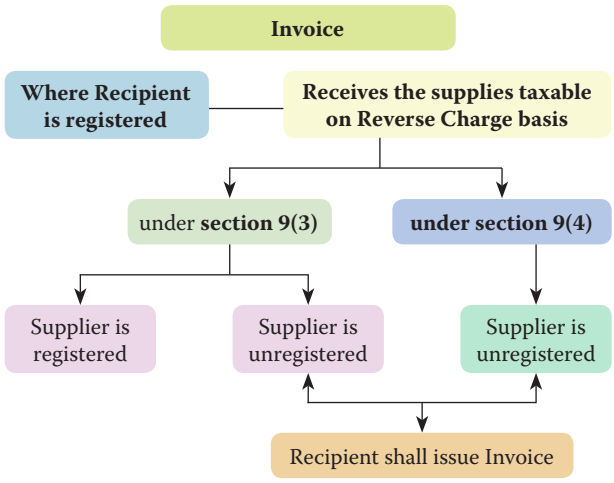
Where at the time of receipt of advance	
(i) **rate of tax is not determinable**	tax shall be paid at the rate of **18%**
(ii) **nature of supply is not determinable**	same shall be treated as **inter-State supply**

10. Refund Voucher



11. Invoice and payment vouchers to be issued by recipient of supply liable to pay tax under reverse charge





12. Credit Notes

Where one or more tax invoices have been issued for supply of any goods or services or both

Taxable value in invoice > Taxable value in respect of such supply

Tax charged in invoice > Tax payable in respect of such supply

OR where the goods supplied are returned by the recipient **OR** where goods or services or both supplied are found to be deficient

Registered Supplier of goods or services or both → may issue one or more credit notes for supplies made in a FY → **Recipient of goods or services or both**

13. Debit Notes

Where one or more tax invoices have been issued for supply of any goods or services or both

Taxable value in invoice < Taxable value in respect of such supply

Tax charged in invoice < Tax payable in respect of such supply

Registered Supplier of goods or services or both → may issue one or more debit notes for supplies made in a FY → **Recipient of goods or services or both**

REGISTRATION

1. Nature of registration

The registration in GST is PAN based and State specific.

One registration per State/UT.

However, a business entity having separate places of business in a State may obtain separate registration for each of its places of business.

Registration under GST is not tax specific, i.e. single registration for all the taxes i.e. CGST, SGST/UTGST, IGST and cesses.

2. Persons liable to registration

Those who exceed threshold limit	• Threshold limit elaborated separately in the diagram below.
In case of transfer of business on account of succession, etc.	• **Transferee** liable to be registered from the date of succession of business
In case of amalgamation/ demerger by an order of High Court etc.	• **Transferee** liable to be registered from the date on which Registrar of Companies issues incorporation certificate giving effect to order of High Court etc.

Taxable Supplies + Exempt supplies + Exports + Inter State supplies = Aggregate Turnover

Aggregate Turnover will be computed on All-India basis for same PAN

Applicable threshold limit

States with threshold limit of ₹ 10 lakh for supplier of goods and/or services	• Manipur, Mizoram, Nagaland and Tripura
States/UTs with threshold limit of ₹ 20 lakh for supplier of goods and/or services	• Arunachal Pradesh, Meghalaya, Sikkim, Uttarakhand, Puducherry and Telangana
States/UTs with threshold limit of ₹ 20 lakh for supplier of services/ both goods and services and ₹ 40 lakh for supplier of goods (Intra-State)	• Jammu and Kashmir, Assam, Himachal Pradesh, All other States

3. Compulsory registration in certain cases

Inter-State supplier	Casual taxable person	Person receiving supplies on which tax is payable by recipient on reverse charge basis
Non-resident taxable persons	A person making taxable supplies on behalf of some other taxable person (i.e. an agent of some Principal)	Person/class of persons notified by the Central/ State Government

4. Persons not liable for registration

Person engaged exclusively in supplying goods/ services/both not liable to tax/wholly exempt from tax	Agriculturist limited to supply of produce out of cultivation of land	Persons making only reverse charge supplies
Persons making inter-State supplies of taxable services up to ₹ 20 lakh**	Persons making inter-State taxable supplies of notified handicraft goods up to ₹ 20 lakh**	Casual Taxable Persons making inter-State taxable supplies of notified handicraft goods up to ₹ 20 lakh**

****₹ 10 lakh in case of Special Category States of Mizoram, Tripura, Manipur & Nagaland**

5. Where and by when to apply for registration?

Person who is liable to be registered under section 22 or section 24	A casual taxable person or a non-resident taxable person
• in every such State/UT in which he is so liable • within 30 days from the date on which he becomes liable to registration	• in every such State/UT in which he is so liable • at least 5 days prior to the commencement of business

6. Voluntary Registration and UIN

Voluntary Registration	• Person not liable to be registered under sections 22/24 may get himself registered voluntarily.
Unique Identification Number (UIN)	• In respect of supplies to some notified agencies of United Nations organisation, multinational financial institutions and other organisations, a UIN is issued.

7. Effective date of registration

Application submitted **within 30 days** of the applicant becoming liable to registration	• Effective date is the date on which the person becomes liable to registration
Application submitted after **30 days** of the applicant becoming liable to registration	• Effective date is date of grant of registration

8. Procedure for registration

Procedure for registration

Part I

Every person liable to get registered and person seeking voluntary registration shall, before applying for registration, declare his Permanent Account Number (PAN) and State/UT in Part **A of FORM GST REG-01** on GST Common Portal.

PAN is validated online by Common Portal from CBDT database and **is also to be verified through separate OTPs sent to the PAN linked mobile number and e-mail address.**

Temporary Reference Number (TRN) is generated and communicated to the applicant on the validated mobile number and e-mail address.

Using TRN, applicant shall electronically submit application in Part B of application form, along with specified documents at the Common Portal.

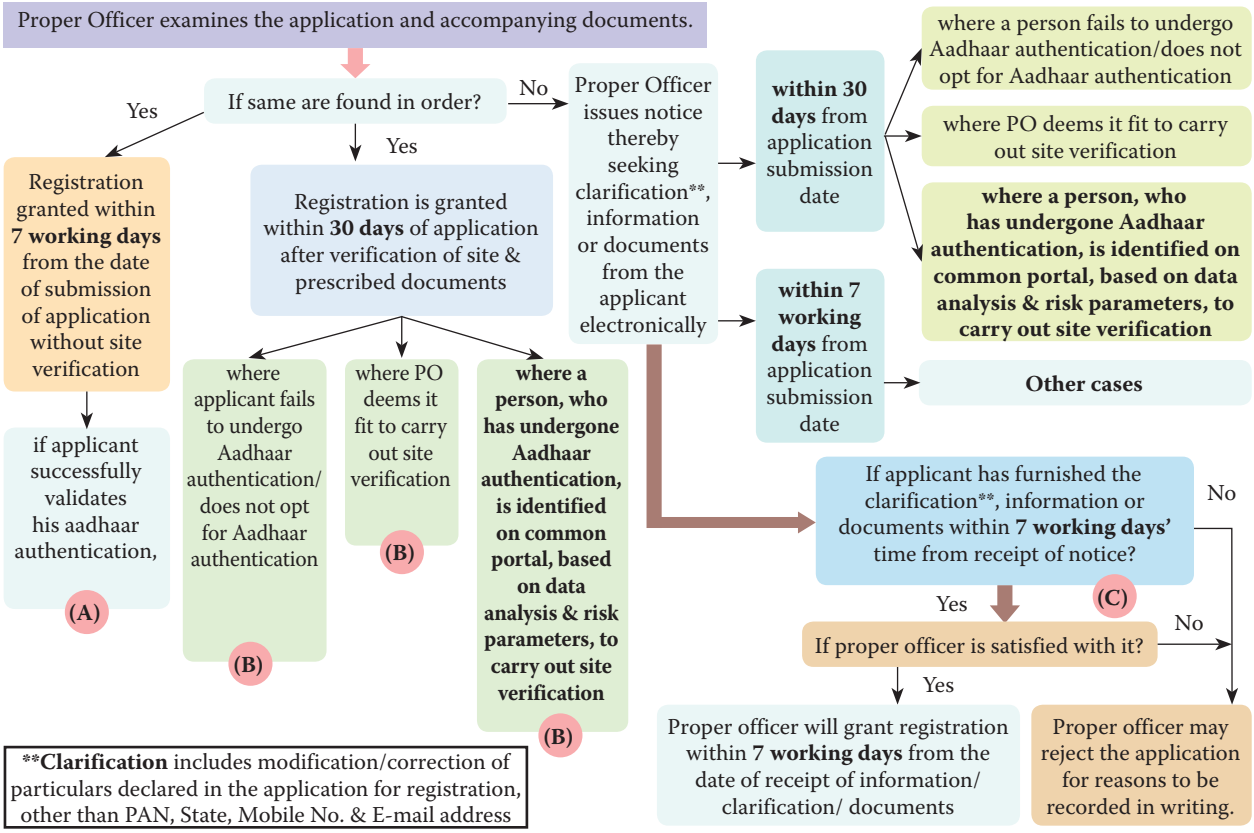
Part B of application contains the details, such as, constitution of business, jurisdiction, option for composition, date of commencement of business, reason to obtain registration, address of PPoB and nature of activity carried out therein, details of APoB, details of bank account(s), details of authorized signatory, aadhaar authentication, etc.

On receipt of such application, an acknowledgement in the prescribed form shall be issued to the applicant electronically. **A Casual Taxable Person (CTP)** applying for registration gets a TRN for making an advance deposit of tax in his electronic cash ledger and an acknowledgement is issued only after said deposit.*

Application shall be forwarded to the Proper Officer.

The procedure after receipt of application by the Proper Officer is depicted in Part II.

* Discussed in detail in subsequent paras.



**Clarification includes modification/correction of particulars declared in the application for registration, other than PAN, State, Mobile No. & E-mail address

9. Special procedure for registration of CTP and NRTP

Casual Taxable Person

A Casual taxable person is one who has a registered business in some State in India, but wants to effect supplies from some other State in which he is not having any fixed place of business.

Such person needs to register in the State from where he seeks to supply as a Casual taxable person.

Non-resident Taxable Person

A Non-Resident taxable person is one who is a foreigner and occasionally wants to effect taxable supplies from any State in India, and for that he needs GST registration.

Casual Taxable Person | Non-resident taxable person

GST law prescribes special procedure for registration, as also for extension of the operation period of such Casual or Non-Resident taxable persons.

They have to apply for registration at least 5 days in advance before making any supply.

Registration is granted to them or period of operation is extended only after they make advance deposit of the estimated tax liability.

Registration is granted to them for the period specified in the registration application or 90 days from the effective date of registration.

10. Amendment of Registration

Except for the changes in some core information in the registration application, a taxable person shall be able to make amendments without requiring any specific approval from the tax authority.

In case there is change in core fields of information, the taxable person will apply for amendment within 15 days of the event necessitating the change. The Proper Officer, then, will approve the amendment within the next 15 days.

For changes in non-core fields, no approval of the Proper Officer is required, and the amendment can be affected by the taxable person on his own on the common portal.

11. Cancellation or suspension of registration and revocation of cancellation of registration

Registration can be cancelled either by proper officer or on an application of the registered person

--Business discontinued/ Transferred/ Amalgamated with other legal entity/ Demerged or Otherwise disposed of

Change in the constitution of the business

Taxable person no longer liable to be registered or intends to opt out of voluntary registration

Registration can be cancelled by the proper officer on his own

A registered person has contravened the prescribed provisions

- A registered person has not filed returns for continuous 6 months or 2 tax periods (return for a F.Y. beyond 3 months from due date of furnishing the said return for composition supplier)
- Voluntarily registered person has not commenced the business within 6 months from the date of registration
- Registration was obtained by means of fraud, wilful misstatement or suppression of facts

Once a registered person has applied for cancellation of registration or the proper officer seeks to cancel his registration, proper officer may suspend his registration during pendency of proceedings relating to cancellation of registration filed by such registered person.

Procedure for cancellation

Where the registered person applies for cancellation

Registered person seeking cancellation shall apply for the same within 30 days of occurrence of the event warranting cancellation, in prescribed form, furnishing the details of inputs held in stock or inputs contained in semi-finished/finished goods held in stock and of capital goods held in stock on the date from which cancellation of registration is sought, liability thereon, payment, if any made & relevant documents.

Proper officer (PO) shall issue the order of cancellation within 30 days of submission of application for the same.

Where the proper officer cancels the registration

PO shall issue a SCN to the registered person who has to reply to said notice within 7 days.

Proceedings shall be dropped

- If reply to SCN is satisfactory
- Where instead of replying to SCN, person furnishes all pending returns & makes full payment of tax along with interest & late fee.

Cancellation order shall be issued within 30 days of reply to SCN where registration is liable to be cancelled

Revocation of cancellation

- In case where registration is cancelled suo-motu by the proper officer, the taxable person can apply within 30 days (extendible by 30 days by Additional/Joint Commissioner and by further 30 days by Commissioner) of service of cancellation order, requesting the officer for revoking the cancellation ordered by him.
- However, before so applying, the person has to make good the defaults (by filing all pending returns, making payment of all dues and so) for which the registration was cancelled by the officer.
- If satisfied, the proper officer will revoke the cancellation earlier ordered by him.
- However, if the officer concludes to reject the request for revocation of cancellation, he will first observe the principle of natural justice by way of issuing notice to the person and hearing him on the issue.

However, there shall be deemed revocation of cancellation upon furnishing of pending GST returns subject to the condition that the registration has not been cancelled by the proper officer under rule 22

CROSSWORD SOLUTION – MAY 2023

[1]A	[2]B	[3]S	T	[4]I	[5]N	[6]E	N	[7]C	[8]E		[9]H	S
[10]F	A	O		[11]L	O	I		[12]E	S		O	
[13]T	D	F		[14]O	R		[15]G	R	O	W	T	[16]H
[17]E	D	T			M		[18]S	T	P		M	N
[19]R	E		[20]E	[21]D			T			[22]G	O	I
	[23]B	[24]U	Y	E	[25]R			[26]F			N	
[27]G	T	B		[28]A	I		[29]J	O	[30]B	[31]B	E	R
R		[32]E	S	L		[33]L	U	X	U	R	Y	
[34]O	[35]M	R		[36]I	S				[37]S	I		[38]S
[39]S	P		[40]M	N		[41]C	[42]A	S	H	C	[43]O	W
[44]S	C	[45]M		[46]G	[47]A	T	T			[48]K	N	O
		O			[49]O	P	E	[50]N			[51]F	T
[52]U	N	D	E	R	W	R	I	T	I	N	G	

CA FOUNDATION - PAPER 3: BUSINESS MATHEMATICS, LOGICAL REASONING AND STATISTICS

Chapter -1: Ratio, Proportion, Indices and Logarithms

At the foundation level the concepts of Ratio, Proportion, Indices and Logarithms is used in accounting and finance. Here in this capsule an attempt is made for solving and understanding the concepts of Ratio, Proportion and Indices with the help of following questions with solutions.

Unit 1: Ratio

Ratio Definition

If a and b are two non-zero number of same kind then fraction a/b is called RATIO of a to b. It is denoted by a : b . Here a is called ANTECEDENT and b is called CONSEQUENT.

For example, Ratio of two numbers 4 and 6 is 2 : 3.

(i) the ratio between $\sqrt{5}$ and $\sqrt{6}$ is $\sqrt{5} : \sqrt{6}$

(ii) the ratio between 150gm and 2 kg. is 3 : 40

(iii) the ratio between 25 minutes and 45 Seconds is 100 : 3

INVERSE RATIO: If a:b then b:a is called inverse ratio of a:b

Example: The inverse ratio of 11: 15 is 15: 11

Duplicate Ratio: If a : b is a given ratio then Duplicate Ratio is $a^2:b^2$

Example: The duplicate ratio of 2: 3 4: 9

SUB DUPLICATE RATIO: If a : b is given ratio then $\sqrt{a} : \sqrt{b}$ is called SUB DUPLICATE RATIO

Example: The Sub Duplicate Ratio of 25 : 16 is 5 : 4

Triplicate Ratio: If a : b is given ratio then is $a^3:b^3$ called Triplicate Ratio

Example: Triplicate Ratio of 3 : 2 is 27 : 8

Sub-Triplicate Ratio: If a : b is a given ratio then $\sqrt[3]{a} : \sqrt[3]{b}$ is called Sub Triplicate Ratio of a : b

Example: Sub Triplicate Ratio of 125 : 27 **is** 5 : 3

Compounded Ratio: The Ratio Compound of a : b and c : d is ac : bd.

Compounded Ratio of (a) 5 : 6 and 2 : 3 is 5 : 9 (b) 2 : 5, 5 : 7, and 6 : is 3 : 14

Question 1: Ratio of 5 kg and 15 kg is

Solution: Ratio = $\frac{5kg}{15kg} = \frac{1}{3} = 1:3$

They have same units, so it is a ratio.

Question 2: Ratio of 5m and 200 cm; is

Solution: Since 1 metre = 100 cm

Ratio of 5 m & 200 cm = $\frac{5\times100cm}{200cm} = \frac{5}{2} = 5:2$

Question 3: Ratio of the height 170 cm and weight 60 kg of a person is

Solution: Cm is unit of length and kg is unit of mass. So, they cannot be converted in same units. 170 cm : 60 kg is not a ratio.

Question 4: Which ratio out of the following ratios is greater.

$2\ \frac{1}{3} : 3\frac{1}{3}$ and 3.6:4.8

Solution: $2\ \frac{1}{3} : 3\frac{1}{3} := \frac{7}{3} : \frac{10}{3} = 7:10$

7:10 = 0.70

$\frac{3.6}{4.8}$ 0.75. Clearly 3.6 : 4.8 is greater ratio.

Unit-II Proportion

DEFINITION: AN EQUALITY OF TWO RATIO IS CALLED A PROPORTION.

If a, b, c, d are four numbers then a : b = c : d [Also written as a : b : : c : d] is called Proportion of four numbers.

a : b = c : d

$\therefore \frac{a}{b} = \frac{c}{d}$

∴ad=bc

[Product of 1st and 4th] = [Product of 2nd and 3rd]

Note: If a : b = c : d then 'd' is called 'Fourth Proportion'

Mean Proportion: If a, b, c are in CONTINUOUS PROPORTION then MIDDLE TERM b is called the MEAN PROPORTION. b^2=ac **then** b=√ac Mean Proportion

Note: MEAN PROPORTION of two number x and y is $\sqrt{xy}$

TYPES OF PROPORTION

1. INVERTENDO PROPORTION

If a:b=c:d then b:a=d:c is called INVERTENDO PROPORTION

2. ALTERNENDO PROPORTION

If a:b=c:d then a:c=b:d is called ALTERNENDO PROPORTION

3. COMPONENDO PROPORTION

If a:b=c:d then (a+b): b=(c+d):d is called COMPOUND PROPORTION

4. DIVIDENDO PROPORTION

If a:b=c:d then (a-b):b=(c-d): d is called DIVIDENDO PROPORTION

5. COMPOUNDED & DIVIDENDO PROPORTION

If a : b=c : d then (a+b) : (a-b) = (c+d) : (c-d) is CALLED COMPOUNDED and DIVIDENDO PROPORTION

6. ADDENDO PROPORTION

If a : b = c:d=e:f ……. then (a+c+e ……..) : (b+d+f+ ……..) is called ADDENDO PROPORTION

Continuous Proportion: If a, b, c are Continuous Proportion then

$\frac{a}{b} = \frac{b}{c}$ or $b^2 = ac$

i.e. Ratio of 1st of 2nd = Ratio of 2nd to 3rd

i.e. Square of middle term = Product of 1st and last

Note: If x, y, z a, b, c ..... are Continuous Proportion then

$\frac{x}{y} = \frac{y}{z} = \frac{z}{a} = \frac{a}{b} = \frac{b}{c} = \ldots\ldots\ldots\ldots\ldots\ldots\ldots$

Question 5: If A **:** B= 2 **:** 3 **;** B **:** C = 4 **:** 5 and C **:** D = 6 : 7 Then A : D is equal to

Solution: $\frac{A}{B} \times \frac{B}{C} \times \frac{C}{D} = \frac{2}{3} \times \frac{4}{5} \times \frac{6}{7}$

A : D = 16 : 35

Question 6: Two vessels contain equal quantity of mixtures of milk and water in the ratio 9 : 5 and 4 : 3 respectively. Both the mixtures are mixed find the ratio of milk to water in the new mixture.

Tricks: Milk : Water sum

Vessel I 9 : 5] 14 × 1 = 14

Vessel II 4 : 3] 7 ×2 = 14

Vessel III (9 + 4×2) : 5 + 3x2]

(Adding corresponding terms of the ratio)

Take LCM of 14 & 7 = 14.

Then make it of equal quantity (i.e. = 14)

∴ Ratio of Milk to Water in the new vessel = 17 : 11.

Question 7: Two vessels containing water and milk in the ratio 2 : 3 and 4 : 5 are mixed in the ratio 1 :2. The ratio of milk and water in the resulting mixture.

Tricks

Step 1. Milk **:** Water sum

Vessel I 3:2]5×9=45

Vessel II 5 : 4] 9 x 5 = 45

Step 2.

∴Vessel I 27: 18] 45x1 Vessel II 25 : 20] 45 x 2

Step 3.

Mixing Vessel I & Vessel II mixtures, we get Vessel III (27 + 50) : (18+40) = 77 : 58

Take LCM of 5 & 9 = 45.

Making same quantities of Vessel I & II i.e. 45. We have to mix the mixtures of vessel I & II in the ratio 1 : 2

∴ Multiply I by 1 and II by 2 ,Then we add. We get the answer.

Rules of Alligation

It is used in mixing of two varieties of same kind. It is derived from the weighted mean method.

Rule

If two varieties of rices with rate Rs. x per kg and Rs. y per kg are mixed to make a third variety of rice with rate Rs. z per kg. The ratio in which these two varieties are mixed is

Remember

(i) If x represents cost then y and z must be cost.

(ii) If x represents selling price then y and z must be selling price.

(iii) If x represents profit then y and z must be profit or loss.

(iv) If x represent milk of 1st mixture then y and z must represent milk of 2nd mixture and mixed mixture.

Question 8: Sugar at rate Rs. 15 per kg is mixed with sugar at rate Rs. 20 per kg in the ratio 2:3. Find the price per kg of the mixture.

Solution : **Tricks**

$\frac{20-x}{x-15} = \frac{2}{3}$

x = Rs. 18.

Question 9: Varun mixes milk costing Rs. 6.92 per litre with milk costing Rs. 7.77 per litre and sells the mixture at Rs. 8.80 per litre and earns a profit of 17.5% on his sales price. In what proportion does he mix them?

Solution:

Selling price per litre = Rs. 8.80 Less profit 17.5% of 8.80 = Rs. 1.54 Cost per litre **Rs. 7.26 = 3:2**

Question 10: Two numbers are in the ratio 2 : 3 and the difference of their squares is 320. The number are :

(a) 12,18 (b) 16,24

(c) 14,21 (d) None

Solution: Tricks Go by choices (a); (b) & (c) all are in ratio 2:3 But For option

(a) $18^2 - 12^2 \neq 320$

(b) $24^2 - 16^2 = (24 + 16)(24 - 16)$

= 40 x 8 = 320

Question 11: If p **:** q is the sub-duplicate ratio of $p - x^2$**:** $q - x^2$, then x^2 is :

Solution: Detail Method:-

Solution: Detail Method:- $\frac{\sqrt{(p-x^2)}}{\sqrt{(q-x^2)}} = \frac{p}{q}$

Squaring on both side; we get $\frac{(p-x^2)}{(q-x^2)} = \frac{p^2}{q^2}$

or $pq^2 - q^2x^2 = p^2q - p^2x^2$

or $p^2x^2 - q^2x^2 = p^2q - pq^2$

or $x^2(p^2 - q^2) = Pq(P - q)$

or $x^2(p+q)(p-q) = pq(p-q)$

or $x^2 = \frac{pq}{p+q}$

Question 12: An alloy is to contain copper and zinc in the ratio 9:4. The zinc required to melt with 24 kg of copper is:

Solution: Let Zinc = x kg

$\therefore \frac{9}{4} = \frac{24}{x} \therefore x = \frac{4\times24}{9} = \frac{32}{3} = 10\frac{3}{3}$ kg

Question 13: Two numbers are in the ratio 7: 8. If 3 is added to each of them, their ratio becomes 8 : 9. The numbers are:

Solution: Let x is common in the ratio

∴ Numbers are 7x & 8x

Now $\frac{7x+3}{7x+3} = \frac{8}{9}$

or 64x + 24 = 63x + 27

or 64x - 63x = 27-24

or x = 3

1st number = 7x = 7×3 = 21

2nd number = 8x = 8x3 = 24

Question 14: A box contains Rs. 56 in the form of coins of one rupee, 50 paise and 25 paise. The number of 50 paise coin is double the number of 25 paise coins and four times the numbers of one rupee coins. The numbers of 50 paise coins in the box is:

Solution: Let No. of 50 Paise coins = x

$\therefore$ No. of Re. 1 coins = $\frac{x}{4}$ and No. of 25 Paise coins = $\frac{x}{2}$

$\therefore$ Total Value = $\frac{x}{4} \times 1 + x \times 0.50 + \frac{x}{2} \times 0.25 = 56$

or $0.25x + 0.50x + 0.125x$

or $0.875x = 56$

or $x = \frac{56}{0.875} = 64$

Question 15: A bag contains Rs. 187 in the form ofl rupee, 50 paise and 10 paise coins in the ratio 3:4:5. Find the number of each type of coins:

Solution: Let x is common in the ratio

No. of 1 Rupee ; 50 Paise and 10 Paise

Coins are 3x ; 4x and 5x

$$3x \times 1 + 4x \times 0.50 + 5x \times 0.10 = 187$$

$$x = \frac{187}{5.50} = 34$$

$\therefore$ No. of 1 Rupee coins = $3x = 3 \times 34 = 102$

No. of 50 Paise coins = $4x = 4x34 = 136$

No. of 10 Paise coins = $5x = 5x34 = 170$

Question 16: Ratio of earnings of A and B is **4 :** 7. If the earnings of A increase by 50% and those of B decrease by 25%, the new ratio of their earning becomes 8 : 7. What is A's earning ?

Solution: Let x is common in the ratio

$\therefore$ A's and B's present earnings are 4x and 7x respectively From question

$$\frac{4X + 4X \times 0.50}{7X - 7X \times 0.25} = \frac{8}{7}$$

OR ; $\frac{6X}{5.25X} = \frac{8}{7}$

x cannot be found. $\therefore$ Data is inadequate

Question 17: P, Q and R are three cities. The ratio of average temperature between P and Q is 11 : 12 and that between P and R is 9: 8. The ratio between the average temperature of Q and R is:

Solution: P : Q = 11 **:** 12 Q : P = 12 : 11

$$\frac{Q}{P} \times \frac{P}{R} = \frac{12}{11} \times \frac{9}{8}$$

$\frac{Q}{R} = \frac{27}{22}$ Q:R=27:22

Question 18: Rs. 407 are to be divided among A, B and C so that their shares are in the ratio

$\frac{1}{4} : \frac{1}{5} : \frac{1}{6}$ The respective shares of A, B, C are:

The respective shares of A, B, C are:

Solution:

A : B : C = $\frac{1}{4} : \frac{1}{5} : \frac{1}{6}$]× LCM of denominator = 60 = 15 : 12 :10

A's share = $\frac{407}{15+12+10} \times 15$= Rs. 165

B's share = $\frac{407}{37} \times 12$ =Rs. 132

C's share = $\frac{407}{37} \times 10$ = Rs,110

Question 19: The incomes of A and B are in the ratio 3 :2 and their expenditures in the ratio 5 : 3. If each saves Rs. 1,500, then B's income is:

Solution: Detail Method Let x is common in the ratio.

$\therefore$ A's income = 3x

B's income = 2x

$$\frac{3x-1500}{2x-1500} = \frac{5}{3}$$

or 10x - 7500 = **9x** - 4500 or 10x - 9x = 7500 - 4500 or x = 3000:-
B's income = 2x = 2x3000 = Rs 6000.

Question 20: In 40 litres mixture of glycerine and water, the ratio of glycerine and water is 3:1. The quantity of water added in the mixture in order to make this ratio 2:1 is:

Solution: Glycerine = $\frac{40}{3+1} \times 3 = 30$ litres.

Water = $\frac{40}{4} \times 1 = 10$ litres

Let x liters of water is added to the mixture

Then $\frac{30}{10+x} = \frac{2}{1}$

or 2x + 20 = 30 or x = 5

Question 21: The third proportional between (a^2-b^2) and $(a+b)^2$ is:

Solution: 3rd Proportion = $\frac{(\text{Meanprop.})^2}{\text{IstProp}}$

$$= \frac{\{(a+b)^2\}^2}{a^2-b^2} = \frac{(a+b)^4}{(a+b)(a-b)} = \frac{(a+b)^3}{a-b}$$

Question 22: If A, B and C started a business by investing Rs. 1,26,000, Rs. 84,000 and Rs. 2,10,000. If at the end of the year profit is Rs. 2,42,000 then the share of each is:

Solution: Investment ratio is

A : B : C = 126,000 : 84,000 : 2,10,000] ÷14,000

= 9:6:15] +3

= 3: 2 : 5

A's share = $\frac{\text{Rs}242{,}000}{3+2+5} \times 3 = \text{Rs}72{,}600$

B's share = $\frac{242,000}{10}$×2 = RS. 48,400

C's share = $\frac{242,000}{10}$x 5 = Rs. 1,21,000

So, (a) is Correct

Question 23: If $\frac{p}{q} = -\frac{2}{3}$ then the value of $\frac{2p+q}{2p-q}$ is:

Solution: ∵ $\frac{p}{q} = \frac{-2}{3}$

Tricks $\frac{2p+q}{20-q} = \frac{2(-2)+3}{2(-2)-3} = \frac{-4+3}{-4-3} = \frac{-1}{-7} = \frac{1}{7}$

Question 24: Fourth proportional to x, 2x, \x +1) is:

Solution: Let Fourth Proportional is K.

∵ $\frac{x}{2x} = \frac{x+1}{k}$

or k.x = 2x (x + 1)

or k = 2 (x + 1) = 2x +2

Question 25: What must be added to each term of the ratio 49 : 68 so that it becomes 3.: 4 ?

Solution:

Let x is added to each term

Then $\frac{49+x}{68+8} = \frac{3}{4}$

or 196 +4x = 204 + 3x

or 4x - 3x = 204 - 196

or x = 8

Question 26: If A : B= 2:5, then (10A + 3B): (5A+2B) is equal to

Solution: It A : B = 2 : 5 Then

$\frac{10A+3B}{5A+2B} = \frac{10\times2+3\times5}{5\times2+2\times5} = \frac{35}{20} = \frac{7}{4}$

= 7:4

Question 27: In a film shooting, A and B received money in a certain ratio and B and C also received the money in the same ratio. If A gets Rs. 1,60,000 and C gets Rs.2,50,000. Find the amount received by B ?

Solution: A : B = B : C

So, B^2 = AC ;

So, B = $\sqrt{AC} = \sqrt{1,60,000\times2,50,000}$

= 400 × 500 = 2,00,000

Question 28: The ratio compounded of 4:5 and sub-duplicate of "a" : 9 is 8:15. Then value of "a" is

Solution: $\frac{4}{5}$ x $\sqrt{\frac{a}{9}} = \frac{8}{15}$

or $\frac{4}{5}$ x $\frac{\sqrt{a}}{3} = \frac{8}{15}$

$\therefore \sqrt{a} = 2 \Rightarrow a = 4$

Question 29: If X varies inversely as square of Y and given that Y =2 for X = 1, then the value of X for Y =6 will be

Solution: x = $\frac{1}{y^2}$ =X=K $\frac{1}{y^2}$ ⇒X= $\frac{k}{y^2}$

When x=1 Then y=2

x =$\frac{4}{y^2}$

When y=6, Then x =$\frac{4}{6^2} = \frac{1}{9}$

$\therefore$ x=$\frac{1}{9}$

Question 30: Which of the numbers are not in proportion ?

(a) 6,8,5,7 (b) 7,14,6;12

(c) 18,27,12,18 (d) 8,6,12,9

Solution: (a) Go by choices

$\frac{6}{8} = \frac{3}{4} \neq \frac{5}{7}$

$\therefore$ (a) is not in proportion

Question 31: Find two numbers such that mean proportional between them is 18 and third proportional between them is 144

(a) 9; 36 (A) 8 ; 32

(c) 7 ; 28 (d) 6 ; 14

Solution: (a) is correct **Tricks** : Go by choices ,

For (a) Mean Proportional of 9 x 36

$\sqrt{(9\times36)}$=18 It satisfies 1st condition.

If 144 is its 3rd condition.

36^2 =9x144

It also satisfies the 2nd condition.

Question 32: The mean proportion between 24 and 54 is _____

Solution: Mean_Proportion = $\sqrt{(24\times54)}$=36

Question 33: If P is 25% less than Q and R is 20% higher than Q the Ratio of R and P

Solution:

Let Q = 100, So, P = 100-025 = 75

&R= 100 + 20= 120

$\frac{R}{P} = \frac{120}{75} = \frac{8}{5}$

Question 34: A person has assets worth Rs. 1,48,200. He wish to divide it amongst his wife, son and daughter in the ratio 3 : 2 : 1 respectively. From this assets the share of his son will be

Solution Share of son = $\frac{2}{3+2+1}$ ×1,48,200

= Rs.49,400

Question 35: If x : y = 2 : 3 then (5x+2y): (3x -y) =

Solution: $\frac{5x+2y}{3x-y} = \frac{5\times2+2\times3}{3\times2-3} = \frac{16}{3}$

Question 36: The first, second and third month salaries of a person are in the ratio 2:4:5. The difference between the product of the salaries of first 2 months & last 2 months is Rs. 4,80,00,000. Find the salary of the second month

Solution:

Let x be common in the ratio.

1st, 2nd and 3rd month salaries of a person =2x ; 4x ; 5x :-From Qts

4x×5x-2x×4x = 4,80,00,000.

or,$12x^2$ -4,80,00,000.

or,x^2 = 4000000 x = 2000.

2nd month salary = 4x = 4x 2000

= Rs. 8000

Question 37: $(2p^2-q^2)=7pq$, where p, q are positive then p : q

(a) 5:6 (b) 5:7

(c) 3:5 (d) 3:7

Solution: (a) is correct

$15(2p^2-q^2)=7pq$

Tricks: Go by choices For (a) put p = 5; q = 6 we get

$15|2\times5^2-6^2|=3\times5\times6$

or 15x14 = 210

or 210 = 210

Question 38: What must be added to each of the numbers 10, 18,22, 38 to make them proportional:

(a) 5 (b) 2

(c) 3 (d) 9

Solution: (b) is correct

let x be added.

$$\frac{10+x}{8+x}=\frac{22+x}{38+x}$$

Tricks: Go by choices.

∴ x = 2 satisfies it.

Question 39: x, y, z together starts a business. If x invests 3 times as much as y invests and y invests two third of what z invests, then the ratio of capitals of x, y, z is

(a) 3:9:2 (b) 6:3:2

(c)3:6:2 (d) 6 : 2 : 3

Solution: (d)

Tricks: Go by choices

$6 = 3\times2$ and $2 = 3\times\frac{2}{3}$

Question 40: If a:b = 2:3,b:c = 4:5,c:d=6:7 then a: d is _____

Solution: Multiply all ratios = $\frac{2}{3}\times\frac{4}{5}\times\frac{6}{7}=\frac{16}{35}$

Q. 41: If $\frac{1}{2}, \frac{1}{3}, \frac{1}{5}, \frac{1}{x}$ are in proportion then x =

Solution: Product of middle two terms = Product of extremes

$$\frac{1}{2x}=\frac{1}{15};x=15/2$$

UNIT -III INDICES

Definition: - If n is a positive integer, and 'a' is a real number, i.e. n ∈N and a∈R (where N is the set of positive integers and R is the set of real numbers), 'a' is used to denote the continued product of n factors each equal to 'a' as shown below:

a^n=a×a×a ..... to n factors.

Here a^n is a power of "a" whose base is "a" and the index or power is "n". For example, in $3\times3\times3\times3=3^4$, 3 is base and 4 is index or power.

1. $a^m.a^n=(a)^{m+n}$
2. $\frac{a^m}{a^n}=a^{m-n}$
3. $\frac{a^m}{a^{-n}}=(a)^{m+n}$
4. $a^0=1$
5. $[a^m]^n = a^{mn}$
6. $[a^m]\wedge\frac{1}{n}=(a)\wedge\frac{m}{n}$
7. $\sqrt[n]{a^m} = (a)\wedge\frac{m}{n}$
8. $[ab]^m=(a)^m.(b)^m$
9. $\left[\frac{a}{b}\right]^m=\frac{a^m}{b^m}$
10. $a^{-m}=\frac{1}{a^m}$
11. If $a^x=a^y$ ∴x=y
12. If (a)^x=(b)^x ∴x=y
13. If a^x=1 ∴x=0

Solved Questions

Question 1: Value of $[a^{1/8}+a^{-1/8}]\ [a^{1/8}-a^{-1/8}]\ [a^{1/4}+a^{-1/4}][a^{1/2}+a^{-1/2}]$

[Use Formula $(a+b)(a-b)=a^2-b^2$]

$=[(a^{1/8})^2-(a^{1/8})^2][a^{1/4}+a^{-1/4}][a^{1/2}+a^{-1/2}]$

$=(a^{1/4}-a^{-1/4})(a^{1/4}+a^{-1/4})(a^{1/2}+a^{-1/2})$

$=[(a^{1/4})^2-(a^{-1/4})^2][a^{1/2}+a^{-1/2}]$

$=(a^{1/2}-a^{-1/2})(a^{1/2}+a^{-1/2})$

$=(a^{1/2})^2-(a^{-1/2})^2=a-a^{-1}=a-\frac{1}{a}$

Question 2: Simplification of $\frac{x^{m+3n}.x^{4m-9n}}{x^{6m-6n}}$ is:

Solution: $\frac{x^{m+3n}x^{4m-9n}}{x^{6m-6n}}$

$=x^{m+3n+4m-9n-6m+6n}$

$=x^{-m}$

Question 3: If $4^X=5^y=20^z$ then z is equal to:

Solution: Let $4^x=5^y=20^z=k$

or $4=k^{1/X};5=k^{1/y}$; $20=k^{1/Z}$

∴ 20=4×5

or : $k^{1/Z} = k^{1/x}\,k^{\frac{1}{y}}$

$k^{1/Z} = k^{\frac{1}{K}+\frac{1}{y}}$

$\frac{1}{Z} = \frac{1}{x} + \frac{1}{y} = \frac{1}{Z} = \frac{y+x}{xy}$

$Z = \frac{xy}{x+y}$

Question 4: $\left(\frac{\sqrt{3}}{9}\right)^{5/2}\left(\frac{9}{3\sqrt{3}}\right)^{7/2}\times 9$ is equal to... ..

Solution: $\left(\frac{\sqrt{3}}{9}\right)^{5/2}\left(\frac{9}{3\sqrt{3}}\right)^{7/2}\times 9$ is equal to... ..

$= \left[\left(\frac{3^{1/2}}{3^2}\right)^5 \left(\frac{3^2}{33^{1/2}}^7\right)\right]^{1/2}\times 3^2$

$= \left[3^{\left(\frac{1}{2}-2\right)5} \times 3^{\left(2-1-\frac{1}{2}\right)7}\right]^{1/2} .3^2$

$= [3^{\frac{-15}{2}}.3^{7/2}]^{1/2} \times 3^2 = (3^{\frac{-15}{2}+\frac{7}{2}})^{1/2}.3^2$

$= (3^{-4})^{112}.3^2 = 3^{-2}.3^2 = 3^{-2+2} = 3^0 = 1$

Question 5: If $2^x-2^{x-1} = 4$, then the value of x^x is:

Solution: 2^x-2^(x-1) =4

or $2^{x-1}(2-1)=4$

or $2^{x-1} x1=2^2$

or $2^{x-1} =2^2$

: -x- 1= 2

: -x = 3

$\therefore x^X=3^3=27$

Question 6: If $x = 3/3+3^{-1/3}$ then fmd value of $3x^3-9x$

Solution:

If $x=3^{1/3}+3^{-1/3}$

By Cubing on both sides; we get

$x^3=(3^{1/3})^3+(3^{\wedge -1/3})^3+3.3^{1/3}.3^{-1/3}\langle 3^{1/3}+3^{-1/3}\rangle$

$= 3+3^{-1} +3\times 1\times X$

or $x^3=3+\frac{1}{3}+3x$

or $x^3-3x=\frac{9+1}{3}$

or $3x^2-9x=10$

Question 7: Find the value of. $[1-\{1-(1-x^2)^{-1}\}^1]\frac{1}{2}$ is

Solution:

$[1-\{1-(1-x^2)^{-1}\}^{-1}]^{1/2}$

$[1 - \{1 - \frac{1}{1-x^2}\}^{-1}]^{-1/2}$

$= [1 - \{\frac{1-x^2-1}{1-x^2}\}^{-1}]^{-1/2}$

$= [1 - \{\frac{-x^2}{1-x^2}\}^{-1}]^{-1/2}$

$= [1 - \frac{1-x^2}{-x^2}]^{-1/2} = [1 + \frac{1-x^2}{x^2}]^{1/2}$

$= [\frac{x^2+1-x^2}{x^2}]^{-1/2}$

$= (\frac{1}{x^2})^{-1/2} = (x^{-2})^{\frac{1}{2}} = x$

Question 8: $\frac{2^n+2^{n-1}}{2^{n+1}-2^n}$

Solution: $\frac{2^n+2^{n-1}}{2^{n+1}-2^n} = \frac{2^n(2^0+2^{-1})}{2^n(2^1+2^0)} = \frac{1+½}{2-1} = \frac{3}{2}$

Question 9: Simplify $2x^{½}\,3x^{-1}$ if x = 4

Solution: We have $2x^{½}\,3x^{-1} = 6x^{½}\,x\text{-}1 = 6x^{1/2-1} = 6x^{½}$

$= \frac{6}{x^{½}} = \frac{6}{4^{½}} = \frac{6}{[2^2]^{½}} = \frac{6}{2} = 3$

Question 10: Simplify $6ab^2c^3 \times 4b^{-2}c^{-3}d$.

Solution: $6ab^2c^3 \times 4b^{-2}c^{-3}d$

$= 24 \times a \times b^2 \times b^{-2} \times c^3 \times c^{-3} \times d$

$= 24 \times a \times b^{2+(-2)} \times c^{3+(-3)} \times d$

$= 24 \times a \times b^{2-2} \times c^{3-3} \times d$

$= 24a\,b^0 \times c^0 \times d = 24ad$

Question 11: Simplify $(x^a.y^{-b})^3 \cdot (x^3 y^2)^{-a}$

Solution: $(x^a.y^{-b})^3 \cdot (x^3 y^2)^{-a}$

$= (x^a)^3 . (y^{-b})^3 \cdot (x^3)^{-a} . (y^2)^{-a}$

$= x^{3a-3a} . y^{-3b-2a}.$

$= x^0 . y^{-3b-2a}.= 1/y\ 3b+2a$

Question 12: Find x, if $\sqrt{x} = (x\sqrt{x})^x$

Solution: $x\,(x)^{½} = x^x . x^{x/2}$

or, $x^{1+½} = x^{x+x/2}$

or, $x^{3/2} = x^{3x/2}$

[If base is equal, then power is also equal]

i.e $\frac{3}{2} = \frac{3x}{2}$ or $\frac{3}{2} \times \frac{2}{2} = 1$

$\therefore x = 1$

Question 13: Find the value of k from $\left(\sqrt{9}\right)^{-7} \times \left(\sqrt{3}\right)^{-5} = 3^k$

Solution: $\left(\sqrt{9}\right)^{-7} \times \left(\sqrt{3}\right)^{-5} = 3^k$

or, $(3^{2\times ½})^{-7} \times (3^{½})^{-5} = 3^k$

or, $3^{-7-5/2} = 3^k$

or, $3^{-19/2} = 3^k$ or, $k = -19/2$

NEWS UPDATES

ECONOMIC UPDATE

- The International Monetary Fund (IMF) has projected that India's economy will grow by 5.9% for the current fiscal year April 2023 - March 2024, a downward revision of 0.2 percentage points since the January forecast.

  Source: https://www.thehindu.com/business/Economy/india-set-to-grow-by-59-this-fiscal-imf/article66725696.ece

- Climate change has been recognised as one of the most critical challenges faced by the global society and economy in the 21st century. The financial sector can play a pivotal role in mobilizing resources and their allocation thereof in green activities/projects. Green finance is also progressively gaining traction in India.

  Source:https://www.rbi.org.in/Scripts/NotificationUser.aspx?Id=12487&Mode=0

- Developing economies in Asia can, therefore, rely on a variety of tools to deal with the potential spill overs from the current financial turmoil. Policymakers in the region should act to strengthen financial systems. A severe crisis, though unlikely, could have significant consequences.

  Source: https://blogs.adb.org/blog/will-us-bank-turmoil-spread-asia

- Wholesale Price based inflation declined for the first time in three years in April due to a high base and moderating price of commodities. The development prompted economists to say that the RBI is likely to continue with its pause in interest rate.

  Source: https://timesofindia.indiatimes.com/business/india-business/wholesale-inflation-falls-after-3-years/articleshow/100262845.cms?from=mdr

- India's trade deficit narrowed to a 20th month low of $15.2 billion in April 2023 as goods imports and exports shrank in the wake of lower commodity Prices amid weak demand in Europe and the US.

  Source: https://timesofindia.indiatimes.com/business/india-business/at-15-billion-indias-trade-deficit-shrinks-to-20-month-low-in-april/articleshow/100263542.cms

- Robust domestic demand will drive India's economic growth in 2023, while higher interest rates and weaker external demand will continue to weigh on investment and exports during the calendar year according to the United Nations Department of Economic and Social Affairs (UNDESA). India remains a bright spot, likely to grow 6.7% in 2024

  Source: https://www.business-standard.com/economy/news/india-to-grow-at-5-8-in-2023-investment-exports-to-remain-weak-un-123051701048_1.html

FINANCE UPDATE

- **SEBI's proposal for regulating fractional real estate ownership platforms**

  Market regulator Securities Exchange Board of India (SEBI) has proposed a framework for regulating platforms offering fractional ownership of real estate assets. The minimum investment on these Fractional Ownership Platforms (FOPs) range from ₹ 10 lakhs to ₹ 25 lakhs

  https://www.thehindubusinessline.com/news/real-estate/sebi-proposes-framework-for-regulating-platforms-offering-fractional-ownership-of-real-estate-assets/article66853488.ece

- **SEBI allows direct market access to registered FPIs for participating in ETCDs**

  To promote institutional participation in Exchange Traded Commodity Derivatives (ETCDs), market regulator SEBI recently allowed stock exchanges to extend direct market access to registered Foreign Portfolio Investors (FPIs) with immediate effect. The regulator had already allowed institutional investors such as Category III Alternative Investment Funds (AIFs), Portfolio Management Services and Mutual Funds to participate in the ETCD market.

  https://www.livemint.com/market/stock-market-news/sebi-allows-direct-market-access-registered-fpis-for-participating-in-etcds-11683727461432.html

- **SGX Nifty to be renamed as Gift Nifty from July 3**

  SGX Nifty will be renamed as Gift Nifty from July 3 and entirely traded from NSE IFSC-SGX Connect at GIFT City, Gandhinagar. Accordingly, the exchange would automatically migrate all open positions in SGX Nifty on June 30, 2023, to NSE IFSC Nifty in executing the liquidity switch.

  https://economictimes.indiatimes.com/markets/stocks/news/sgx-nifty-to-be-renamed-as-gift-nifty-from-july-3/articleshow/100289000.cms

- **Market regulator SEBI plans to expand QIB base to boost bond market**

  The SEBI is looking to expand the definition of Qualified Institutional Buyer (QIB) to include investors like multi-state cooperatives, small finance banks, higher educational institutions, urban local bodies and Micro Units Development & Refinance Agency (MUDRA). The regulator said the inclusion of new investors will lead to a high investor base for bond issuers and help create a level playing field within the bond market.

  https://www.business-standard.com/markets/news/market-regulator-sebi-plans-to-expand-qib-base-to-boost-bond-market-123051600978_1.html

- **SEBI proposes steps to cool volatility in derivatives**

  Market regulator SEBI has proposed drastic changes to price band formulation for stocks traded on the derivatives segments of the National Stock Exchange (NSE) and Bombay Stock Exchange (BSE) to strengthen volatility management and minimise information asymmetry among market participants.

  https://www.livemint.com/news/india/sebi-proposes-drastic-changes-to-price-band-formulation-for-derivatives-segments-of-nse-and-bse-to-strengthen-volatility-management-11684689008381.html

- **SEBI proposes to tweak 'unpublished price sensitive information' definition to bring uniformity**

  To improve regulatory certainty and uniformity in compliance for listed companies regarding the identification of specific events as unpublished price sensitive information (UPSI), capital markets regulator SEBI proposed to modify the current definition of UPSI, according to a report from PTI.

  https://www.livemint.com/market/stock-market-news/sebi-proposes-to-tweak-unpublished-price-sensitive-information-definition-to-bring-uniformity-11684415579148.html

STATE LEVEL CONFERENCE AT AMRAVATI

DATES: 3rd & 4th June 2023
VENUE: ICAI BHAWAN, AMRAVATI
Organized by: SSEB, Board of Studies (Operations), ICAI
Hosted by: Amravati Branch of WIRC of ICAI and Amravati Branch of WICASA of ICAI
Theme: "How to Capitalized the IT and AI"

Day 1	
9:30 AM to 10:30 AM	**Inaugural Session**
10:30 AM to 12:00 Noon	**Technical Session:** I: Accounting and Auditing- Session Chairman: Eminent Speaker **Topic:** Difference in Accounting Standards and IND AS; Recent changes in Corporate Law; Forensic Audit
12:00 Noon to 01:15 PM	**Special Session: I** Interaction with SSEB, Board of Studies (Operations), ICAI and Board of Studies (Academic), ICAI
2:00 PM to 3:15 PM	**Special Session: II:** Topic: Chat GPT AI Speaker: CA Neha Datta
3:15 PM to 5:00 PM	**Technical Session: II: Direct Taxation-** Session Chairman: Eminent Speaker Topic: Effective tax planning for Salaried person; Effective tax planning for businessman; Equity Valuation
5:15 PM to 6:15 PM	**Special session: III: Topic :** Use of Social media for CA Students Speaker: CA. Azfar Khan
Day 2	
10:00 AM to 11:00 AM	**Motivational Session: I: Topic: I will never give up** Speaker: CA. Umesh Ramnarayan Sharma, Central Council Member, ICAI
11:00 AM to 12:45 PM	**Technical Session: III:** Session Chairman: Eminent Speaker Topics for paper presentation: GST On Real Estate; Block Credit and ITC Reversal; Use of AI in student life
12:45 PM to 1:45 PM	**Special Session : IV: Topic: Unleashing your inner champion: Mastering the mindset and fitness to achieve your goals-** Speaker: CA. Surbhi Gandhi
2:30 PM to 3:30 PM	**Special Session: V: Topic : Blockchain-** Speaker: Mr. Samit Singhai
3:30 PM to 4:00 PM	**Valedictory Session**

Students Eligible to attend the student conference: Students who have registered as Intermediate Students – either after passing Foundation or through Direct Entry route or Students who are pursuing their Articleship Training or Students who have completed their Practical Training but could not qualify their final examinations may attend the conference till next one year from the date of completion of Practical Training.

Registration fees	**Rs. 500/- per student**	**Registration Link**	https://bosactivities.icai.org

CA. Mangesh Pandurang Kinare, Conference Chairman & Chairman, SSEB, BOS (Operations), ICAI; **CA. Sridhar Muppala,** Conference Co-Chairman & Vice-Chairman, SSEB, BOS (Operations), ICAI; **CA. Umesh Ramnarayan Sharma,** Conference Director & Central Council Member, ICAI; **CA. Vishnukant A. Soni,** Conference Coordinator & Chairperson, Amravati Branch of WIRC of ICAI; **CA. Madhur A. Zanwar,** Conference Coordinator & Chairman, Amravati Branch of WICASA of ICAI.

MEGA CONFERENCE AT GUWAHATI

Dates: 10th & 11th June, 2023
Venue: ICAI Bhawan, Manik Nagar, Guwahati
Organized by: Board of Studies (Operations), SSEB, ICAI
Hosted by: Guwahati Branch of EIRC of ICAI & Guwahati Branch EICASA of ICAI
Theme: ATMA DIPAH BHAWAH : "BE YOUR OWN LIGHT"

Day 1	
10:00 AM to 10:45 AM	**Inaugural Session**
10:45 AM to 12:00 PM	**Special Session: I: Interaction with SSEB, Board of Studies (Operations), ICAI and Board of Studies (Academic), ICAI**
12:00 PM to 01:30 PM	**Technical Session: I: TAXATION- CA. DEEPAK BHOLUSARIA: Topic:** Faceless Assessment in Income Tax; Presumption Taxation/Old Vs. New Regime in Income Tax; Vesting Condition of ITC under GST
02:30 PM to 03:45 PM	**Motivational Session: I: CA. JAY CHHAIRA**
03:45 PM to 05:15 PM	**Technical Session: II: CORPORATE LAW- CA. MOHAN RAM GOENKA: Topic:** Audit Trail, Critical Analysis of Compliance in Audit; LLP Vs Company Compliance; Important Clauses of CARO- A critical Analysis
Day 2	
10:45 AM to 12:00 PM	**Motivational Session: II: Mr. SHEKHAR KAUSHIK** Any topic on motivation for the students
12:00 AM to 01:30 PM	**Technical Session: III: INFORMATION TECHNOLOGY- CA. ANAND PRAKASH JANGID: Topic:** Chat GPT & AI – As Audit Tool; Use of Technology in Forensic Audit; Use of Business Intelligence (BI) Modules for Tax Administration in India
02:30 PM to 03:45 PM	**Special Session: II: On any topic pertaining to accounting profession by reputed session expert**
03:45 PM to 05:15 PM	**Technical Session: IV: EMERGING AREAS - CA. SANDEEP KHAITAN: Topic:** Role of CA in Economic Growth of India; Role of CA in growth of MSME in India; Net-0 and ESG Strategy: Is it a viable option for reducing Carbon emissions?
05:15 PM to 05:45 PM	**Valedictory Session**

Students Eligible to attend the Students Conference: Students who have registered as Intermediate Students/ Students who are pursuing their Articleship Training/ Students who have completed their Practical Training but could not qualify their final examinations may attend the conference till next one year from the date of completion of Practical Training: (CPT Students and Students who have completed one year beyond their Articleship training will not be eligible to register for these Conferences)

Registration fees	**Rs. 500/- per student**	**Registration Link**	https://bosactivities.icai.org

CA. Mangesh Pandurang Kinare, Conference Chairman & Chairman, SSEB, BOS(Operations), ICAI; **CA. Sridhar Muppala,** Conference Co-Chairman & Vice-Chairman, SSEB, BOS(Operations), ICAI; **CA. Sushil Kumar Goyal,** Conference Director & Central Council Member, ICAI; **CA. (Dr.) Ayush Saraf,** Conference Coordinator & Chairman, Guwahati Branch of EIRC of ICAI; **CA. Sushil Kumar Kalani,** Conference Coordinator & Chairman, Guwahati Branch of EICASA of ICAI.

NATIONAL CONFERENCE AT ERNAKULAM

Dates: 16th & 17th June 2023
Venue: Gokulam Convention Centre, Kaloor, Ernakulam
Organized by: SSEB, Board of Studies (Operations), ICAI
Hosted by: Ernakulam Branch of SIRC of ICAI and Ernakulam Branch of SICASA of ICAI
Theme: "ADVAITA – Discover your inner self"

Day 1	
9:30 AM to 10:15 AM	**Inaugural Session**
10:15 AM to 11:15 AM	**Special Session: I Interaction with SSEB, Board of Studies (Operations), ICAI and BOS (Academic), ICAI**
11:15 AM to 12:30 PM	**Technical Session: I: INFORMATION TECHNOLOGY- Session Chairman: CA. Dayaniwas Sharma:** Topics: Blockchain: Adoption and Implications in Accounting; The Meta verse & Future of Business; Automation in Finance: The fourth Industrial Revolution
12:30 PM to 01:15 PM	**Motivational Session: I**
2:15 PM to 3:00 PM	**Special Session: II Mr. Manjit Singh, IRS**
3:00 PM to 4:15 PM	**Technical Session: II: STARTUP ECOSYSTEM- Session Chairman: CA. Eshank Shah:** Topics: Angel Tax; Modes of Funding in Startups; Exit Strategy
4:15 PM to 5:00 PM	**Motivational Session: II: India @ 2047- CA. Pattabhiram**
Day 2	
10:00 AM to 11:15 PM	**Technical Session: III: AUDITING- Session Chairman: CA. Vivek Krishna Govind:** Topics: Audit of Digital Assets; Sustainable Auditing: Evaluating Environmental, Social and Governance (ESG) Risks; International Auditing Standards: Adoption, Implementation and Challenges
11:15 AM to 12:00 Noon	**Special Session: III: Future of Digital Commerce** Shri Venu Gopalakrishnan
12:00 Noon to 1:00 PM	**Motivational Session: III: Ace CA journey: Beyond Numbers Speaker: CA. Lijil Lakshman**
2:00 PM to 3:15 PM	**Technical Session: IV: INDIRECT TAX- Session Chairman: CA. Razee Moideen:** Topics: GST and its impacts on MSMEs; GST and Cross Border Transactions: A comparative analysis of Indian and International Laws; GST and environmental taxes: A Study of the Indian Carbon Tax and its Implications for GST
3:15 PM to 4:00 PM	**Motivational Session: IV: CAs in Entrepreneurship Speaker: CA. Anand Kumar**
4:00 PM to 4:30 PM	**Valedictory Session**
5:00 PM to 7:00 PM	**Cultural Programme**

Students Eligible to attend the Students Conference: Students who have registered as Intermediate Students/ Students who are pursuing their Article ship Training/ Students who have completed their Practical Training but could not qualify their final examinations may attend the conference till next one year from the date of completion of Practical Training.(Foundation Students and Students who have completed one year beyond their Article ship training period will not be eligible to register for these Conferences)

Registration fees	**Rs. 600 /- per student**	**Registration Link**	https://bosactivities.icai.org

CA. Mangesh Pandurang Kinare, Conference Chairman & Chairman, SSEB, BOS (Operations), ICAI; **CA. Sridhar Muppala,** Conference Co-Chairman & Vice-Chairman, SSEB, BOS (Operations), ICAI; **CA. Cotha S Srinivas,** Conference Director & Central Council Member, ICAI; **CA. Deepa Varghese,** Conference Coordinator & Chairman, Ernakulam Branch of SIRC of ICAI; **CA. Tonny Varghese,** Conference Coordinator & Chairman, Ernakulam Branch of SICASA of ICAI.

MEGA CONFERENCE AT Nagpur Branch

Dates: 16th & 17th June 2023
Venue: Vanamati Auditorium, Nagpur
Organized by: SSEB, Board of Studies (Operations), ICAI
Hosted by: Nagpur Branch of WICASA of ICAI
Theme: "AIKYAM" ONE INSTITUTE - ONE FAMILY- ONE FEELING
Way Towards New World, New Vision, New Technology

Day 1	
9:45 AM to 10:30 AM	**Inaugural Session**
10:30 AM to 11:30 AM	**Special Session:** I On any topic pertaining to the Accounting profession Reputed Session Expert: By CA. Arpit Kabra
11:30 AM to 12:45 PM	**Technical Session: I: TAXATION- Beyond Borders:** Unravelling the Transfer Pricing in International Taxation; The Faceless Proceedings under Income Tax Act; Opportunities & Threats; Intricacies of Refund under the GST Act
1:45 PM to 2:30 PM	**Motivational Session: I:** Session by CFOs, Industrialists, Startups Foundation, and Business Leaders: By CA. Hemant Jain: Session Chairperson: CA. Umesh R. Sharma, Central Council Member, ICAI
2:30 PM to 3:45 PM	**Technical Session: II ENTREPRENEURSHIP-** From Idea to Venture; Navigating the Entrepreneurial Journey; Role of MSME under Atmanirbhar Bharat and Government schemes for MSME; Understanding Intellectual Property; Patents, Trademarks, and Copyrights
4:00 PM to 4:45 PM	**Special Session: II:** On any topic pertaining to the Accounting profession Reputed Session Expert- By CA. Prafulla Chhajed, Past President, ICAI
Day 2	
9:00 AM to 10:30 AM	**Special Session: III: Interaction with Board of Studies (Academic), ICAI and SSEB, Board of Studies (Operations), ICAI**
10:30 AM to 11:45 AM	**Technical Session: III: TECHNOLOGY-** AI in Action: Impact on CA Profession of Machine Learning, ChatGPT and Robotic Process Automation; Accounting & Auditing in the Digital Age: The Changing Landscape of Chartered Accountants; Data Analytics: Big Data, Business Intelligence, and Data Visualization
11:45 AM to 12:30 PM	**Motivational Session: II:** On any topic pertaining to the Accounting profession Reputed Session Expert: By Eminent Speaker
1:30 PM to 2:15 PM	**Motivational Session: III** Any topic on motivation for the students: By Eminent Speaker
2:15 PM to 3:30 PM	**Technical Session: IV: SUSTAINABILITY & SOCIAL RESPONSIBILITY-** Environmental, Social, and Governance (ESG) Investing: An Overview; Social Stock Exchanges: Investing for Impact; Sustainability Reporting Standards
3:30 PM to 4:15 PM	**Motivational Session: IV** Any topic on motivation for the students: By Eminent Speaker
4:15 PM to 4:45 PM	**Valedictory Session**
4:45 PM to 5:15 PM	**High Tea and stage set-up for Cultural programme**
5:15 PM to 7:15 PM	**Cultural Programme**

Students Eligible to attend the Students Conference: Students who have registered as Intermediate Students/ Students who are pursuing their Article ship Training/ Students who have completed their Practical Training but could not qualify for their final examinations may attend the conference till next one year from the date of completion of Practical Training.(Foundation Students and Students who have completed one year beyond their Article ship training period will not be eligible to register for these Conferences)

Registration fees	**Rs. 600/- per student**	**Registration Link**	https://bosactivities.icai.org

CA. Mangesh Pandurang Kinare, Conference Chairman & Chairman, SSEB, BOS (Operations), ICAI; **CA. Sridhar Muppala,** Conference Co-Chairman & Vice-Chairman, SSEB, BOS (Operations), ICAI; **CA. Umesh Ramnarayan Sharma,** Conference Director & Central Council Member, ICAI; **CA. Sanjay M Agrawal,** Conference Coordinator & Chairman, Nagpur Branch of WIRC of ICAI; **CA. Sanjay C Agrawal,** Conference Coordinator & Chairman, Nagpur Branch of WICASA of ICAI.

NATIONAL CONFERENCE AT MANGALURU

Dates: 23rd and 24th June 2023
Venue: TOWNHALL, MANGALURU
Organized by: SSEB, Board of Studies (Operations), ICAI
Hosted by: MANGALURU BRANCH of SIRC of ICAI
Theme: VIVEKAM "Learning never ends."

Day 1	
9:00 AM to 9:45 AM	**Inaugural Session**
9:45 AM to 10:45 AM	**Special Session: I:** Interaction with SSEB, Board of Studies (Operations), ICAI and BOS (Academic), ICAI
11:00 AM to 12:30 PM	**Technical Session: I: Income Tax- Session Chairman- CA. Dhanush: Topics:** Taxation of virtual digital assets including TDS implications; Foreign remittance; Environmental Taxation on Indian businesses
1:30 PM to 2:15 PM	**Motivational Session: I: Speaker: Mr. K. R. Subramanya,** "what is my potential?"
2:15 PM to 3:45 PM	**Technical Session: II: GST- Session Chairman: CA. Akshaye Hiregange: Topics:** Implications of GST on high seas sales; Issues on GST Refunds; Practical aspects of e-way bills in GST (Including Delivery Challan)
4:15 PM to 5:00 PM	**Special Session: II: Speaker: CA. Pawan Sharma: Topics:** Role of CAs in 5 trillion Economy; Raising funds for start-up-crowd funding, venture capital, private equity; Analysis of an Indian Unicorn Club Startup & Common Jargon Used in Start-up
5.30 PM to 7:30 PM	**Cultural Programme**
Day 2	
9:30 AM to 10:15 AM	**"Motivational Session: II: Speaker: CA. Chandrashekar Shetty** How to prepare for exams"
10:30 AM to 12:00 Noon	**Technical Session: III: Audit- Session Chairman: CA. Naveen Malpani: Topics:** Forensic audit V/s Traditional audit; Case study on corporate financial frauds and its impact; Role of CAs in cyber security management
12:00 Noon to 12:45 PM	**"Special Session: III: Speaker: Shri Prabhakar Kudva:** Building wealth through equity"
1:45 PM to 2:30 PM	**Motivational Session: III: Speaker: Shri Kenneth Serrao:** Life skills
2:30 PM to 4:00 PM	**Technical Session: IV: Law- Session Chairman: CA. Karthik Prabhu: Topics:** Implications of Related party transactions and reporting; Future opportunities in sustainability; E Governance: Merit & Limitations
4:15 PM to 4:45 PM	**Valedictory Session**

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Registration fees	**Rs. 500/- per student**	**Registration Link**	https://bosactivities.icai.org

CA. Mangesh Pandurang Kinare, Conference Chairman & Chairman, SSEB, BOS (Operations), ICAI; **CA. Sridhar Muppala,** Conference Co-Chairman & Vice-Chairman, SSEB, BOS (Operations), ICAI; **CA. Cotha S Srinivas,** Conference Director & Central Council Member, ICAI; **CA. Gautham Nayak,** Conference Coordinator & Chairman, Mangaluru Branch of SIRC of ICAI; **CA. Mamta Rao,** Conference Coordinator & Chairman, Mangaluru Branch of SICASA of ICAI.

NATIONAL CONFERENCE- KOLKATA

Dates: 24th & 25th June, 2023
Venue: Science City Auditorium, Kolkata
Organized by: SSEB, Board of Studies(Operations), ICAI
Hosted by: EIRC of ICAI & EICASA of EIRC of ICAI
Theme: "Reskill, Resolve, Rejoice"

Day 1	
10.00 to 11.00 AM	**Inaugural Session**
11.00 to 12.15 AM	**Technical Session: I Topic: Next Gen Opportunities-** Social Stock Exchange – Emerging Role of CAs, Valuation for Start-ups**,** Using Data Analytics to conduct Forensic Audit.
12.15 to 01.00 PM	**Special Session: I** Interaction with SSEB, Board of Studies (Operations), ICAI and BOS (Academic), ICAI
02.00 to 03.00 PM	**Special Session: II** Motivational Session with CA. Aman Gupta.
03.00 to 04.15PM	**Technical Session: II Topic: Success Mantra-**The Blue Ocean Strategy-Success Stories, कर्मण्येवाधिकारस्ते मा फलेषु कदाचन**,** IQ, EQ & AQ : Ultimate life Skills.
04.15 to 05.00PM	**Special Session: III** Motivational Session with Anand Kumar (Super 30).
05.00 to 05.30 PM	**Special Session: IV** Motivational Session with Ms. Jaya Kishori.
Day 2	
10.00 to 11.15 AM	**Technical Session: III Topic: Audit & Taxation-** Dawn of a New Era in International Taxation, Audit Trail: Regulatory Expectations & Best Practices**,** M&A Strategies-Case Studies.
11.15 to 12.15 PM	**Special Session: V Topic-** Court Proceedings Simulations.
12.15 to 01.15 PM	**Special Session: VI Topic-** Big7 & Consulting Firms**,** Panel Discussion on Industry Vs Big7.
02.00 to 03.15 PM	**Technical Session: IV Topic: Atma Nirbhar Bharat-** India's Path to an Economic Superpower, De Dollarization – INR could be the New Dollar**,** G20 Summit & India's Voice: Key Issues.
03.15 to 04.00PM	**Special Session: VII Topic-** AI & ChatGPT- Diving into the Future!!
04.00 to 04.30PM	**Topic:** Valedictory Session.
04.30 to 0 5.15PM	**Topic:** High Tea & Stage Set-up for Cultural Programme.
05.15 to 07.00 PM	**Topic:** Cultural Programme by the Students.

Students Eligible to attend the Students' Conference: Students who have registered as Intermediate Students/ Students who are pursuing their Article ship Training/ Students who have completed their Practical Training but could not qualify their final examinations may attend the conference till next one year from the date of completion of Practical Training.(Foundation Students and Students who have completed one year beyond their Article ship training will not be eligible to register for the Conference).

Registration fees	Rs. 500/- per student	**For Registration**	Link on the Students Activity Portal: https://bosactivities.icai.org

CA. Mangesh Pandurang Kinare, Conference Chairman & Chairman, SSEB, BOS (Operations), ICAI**; CA. Sridhar Muppala,** Conference Co-Chairman & Vice-Chairman, SSEB, BOS (Operations), ICAI; **CA. Sushil Kumar Goyal,** Conference Director & Council Member, ICAI; **CA. Debayan Patra,** Conference Coordinator & Chairman, EIRC of ICAI; **CA. Sanjib Sanghi,** Conference Coordinator & Chairman, EICASA of EIRC of ICAI.

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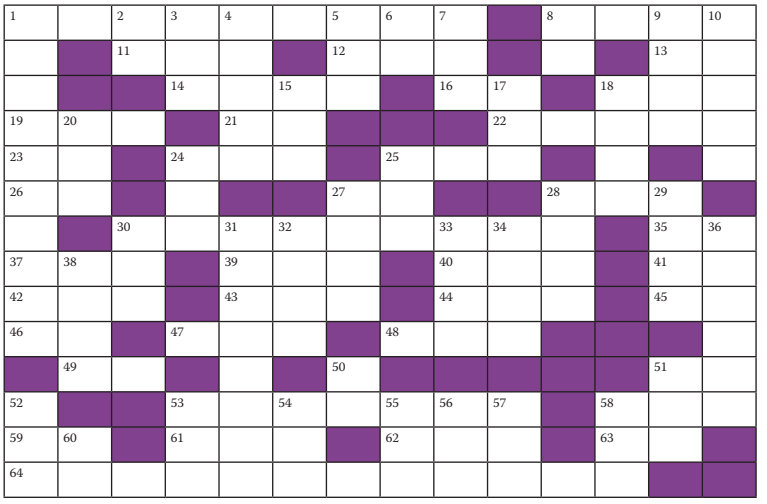
CROSSWORD - JUNE 2023



ACROSS

1. A _____is a significant, widespread, and prolonged downturn in economic activity.
8. A sum of money that is owed or due
11. _____is a cryptocurrency and operates on the Ethereum platform.
12. A national-level entrance exam conducted by the All-India Management Association.
13. Used to link alternatives.
14. ___ are debt instruments and represent loans made to the issuer.
16. The total cost (TC) divided by quantity is _____
18. ___ is the international professional association of fiber optics
19. The web address of an internet resource, like a webpage.
21. A popular water purification device in India.
22. A general direction in which something is developing or changing
23. The largest city in the state of California.
24. A bipartisan federal agency that enforces antitrust laws and protects consumers
25. The private sector arm of the World Bank Group
26. ___ stands for the Latin phrase **ante meridiem**
27. Abbreviation ; 'frequency modulation'.
28. ___ established protections for consumers related to surprise billing and transparency in health care
30. A financial instrument that allows sophisticated investors to make risky investments.
35. An optical disc used to store digital data
37. The country's largest oil marketing company.
39. One who gets a license to provide investment advice.
40. __ measures the effectiveness of a company's investment decisions, particularly for financial institutions.
41. Provides regular benefits to individuals who lose their jobs through no fault of their own.
42. Refers to a single person or thing.
43. It helps measure and optimize the performance of ad campaigns.
44. The governing body for the Olympic Movement
45. A motor vehicle or trailer that includes living quarters designed for accommodation.
46. Short form of angular
47. A __ is a thin piece of cloth that's knotted around the neck,
48. The largest mobile network operator in Russia.
49. __economy refers to commodity commodity economy
51. An investment avenue that offers capital protection and guaranteed returns.
53. Refers to federal government-sponsored assistance programs for individuals and families in need
58. An American brand of denim jeans,
59. ___ is defined as the ratio of mass of a certain volume of gas
61. An industry acronym for October, November, and December.
62. The increment to total costs paid for a factor of production resulting from a one-unit increase in the amount of the factor employed.
63. __ Kisan is a Central Sector scheme with 100% funding from Government of India.
64. The practice of funding a project or venture by raising money from a large number of people, typically via the internet.

DOWNWARD

1. A rule or directive made and maintained by an authority.
2. CE The European Union's (EU) mandatory conformity marking for regulating the goods sold within the European Economic Area
3. The central bank of the European Union countries
4. Measuring a small distance from end to end.
5. An agency of the Ministry of Earth Sciences of the Government of India.
6. The most common form of joint disease and the leading cause of pain and physical disability in older people
7. An Autonomous and self-sustained premier testing organization
8. Abbre; Direct Taxes
9. A thing that is helpful or beneficial.
10. The action of buying and selling goods and services.
15. A systematic taxonomy of all occupations in the Canadian labour market.
17. A term for the total salary package of an employee
18. An official Act that consolidates and amends laws regulating foreign exchange in India
20. The internal memory of the CPU for storing data, program, and program result.
24. Make a payment to (someone) in return for services
25. An international organization that promotes global economic growth and financial stability.
27. An unpleasant emotion caused by the threat of danger,
28. A channel access method used by various radio communication technologies.
29. A Taiwanese multinational company that is in the hardware and electronics business.
30. A technology that allows for the replication of a physical, contactless smart card using software.
31. A ___is a distribution of profits by a corporation to its shareholders
32. An examination conducted in India that primarily tests the comprehensive understanding of various undergraduate subjects in engineering and science
33. A centimetre is a __of length.
34. An autonomous organization under the Ministry of Education, Government of India.
36. ___means to split.
38. An Indian central public sector undertaking under the ownership of Ministry of Petroleum and Natural Gas, Government of India.
50. An irregular heart rhythm that begins in the upper atria of your heart.
51. A popular method for numerically solving differential equations arising in engineering and mathematical modeling
52. An apex Indian governmental body created to address governmental corruption.
53. Expressing astonishment or admiration
54. An alliance of left-wing political parties in the state of Kerala
55. _____Healthcare is the innovator in healthcare workforce solutions.
56. An __provides a summary of the most important results that a Department / Ministry expects to achieve during the financial year.
57. ECI : __is a constitutional body for conducting Election in India.
58. Abbre: 'liquefied petroleum gas'.
60. Abbre; Doctor

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