

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



# Harness your Mind Power to Succeed

For those who have conquered the mind, it is their friend; For those who have failed to do so, the mind works like an enemy.

> बन्धुरात्मात्मनस्तस्य येनात्मैवात्मना जितः | अनात्मनस्तु शत्रुत्वे वर्ते तात्मैव शत्रुवत् ||6||

जिन्होंने मन पर विजय पा ली है, मन उनका मित्र है किन्तु जो ऐसा करने में असफल होते हैं मन उनके शत्रु के समान कार्य करता है।



# CONTENTS

# Board of Studies 2024-25

#### Chairman

CA. (Dr.) Rajkumar Satyanarayan Adukia

#### Vice Chairman

CA. Sridhar Muppala

#### Members

- CA. Ranjeet Kumar Agarwal, President (Ex-officio)
- CA. Charanjot Singh Nanda, Vice-President (Ex-officio)
- CA. Chandrashekhar Vasant Chitale
- CA. Piyush S Chhajed
- CA. Vishal Doshi
- CA. Dheeraj Kumar Khandelwal
- CA. Durgesh Kumar Kabra
- CA. Mangesh Pandurang Kinare
- CA. Aniket Sunil Talati
- CA. Dayaniwas Sharma
- CA. Cotha S Srinivas
- CA. Sripriya Kumar
- CA. Sushil Kumar Goyal
- CA. (Dr.) Debashis Mitra
- CA. (Dr.) Rohit Ruwatia
- CA. Abhay Chhajed
- CA. (Dr.) Anuj Goyal
- CA. Prakash Sharma
- CA. Kemisha Soni
- CA. (Dr.) Raj Chawla
- CA. Hans Raj Chugh
- CA. Pramod Jain
- CA. (Dr.) Sanjeev Kumar Singhal

Dr. P. C. Jain

Advocate Vijay Kumar Jhalani

### **Total Circulation: 2,59,055**

**Check your Address:** Dear Students, in case there is any change in your address, kindly login on SSP portal and give full particulars of your address along with correct PIN Code. This would enable us to ensure regular and prompt delivery of the Journal.

**Correspondence with regard to advertising and writing articles** Email: writesj@icai.in

Non-receipt of Students' Journal Email: nosj@icai.in

# INSIDE

- 03 President's Communication
- 04 Vice-President's Communication
- 05 Chairman's Communication
- 06 President and Vice President's Profiles
- 07 Chairman and Vice Chairman's Profiles
- 08 CA Final: Advanced Financial Management
- 17 CA Intermediate: Corporate and other Laws
- 28 CA Foundation: Quantitative Aptitude
- 33 Important Announcement
- 36 Crossword

**President and Editor-in-chief** CA. Ranjeet Kumar Agarwal

Vice President CA. Charanjot Singh Nanda **Chairman** CA. (Dr.) Rajkumar Satyanarayan Adukia

**Vice Chairman** CA. Sridhar Muppala

Joint Director-Board of Studies CA. (Dr.) Rashmi Goel **Editorial Support** Dr. Ruchi Agarwal, Deputy Secretary Jai Narayan Ram, Deputy Secretary

#### Office

Board of Studies, The Institute of Chartered, Accountants of India, ICAI Bhawan, A-29, Sector-62, Noida-201 309. Phone : 0120-3045907

#### Head Office

The Institute of Chartered Accountants of India, ICAI Bhawan, Indraprastha Marg, New Delhi-110 002.

Editor: CA. (Dr.) Rajkumar Satyanarayan Adukia Printed and published by CA. Vandana Nagpal, on behalf of The Institute of Chartered Accountants of India, New Delhi.

PUBLISHED at The Institute of Chartered Accountants of India, I.P. Marg, New Delhi - 110104 and printed at M/s. Printrade Issues (INDIA) Pvt. Ltd., Plot No. EL-179, TTC Industrial Area, Electronic Zone, Mahape, Dist. Thane, Pin Code - 400 710, Maharashtra.

The views and opinions expressed or implied in THE CHARTERED ACCOUNTANT STUDENT are those of the authors and do not necessarily reflect those of ICAI. Unsolicited articles and transparencies are sent at the owner's risk and the publisher accepts no liability for loss or damage. Material in this publication may not be reproduced, whether in part or in whole, without the consent of ICAI.

DISCLAIMER: The ICAI is not in any way responsible for the result of any action taken on the basis of the advertisement published in the Journal.

### SWACHH BHARAT - A STEP TOWARDS CLEANLINESS

### PRESIDENT'S COMMUNICATION



Warmest Greetings to you all,

It is with immense pleasure and a profound sense of responsibility that I address you as the 72<sup>nd</sup> President of The Institute of Chartered Accountants of India (ICAI). It is truly an honour to lead the largest global professional accounting body and to have the opportunity to serve our esteemed profession.

I extend my heartfelt gratitude to the Central Council Members of the 25<sup>th</sup> Council of ICAI for reposing their trust and confidence in me by electing me as the President of this prestigious Institute. I am deeply honoured by this gesture and assure you all that I will work tirelessly to uphold the values and benchmarks that our Institute stands for.

As we begin with a new Council Year 2024-2025, I am committed to building upon the achievements of the past year and working collaboratively with my esteemed colleague and newly elected Vice-President CA. Charanjot Singh Nanda and all the stakeholders to realize our shared vision for the future. Together, we can create a profession that is not only resilient but also agile and forward-thinking.

# Nurturing Tomorrow's Chartered Accountants: A Vision for Growth and Excellence

As I take over the leadership of this esteemed Institute, I would like to share with you the remarkable growth and evolution that the ICAI has made in all these years. Starting from few hundred members in 1949, we now stand tall with a formidable force of around 4 lakh members, making us the world's largest accounting body. Similarly, our student community has flourished, boasting an impressive count of over 8.5 lakh aspiring professionals. Notably, our commitment to gender equality shines through, with a significant representation of women CAs and girl students among our fraternity. It brings me great joy to share that among our 4 lakh members, over 29% are women and out of 8.5 lakh aspiring professionals, an impressive count of over 43% are girl students.

It gives me immense pride to share that the **75 years** of our existence have been a testament to our unwavering dedication to **quality**, **credibility**, and **ethical conduct**. Upholding the values enshrined in our Code of Ethics, we, as Chartered Accountants, have played a pivotal role in the nation's growth story. We stand as unsung heroes, ensuring financial discipline and the implementation of crucial financial legislations in the country.

Looking ahead, I would like to highlight here that the landscape of our profession is poised for significant transformation. It is therefore incumbent upon us to embrace digitalization, artificial intelligence, and block chain to enhance efficiency and accuracy in our roles.

As we embrace the rapid pace of technological change, the Institute remains steadfast in its dedication towards equipping our members and students with the skills and knowledge needed to thrive in this digital era. Our agenda for the coming years is to ensure that every Chartered Accountant is well-prepared to meet the challenges and opportunities presented by emerging technologies. Moreover, with the launch of the New Scheme of Education and Training, we are committed to equipping our students with global competencies, preparing them to excel on the international stage. Our skilling and reskilling initiatives, facilitated through Centres of Excellence and residential training programmes, will ensure that our students remain relevant in an ever-evolving environment.

Furthermore, as we look towards India's goal of becoming a developed nation **by 2047**, the role of Chartered Accountants becomes increasingly vital. With a projected **\$30 trillion** economy on the horizon, the demand for Chartered Accountants no doubt will increase exponentially. It is our vision to meet this demand head-on, ensuring that our members are equipped to drive growth, development, and prosperity for our nation.

As we chart our course towards the future, our vision is to nurture a cadre of Chartered Accountants who are not only proficient in their craft but also deeply committed to the nation's progress. Our principles of Trust – encompassing **Technology**, **Research**, **Union development**, **Sustainability**, and **Transparency** – serve as our guiding light, reminding us of our paramount duty to place India's interests above all else.

In the year ahead, the Institute envisions to reach greater heights, anchored by the trust and responsibility bestowed upon us. Together, let us strive to uphold the legacy of excellence that defines our Institute, ensuring that future generations will look back upon us with pride and admiration.

# Celebrating Success: A Journey Begins for CA Foundation Achievers

My heartiest congratulations to each one of you on your remarkable achievement in clearing the CA Foundation exams held in December 2023. The success rate of the exams being 29.99%. Your dedication and hard work have paved the way for this significant milestone in your journey towards becoming a Chartered Accountant. As you embark on the next phase of your academic pursuit, with the Intermediate and Final exams awaiting, I urge you to maintain your focus, determination, and unwavering dedication. In the November 2023 exams a total of 8650 candidates qualified the CA exams who will now explore career opportunities in the Campus Placement programme - a drive for getting the candidates get their dream jobs.

To those who have not achieved a favourable outcome in the recent exam, I urge you to stay resilient and determined. Always remember that success is not a destination but a journey, and it comes to those who persist with unwavering dedication and perseverance.

I extend my warmest wishes to each of you for your future endeavours. Keep striving, keep believing, and keep moving forward towards your dreams.

"The future belongs to those who believe in the beauty of their dreams."

- Eleanor Roosevelt

With best wishes,

CA. RANJEET KUMAR AGARWAL PRESIDENT, ICAI

# VICE PRESIDENT'S COMMUNICATIONS



#### Dear Students,

#### "With the immense support of everyone, I am Embarking on a new chapter in my life towards the service of our profession and alma mater."

I am truly proud to be addressing you in this edition of the Students' Journal as the Vice-President of our prestigious Institute. I express my sincere gratitude to my fellow Council members and the CA community for entrusting me with this important duty. I sincerely hope that the Almighty will allow me to make a substantial contribution to the Institute, and that the team's strength will allow us to pave the way for the Institute to achieve even greater success.

Accounting professionals are positioned to play a critical role in the quickly evolving global scenario of today. There is a constant need for qualified accountants, and there are opportunities in many different industries.

You, as a prospective chartered accountant, represent the profession's bright future. For you to reach the required level of professional competence, the Institute works to instil in you the necessary technical competence, professional skills, and professional values, ethics, and attitudes through our vibrant scheme of education and training.

### Forensic Accounting: Detecting, Investigating and **Preventing Financial Frauds and Crimes**

Developing a transparent and accountable financial environment is the need of the hour. With this, the relevance of the knowledge pertaining to forensic accounting for the chartered accountancy is paramount in today's context. With the increasing digitization, a segment of individuals is also devising ingenious ways to commit financial crimes. As a result, forensic accounting assignments are on the rise, and services provided by such professionals are in greater demand.

Banks, insurance companies, and market regulators like SEBI are placing great reliance on reports of forensic accountants. Findings contained in such reports are of immense support in legal proceedings against errant entities. The importance of forensic accounting in the realm of chartered accountants cannot be understated. It is a specialized area that requires a unique skill set and knowledge base.

To address this growing need, a separate optional paper has been introduced in Set C of self-paced online modules. I would exhort students to explore this subject, as gaining knowledge in this area is going to offer a lot of professional opportunities in your career. Just to remind that, with effect from 1st July 2023, ICAI had made the Forensic Accounting and Investigations Standards (FAIS) mandatory for all members of the ICAI. Their introduction is seen as a crucial step towards improving the quality of forensic accounting and investigation services in the country.

The quality of our professional services has set high benchmarks for others to emulate. I am fully convinced that our profession based on maintaining trust, independence, and integrity will grow stronger with the future generation of professionals ready to carry forward the sagacious journey which ICAI members have carried so far. You can count on the open-handed support of the Council, Board of Studies, and myself, who have pledged to work with zeal for the growth of accounting education and the profession, enhancing opportunities, and at the same time, bringing value to society.

### **Globalizing CA Education and Training: Our Top Priority**

We at ICAI are committed to facilitating the best learning resources, infrastructure, and services for our students. The New Scheme of Training and Education had already been launched, and the May 2024 Examination is the first examination under the New Scheme. I am sure that you are benefiting immensely from the new value-added study material. Also, I hope that you are viewing the Live Learning Classes organized by the Institute for the May 2024 exam. In case you have missed it, I urge you to view the recorded lectures available at the BoS Mobile App and benefit from them.

#### MCQ Paper Practice Portal: Facilitating Learning

The Board of Studies of ICAI handholds its students at every stage of their academic journey by providing Study Material and other educational inputs as well as free Live Learning Classes. In this direction, one major initiative taken by BoS is that it has introduced the Multiple-Choice Paper Practice Portal to make learning interesting for the students. This MCQ portal is accessible through the BoS Knowledge Portal and ICAI-BoS Mobile App. The various benefits offered are as below:

- This MCQ Practice portal will simplify learning and enable you to attempt Simple, Medium, and Difficult MCQs, or a combination thereof, chapter-wise.
- It will enhance your analytical skills through Case Scenario-• based MCQs and time management skills by attempting questions within the stipulated time frame.
- The portal facilitates tracking your performance Paperwise / Chapter-wise and will help you in self-assessing your preparedness for the upcoming examination.
- It is a user-friendly platform that returns the question to the question bank pool if skipped or answered incorrectly.
- It allows you another chance to re-attempt wrongly answered questions and displays a Performance Report and description for the correct answers to all questions.

You may use this facility to enhance your skill and preparedness in respective papers. As of now, 93,000 plus students are using this facility and enhancing their skills at all three levels of the CA Examination.

I wish you all a bright and prosperous career ahead and a joyful celebration of the Holi festival.

"Let this festival of Holi burn all the negativity and bring positivity in your life."

Best Regards,

thave Torf. Ward.

CA. CHARANJOT SINGH NANDA VICE PRESIDENT, ICAI





#### Dear Students,

Professional Student is a lifelong learner!!!

As I step into the role of Chairman of the Board of Studies, I am filled with a profound sense of responsibility and excitement for the journey ahead. This year, our primary objective is to ensure that each student enrolled with ICAI not only clears the CA Examination but also flourishes in the practical realm according to their individual passions. It is both an honor and a privilege to serve in this capacity, and I am deeply grateful for the trust and confidence ICAI have placed in me.

Our institution stands at a pivotal moment, facing a myriad of challenges and opportunities in the ever-evolving landscape of education and training. As stewards of academic excellence, it is incumbent upon us to embrace these changes with courage, creativity, and a steadfast commitment to our core values.

I understand the challenges and sacrifices you make in your pursuit of clearing the CA exam. It's not just a test of your knowledge but a testament to your resilience, determination, and unwavering spirit. Each hurdle you overcome brings you closer to your dreams, and I have no doubt that you have the strength and tenacity to overcome any obstacle in your path.

You are capable, you are deserving, and you are destined for greatness. Believe in yourself as much as I believe in you, and together, we will celebrate your success as if it were our own.

Always visualize that success is not just about reaching the destination but about embracing the journey with courage, resilience, and unwavering determination. You have already come so far, and the best is yet to come.

As you embark on your academic journey, I encourage you to cultivate a passion for learning that transcends the confines of the classroom. In the era of globalization, a Chartered Accountant is not confined to the corridors of accounting. He has moved into the realm of General Management, Administration and Entrepreneurship among others. Embrace every opportunity to expand your horizons, whether through participating in extracurricular activities, pursuing internships or research projects, or engaging with peers and mentors who inspire and challenge you.

Participating in various Conferences, National Talent Search, and Seminars is a crucial aspect of your CA journey. These events provide invaluable opportunities to expand your knowledge, network with industry professionals, and stay abreast of the latest developments in the field. By engaging in these forums, you gain insights into emerging trends, best practices, and real-world challenges, enhancing your skills and preparing you to excel in your future career endeavours.

Please keep in mind that effective study planning is not just about putting in long hours of study but about utilizing your time efficiently and strategically. As you embark on your journey of preparation for the upcoming exams, I wanted to share that time management is key to success, and with a well-thought-out study plan, you can maximize your productivity and achieve your academic goals with confidence.

Approach each day as an opportunity to learn something new, to challenge your assumptions, and to become the best version of yourself. Acquiring the CA qualification is not merely about obtaining a certificate-it signifies a commitment to excellence, integrity, and continuous learning. It opens doors to a world of opportunities, enabling you to make meaningful contributions to the fields of finance, business, and beyond.

In the days ahead, I look forward to working closely with each and every one of you to chart a course that upholds the highest standards of academic rigor, fosters innovation, and promotes inclusivity and equity. Let us approach our work with humility, passion, and a spirit of collaboration, knowing that our collective efforts will pave the way for a brighter tomorrow.

As a student of this coveted profession, you must plan your future and never let your eyes off your focus. Strive to not only acquire knowledge but also share it by exchanging through discussions and debates. The Board of Studies will focus to foster collaborative learning, thus making each one of you realize your skill gaps.

I am deeply committed to open communication, transparency, and accountability, and I welcome your input and feedback as we navigate the challenges and opportunities that lie ahead. Together, we will build upon the strong foundation laid by our predecessors and continue to elevate our institution to new heights of excellence.

As we approach the festival of Holi, may your life be blessed with the happiest of the colors and let there always be shades of positivity to keep you motivated. I would like to wish you all a very happy festival of colors, bringing joy, happiness, and success in your lives.

Together, we will write the next chapter of our Institution's storied legacy.

"Failure will never overtake me if my determination to succeed is strong enough." - APJ Abdul Kalam

With Warm Regards and Boundless Belief in your Potential

andless i Manassadukie

CA. (DR.) RAJKUMAR SATYANARAYAN ADUKIA CHAIRMAN, BOARD OF STUDIES

# PROFILE

### **Our New President**



CA. Ranjeet Kumar Agarwal President, ICAI

A seasoned professional with strong organizational skills, **CA. RANJEET KUMAR AGARWAL, FCA** ascends to the esteemed position of the 72nd President of the ICAI for the year 2024-25. His long-standing affiliation with the Institute spans epochs, having been chosen for three consecutive Council terms in Central Council. Demonstrating enthusiasm and commitment to keeping pace with technological advancements, he actively engages in the integration of AI & Automation, to build futuristic workplace by emphasizing on continuous training, upskilling, and reskilling.

While serving as the Central Council Member since 2016 and then as Vice-President in 2023-24, he has led the profession from front and shown his unwavering commitment. During his Chairmanship, EIRC received the coveted award for being the Best Regional Council. As the erstwhile Chairman of the PDC, he played a pivotal role in the successful implementation of UDIN and Bank Branch Audit Allocation Software. Furthermore, his instrumental role in extending UDIN implementation to SAARC countries underscores his global impact. Under his Chairmanship of ESB, new a Code of Ethics after a decade was formulated, a testament to his commitment to upholding ethical standards within the profession. With a view to propel India ahead, he initiated the CA Business Leaders 40 under 40 campaign recognizing and celebrating the achievements of young CA professionals.

Envisioning a future with tremendous prospects, during his tenure as the Vice-President, the Policy of Centre of Excellence has been approved, planning 9 more COEs across India taking the total to 11 and aimed to maximize the COE's utilization.

As President of ICAI, CA. Ranjeet Kumar Agarwal, is now the Chairman of all the Standing Committees, i.e., Executive, Finance, Disciplinary and Examination, Ex-officio member of all Non-standing Committees, and Editor of ICAI Journal. He also Chairs the ICAI research wing Accounting Research Foundation, Extensible Business Reporting Language (XBRL) India and three funds established for the welfare of CA fraternity. He is also the Director on the Board of the Institute of Social Auditors of India.

As President ICAI, continuing to advance the ICAI's role as a partner in nation's development, CA. Ranjeet Kumar Agarwal is supporting the Government and Regulators as a Member of the Government Accounting Standards Advisory Board (GASAB) and Audit Advisory Board both formed by the C&AG of India, Board of Insurance Regulatory and Development Authority of India (IRDAI), Insurance Advisory Committee of IRDAI and SEBI's Primary Market Advisory Committee.

CA. Ranjeet Kumar Agarwal has been passionately representing the profession on various international forums, striving to position India as a Global Accounting Hub. Currently, he is a member on the International Panel on Accountancy Education (IPAE) Group of IFAC, besides being a Board member of South Asian Federation of Accountants. Also, he represents ICAI on the Integrated Reporting and Connectivity Council, Pan African Federation of Accountants and ASEAN Federation of Accountants.

CA. Ranjeet Kumar Agarwal has attained exceptional heights through his remarkable actions. He now strides forward, assuming the charge of President ICAI, adorned with his accomplishments and propelled by the vision of manifesting the aspirations encapsulated in India@2047.

### **Our New Vice President**



Vice President, ICAI

**CA. CHARANJOT SINGH NANDA**, FCA, an ardent wordsmith and eloquent orator, has recently assumed the role of Vice-President of the Institute of Chartered Accountants of India for the term 2024-25. With a career spanning over 33 years as a practising Chartered Accountant, his journey is marked by academic excellence, professional achievements, and a relentless commitment to societal welfare.

Beginning his academic pursuit, CA. Nanda earned his Bachelor of Commerce degree from M.L.N. College in 1987, consistently distinguishing himself by securing positions on the Merit List at Kurukshetra University throughout his undergraduate tenure. His pursuit of excellence continued as he secured the 35th rank in the CA Inter Examination, culminating in obtaining his Chartered Accountancy qualification in 1991. Since then, he has been a distinguished Fellow Member of ICAI, actively contributing to the profession for over three decades.

CA. Nanda's involvement with ICAI's governance has been profound. He was elected to the Central Council in 2004, serving four consecutive terms and again in 2019. Additionally, he held the position of Chairman of the Northern India Regional Council (NIRC) of ICAI for the years 2002-2003. His leadership extends to various committees where he made significant contributions. Notably, as the Chairman of the Internal Audit Standards Board, he spearheaded the issuance of new standards and technical guides, enhancing the efficacy of internal audits.

Recognizing the importance of diversity and empowerment, CA. Nanda served as the first Chairman of the Women Members Empowerment Committee, paving the way for numerous women CAs to achieve their aspirations. He also chaired committees focused on sectors like Co-operatives & NPOs, emphasizing anti-money laundering compliance and digital accounting standards.

In his capacity as Chairman of the Continuing Professional Education Committee, CA. Nanda emphasized the importance of staying abreast of industry advancements. His leadership of the Public Relations Committee bolstered ICAI's reputation nationally and internationally. Furthermore, as Chairman of the Research Committee, he oversaw the creation of authoritative guidance notes on various accounting topics.

CA. Nanda represented the Institute on committees formed by governmental and regulatory bodies. Notable appointments include serving on SEBI Advisory Committees and being a convener of the Expert Group constituted by the Ministry of Corporate Affairs. Internationally, he chaired committees within the South Asian Federation of Accountants (SAFA) and contributed to improving transparency and governance.

A proponent of holistic progress, CA. Nanda embodies adaptability and strategic acumen. His tenure with ICAI reflects his ability to navigate complex issues and drive positive change. His unwavering commitment to fortifying the nation's economy underscores his role as a steward of progress.

In conclusion, CA. Charanjot Singh Nanda's elevation to Vice-President of ICAI is a testament to his exemplary leadership, unwavering dedication, and profound impact on the accounting profession and society at large.

# PROFILE

### **Our New Chairman**



CA. (Dr.) Rajkumar S Adukia Chairman, Board of Studies

**CA (DR.) RAJKUMAR S ADUKIA** is a highly accomplished professional with over 40 years of experience in business strategy, professional development, and self-improvement. As the Chairman of Competent Insolvency Professionals Private Limited, he is renowned as a global growth coach, author, and speaker, inspiring individuals and businesses worldwide.

His career has been marked by a relentless pursuit of excellence and innovation. Dr. Adukia has **authored over 350 books**, covering a wide range of topics from trade and taxation to finance, real estate, and emerging technologies like AI and blockchain. His ability to write a book on any subject in just 42 hours reflects his deep expertise and innovative approach.

Dr. Adukia's key areas of expertise include governance, strategic management, insolvency, and forensic practices. He believes in the power of mindset and emotional management for achieving infinite growth, and as an NLP practitioner, he brings a unique perspective to coaching, helping individuals unleash their full potential.

Throughout his career, Dr. Adukia has achieved numerous milestones. He has addressed over 100 international conferences and served as a member of prestigious committees such as IFAC-PAIB and IFRS SMEIG London. He was a member of the IFRS SME Board from 2016-18 and served on the IFAC Committee for 4 years.

In addition to his international engagements, Dr. Adukia has addressed almost all regulators' offices and conducted 5000 seminars within India. He is a very successful professional and has served as an ex-Board member of BOI & SBI mutual funds.

Dr. Adukia's academic background is equally impressive, with qualifications including **BCom (Hons.) with 5<sup>th</sup> rank in Mumbai University**, MCom., MBA, FCA, FCS, FCMA, LLB, LLM, PhD in Corporate Governance in Mutual Funds, and numerous diploma and certificate courses. His academic prowess is further exemplified by his stellar performance in various examinations, including ranking 1<sup>st</sup> in the All India inter CA, 6<sup>th</sup> in final CA, and 3<sup>rd</sup> in final CMA examinations. His commitment to personal development is evident in his extensive study of various disciplines, including Vipasana, Reiki, and Think and Grow Rich.

A visionary leader and mentor, Dr. Adukia is dedicated to empowering others to achieve greatness. His expertise, passion, and unwavering commitment to excellence make him a true inspiration to professionals around the world. Dr. Adukia's commitment to excellence and innovation has earned him numerous awards and accolades, including the **National Book Honors Award in 2018**.

To learn more about Dr. Adukia and his work, visit his website or connect with him on social media.

### Our New Vice Chairman



**CA. Sridhar Muppala** Vice Chairman, Board of Studies

**CA. SRIDHAR MUPPALA** is an outstanding leader and distinguished professional who has made an indelible impact on the profession, leaving an outstanding legacy in every role he has served. He currently serves as the Central Council Member of ICAI from the southern constituency.

As Vice Chairman of the Board of Studies and Deputy Convenor of the Digital Re-Engineering and Transformation Directorate of ICAI & Human Resource Directorate and in addition to being a member of various Standing and Non-Standing Committees of ICAI, he exemplifies his unwavering commitment to progress and innovation in the profession. A true visionary, he captivated audiences with his eloquent oratory skills at several national and international forums.

CA Sridhar has extensive experience in audit, taxation, corporate finance, and related areas, and has worked with clients across various industries. In addition to his work in the accounting profession, he has been a passionate educator and has contributed significantly to the growth and development of the education sector in India. His exceptional leadership qualities have earned him the "Leadership award" for excellence in education from the then Chief Minister of Andhra Pradesh in 2013, and the "Times Education Icon Award" in 2017, in recognition of his outstanding work.

#### **Educational Achievements:**

CA. Sridhar's journey from a humble farming family to becoming a distinguished Chartered Accountant is a testament to his unyielding spirit and resilience. Recognizing the transformative power of education, he secured the 4th rank in his state in his Intermediate (class XII) and an all-India rank in CA intermediate, setting a remarkable example for aspiring Chartered Accountants.

Finally, he is also actively involved in various social and community initiatives. He believes in giving back to society and has been associated with several charitable organizations that work towards the betterment of society. CA Sridhar is a respected professional, educator, community leader, and a valuable member of the ICAI fraternity. He has made significant contributions to the growth and development of the accounting profession, the education sector, and society at large, and continues to inspire and motivate others to achieve excellence in their respective fields.

# *"Success is not final, failure is not fatal, it is the courage to continue that counts."*

- WINSTON CHURCHILL

# CA FINAL - PAPER 2: ADVANCED FINANCIAL MANAGEMENT

The subject "Advanced Financial Management" primarily involves the application of financial management theories and techniques in strategic decision-making. In this regard, an attempt has been made to convey the concepts of Advanced Financial Management to students in a clear and straightforward manner through capsules. These capsules are designed to aid students in quickly revising particular chapters. While every effort has been made to simplify the concepts presented in capsule form, it should not be considered a replacement for the Study Material provided by ICAI. Therefore, students are advised to refer to the ICAI Study Material and other publications such as Revisionary Test Papers, Mock Test Papers, etc.

# **Chapter 1 – Financial Policy And Corporate Strategy**



### Advanced Role of CFO in various matters including Value Creation

### In addition to the traditional role the role of CFO has been advanced in the following areas:

- a. Risk Management: Now a days the CFOs are expected to look after the overall functioning of the framework of Risk Management system of an organisation.
- **b.** Supply Chain: Since CFOs are caretakers of finance of the company, considering the financial viability of the Supply Chain Management their role has now become more critical.
- c. Mergers, Acquisitions, and Corporate Restructuring: Since to capture the market share there has been a spate of Mergers and Acquisitions, the role of CFOs has become more crucial because any error in them can lead to collapse of the whole business.
- d. Environmental, Social and Governance (ESG) Financing: With the evolving of the concept of ESG their role has been shifted from traditional financing to sustainability financing.





**Corporate Level Strategy** 

Fundamentally concerned with selection of businesses in which a company should compete and should be able to answer three basic questions:

- (a) Suitability Whether the strategy would work for the accomplishment of common objective of the company.
- (b) Feasibility Determines the kind and number of resources required to formulate and implement the strategy.
- (c) Acceptability It is concerned with the stakeholders' satisfaction and can be financial and non-financial.

### **Business Unit Level Strategy**

At this level, the strategic issues are about practical coordination of operating units.

### Functional Level Strategy

- The functional level is the level of the operating divisions and departments. The strategic issues at this level are related to functional business processes and value chain.
- Among the different functional activities viz production, marketing, finance, human resources and research and development, finance assumes highest importance during the top down and bottom-up interaction of planning.

### **Financial Planning**

#### There are 3 major components of Financial Planning:

- Financial Resources (FR)
- Financial Tools (FT)
- Financial Goals (FG)

Financial Planning = FR+ FT + FG

### Interface of Financial Policy And Strategic Management

- The starting point of an organization is money and the end point of that organization is also money.
- Sources of finance and capital structure are the most important dimensions of a strategic plan.
- Dividend policy is yet another area for making financial policy decisions affecting the strategic performance of the company.
- Another important dimension of strategic management and financial policy interface is the investment and fund allocation decisions.
- The financial policy of a company cannot be worked out in isolation of other functional policies.
- Corporate strategy is the cause and financial policy is the effect and sometimes financial policy is the cause and corporate strategy is the effect.

### Balancing Financial Goals vis-à-vis Sustainable Growth

Too fast or too slow growth will go against enterprise growth and development.

### What makes an organization financially sustainable?

 $\geq$ 

D

have more than one way of generating income.

have adequate financial systems.

be clear about its values (value clarity).

- have more than one source of income.
- do strategic, action and financial planning regularly.
- have a good public image.
- have financial autonomy.

# Sustainable Growth Rate

Sustainable Growth Rate (SGR), of a firm is the maximum rate of growth in sales that can be achieved, given the firm's profitability, asset utilization, and dividend pay-out and debt (financial leverage) ratios. It is a measure of how much a firm can grow without borrowing more money. The SGR can be calculated as follows:

SGR = Return on Equity (ROE) x (1- Dividend payment ratio)

Economists and business researchers contend that achieving Sustainable Growth is not possible without paying heed to twin cornerstones:

- growth strategy and
- growth capability.



# **Chapter 3 - Advanced Capital Budgeting Decisions**



### **CURRENT TRENDS IN CAPITAL BUDGETING**

Investment projects are exposed to various types of factors some of which are as follows:

- Inflation
- Change in technology
- Change in Government Policies

#### Impact of Inflation on Capital Budgeting Decisions

- Adjustment for inflation is a necessity because the net revenues after adjustment for inflation shall be equal to net revenues in current terms.
- Due to inflation investors require the nominal rate of return to evaluate the project.

Impact of change in technology on Capital Budgeting Decisions

# Why it is important to analyze the impacts of change in technology.

- Change in technology can significantly alter production process.
- Changes can also yield benefits such as improved quality, delivery time greater flexibility, etc.
- Changed technology can also result in reduction in cost of capital
- Improved cash inflows can be achieved through technological changes.
- There may be need to incur additional cost in the form of additional capital expenditure.
- The sale volume can be impacted as the anticipated life cycle of the product can be shortened because of change in consumer preference.

#### Various ways in which the impact of change in technology can be incorporated in Capital Budgeting decisions

- At the time of making Capital Budgeting Decisions the risk of change in technology should be considered using various techniques such as Sensitivity Analysis, Scenario Analysis, Simulation Analysis etc.
- Once project has been launched analyze the impact of change in technology both positive or negative and revise estimates in monetary terms.
- If continuation of project is proving to be unviable then look for abandonment option and evaluate the same (discussed later).
- Suitably adjusting the discounting rate.

Impact of change in Government Policies on Capital Budgeting Decisions

Impact of change of Policies on Domestic Capital Budgeting Decisions.

- Since the change in interest rates are decided by Government through its Monetary Policy, this can affect the Cost of Capital because the Cost of Debt is normally dependent on the bank rate of interest as they are considered as one of the important factors to compute YTM.
- Another important change (Government Policy) is related to Fiscal Policy. Since Fiscal Policy forms the basis of Tax Rate and Annual Cash Flows are dependent on Rate of Depreciation of Tax Rate, any drastic change in any of these two items may call for revision of estimated cash flows.

#### Impact of change of Policies on International Capital Budgeting Decisions.

- In International Capital Budgeting Decisions, the foreign exchange rates play a very important role. A change in bank rate and money supply is decided as per Monetary Policy, the change in any of these two impacts the rate of Foreign Exchange and it may call for revision of estimates.
- Change in Tax Rates relating to Foreign Income or changes in provisions of Double Tax Avoiding Agreement (DTAA) as decided in Fiscal Policy may call for revision of estimates.

### DEALING WITH RISK IN INVESTMENT DECISIONS

### **Decision Making**

There can be 3 types of Decision making :

- (i) **Decision making under certainty:** When cash flows are certain.
- (ii) Decision making involving risk: When cash flows involve risk and probability can be assigned.
- (iii) **Decision making under uncertainty:** When cash flows are uncertain and probability cannot be assigned

#### What is Risk and Uncertainty and how is it measured?

What is Risk and Uncertainty and how is it measured?

- Risk is the variability of possible outcomes from the expected one.
- Uncertainty is a situation when probability of cash flows are unknown.
- Risk is measured by the Variance or Standard Deviation (SD).
   SD is a commonly used tool which measures the dispersion of possible outcomes around the mean.



Adjustment of risk is necessary to help make the decision as to whether the returns of the project are proportionate with the risks borne and whether it is worth investing in the project over the other investment options available.

Risk adjustment is required to know the real value of the Cash Inflows. Higher risk will lead to higher risk premium and also expectation of higher returns

#### **INTERNAL AND EXTERNAL FACTORS AFFECTING CAPITAL BUDGETING DECISIONS**

#### **Internal Factors**



Industry- specific risk	These are the risks which affect the whole industry in which the company operates. These risks include regulatory restrictions on industry, changes in technologies etc.
Market risk	The risk which arises due to market related conditions like entry of substitute, changes in demand conditions, availability and access to resources etc.
Competition risk	These are risks related with competition in the market in which a company operates. These risks are risk of entry of rival, product dynamism and change in taste and preference of consumers etc.
Economic conditions	These are the risks which are related with macro- economic conditions like changes in monetary policies by central banks, changes in fiscal policies like introduction of new taxes and cess, inflation, changes in GDP, changes in savings and net disposable income etc.
International risk	These are risks which are related with conditions which are caused by global economic conditions like restriction on free trade, restrictions on market access, recessions, bilateral agreements, political and

#### METHODS OF INCORPORATING RISK IN CAPITAL BUDGETING



geographical conditions etc.







This analysis brings in the probabilities of changes in key variables and also allows us to change more than one variable at a time.

Scenario Analysis begins with base case or most likely set of values for the input variables.

Then, go for worst case scenario (low unit sales, low sale price, high variable cost and so on) and best case scenario.

Alternatively, Scenario Analysis is possible where some factors are changed positively and some factors are changed negatively.

In a nutshell Scenario Analysis examines the risk of investment, to analyse the impact of alternative combinations of variables, on the project's NPV (or IRR).

#### SENSITIVITY ANALYSIS VS. SCENARIO ANALYSIS



probabilities for any given action.

This analysis starts with carrying out a simulation exercise to model the investment project.

It involves identifying the key factors affecting the project and their interrelationships.

It involves modelling of cash flows to reveal the key factors influencing both cash receipt and payments and their interrelationship.

This analysis specifies a range for a probability distribution of potential outcomes for each of the model's assumptions.

### We can predict all types of bad market situations beforehand.

 Handle problems characterised by:
 (a) numerous exogenous variables following any kind of distribution.

### Advantages

- (b) complex interrelationships among parameters, exogenous variables and endogenous variables.
- (c) compels decision maker to explicitly consider the inter-dependencies and uncertainties featuring the project.

#### Shortcomings

- Difficult to model the project and specify probability distribution of exogenous variables.
- (2) Simulation is inherently imprecise. Provides rough approximation of probability distribution of NPV and hence may be misleading when a tail of distribution is critical.
- (3) Realistic simulation model being likely to be complex would probably be constructed by management expert and not by the decision maker.
- Decision maker lacking understanding of the model may not use it.

Other Techniques

**Decision Tree Analysis** 

• Basically, decision tree is a graphic display of the relationship between a present decision and future events, future decision, and their consequences.

 This approach assumes that there are only two types of situations that a finance manager has to face. The first situation is where the manager has control or power to determine what happens next. This is known as "Decision", as he can do what he desires to do.



Net present value = Present value of benefits – Present value of costs

**Decision rule**. Accept when present value of benefits > present value of costs. Reject when the opposite is true.

#### **Optimum Replacement Cycle**

- To determine optimal replacement cycle, concept of Equivalent Annual Cost (EAC) is used.
- The formula to compute EAC is as follows:

PV of Cash Outflow PVAF

• This decision is based on assumption that as the machine (asset) becomes older its efficiency decreases leading to increase in operating cost and reduction in resale value.

#### ADJUSTED PRESENT VALUE

- This approach separates the investment decision and financing decision.
- Following formula is used to evaluate a project as per this approach:
  - Base Case NPV + PV of Tax Benefit on Interest
- Base Case NPV is calculated using cost of equity assuming the company is unlevered i.e., all equity financed. Now question arises: how to calculate the Unlevered Cost of Equity?
- This method provides a broader view to evaluate a project considering the benefit of increased use of debt in financing of any project.

#### $^{2}T$ зI 4T R 5**I** J 6S 7**T** <sup>8</sup>A 9D $^{10}C$ Е <sup>11</sup>P А I 0 E E G $^{14}I$ Р В $^{15}R$ V <sup>18</sup>L 0 $^{17}M$ Е I <sup>20</sup>L E $^{21}M$ 0 Ν 22S L <sup>23</sup>E $^{24}T$ U 0 А <sup>27</sup>G <sup>28</sup>B Ν <sup>29</sup>A Р Т <sup>31</sup>E Μ Х $^{32}A$ I Е $^{34}M$ A Υ <sup>35</sup>F А 0 <sup>37</sup>C R <sup>38</sup>M <sup>39</sup>E <sup>40</sup>I Р Ν 41D $^{42}T$ $^{43}I$ <sup>44</sup>E <sup>45</sup>A Μ I <sup>46</sup>I Ν S U R A Ν С Е <sup>47</sup>Q Е

### **CROSSWORD SOLUTION – FEBRUARY 2024**

# CA INTERMEDIATE - PAPER 2: CORPORATE AND OTHER LAWS

This capsule on Intermediate, Paper 2: Corporate and Other Laws, captures the significant provisions related to 'Chapter 8- Declaration and Payment of Dividend' and 'Chapter 9- Accounts of companies'. You are advised to read the April 2023 edition of the Study Material for detailed knowledge and understanding of the said topics. This capsule is intended to assist you in the process of understanding and revision of concepts discussed in the Study Material.



#### I. DIVIDEND PAYABLE ON DIFFERENT TYPES OF SHARES



- No dividend shall exceed the amount recommended by the Board
- Dividend is declared as a proportion of Nominal or Face Value of a share

### II. PROVISIONS REGARDING DECLARATION OF DIVIDEND

(1) Sources



#### (2) Transfer to Reserve



#### (3) Depositing amount of Dividend

The amount of dividend

shall be deposited in a scheduled bank in a separate account

within 5 days from the date of declaration of such dividend

Deposition of amount of dividend, shall not apply to a Government Company in which the entire paid up share capital is held by the Central Government, or by any State Government or Governments or by the Central Governments or by one or more Government Company

#### III. DECLARATION OF DIVIDEND IN CASE OF INADEQUATE / NO PROFITS

#### (1) Declaring dividend out of past year profits

Where, owing to inadequacy or absence of profits in any financial year



#### (2) Amounts not treated as free reserves



(3) Rules to be followed while declaring dividend in case of inadequacy/ absence of profits





#### VII. INVESTOR EDUCATION AND PROTECTION FUND (IEPF)

#### (1) Amounts to be credited to the Fund

#### Amount given by the Central Government

· by way of grants after due appropriation made by Parliament

Donations given by the Central Government, State Governments, companies or any other institution

· for the purposes of the Fund

Amount lying in the Unpaid Dividend Account

#### Amount in the General Revenue Account of the Central Government

• that had been transferred to that account under section 205A(5) of the Companies Act, 1956 and remaining unpaid or unclaimed on the commencement of the Companies Act, 2013

#### Amount in IEPF

• as per section 205C of the Companies Act, 1956

#### Interest or other income

· received out of investments made from the Fund

Amount received through disgorgement or disposal of Securities

· seized from a person who has been convicted for personation for acquisition of securities

#### **Application Money**

• for allotment of any securities and due for refund (only if such amount has remained unclaimed and unpaid for a period of 7 years from the date it became due for payment)

#### **Matured Deposits**

#### Matured Debentures

#### Interest

· accrued on the amounts mentioned as Application money, Matured deposits and matured debentures

#### Amount received from Sale Proceeds

• of fractional shares arising out of issuance of bonus shares, merger and amalgamation for 7 or more years

#### **Redemption amount of preference shares**

· remaining unpaid or unclaimed for 7 or more years

#### Other amounts

- (a) amounts payable as mentioned in clause (a) to (n) of section 125 (2)
- (b) shares in whose case dividends have not been claimed or paid for 7 consecutive years or more
- (c) all the resultant benefits arising out of shares held by the Authority under clause (b) above
- (d) all grants, fees and charges received by the Authority
- (e) all sums received by the Authority from such other sources as may be decided upon by the Central Government
- (f) all income earned by the Authority in any year
- (fa) all shares held by the Authority in accordance with provison of sub-section section 90(9)
- (g) all amounts payable as mentioned in section 10B(3) of the Banking Companies (Acquisition and Transfer of Undertakings) Act, 1970, section 10B of the Banking Companies (Acquisition and Transfer of Undertakings) Act, 1980, section 38A(3) of the State Bank of India Act, 1955 and section 40A of the State Bank of India (Subsidiary Bank) Act, 1959
- (h) all other sums of money collected by the Authority as envisaged in the Act

#### (2) Utilization of the Fund

The fund shall be utilised for:



### VIII. PUNISHMENT FOR FAILURE TO DISTRIBUTE DIVIDENDS

(1) Punishment and liability



(2) Exceptions under which no offence shall be deemed to have been committed



# **Chapter 9 - Accounts Of Companies**



Chief

Company

Secretary

(if appointed)

auditors

NRCS)

or investments

financial position

Development and

implementation of risk management

V. AUTHENTICATION OF

FINANCIAL STATEMENTS

#### III. RE-OPENING OF ACCOUNTS ON COURT'S OR TRIBUNAL ORDERS



**Significant point:** The Board's Report shall be prepared based on the standalone financial statements of the company and shall report on the highlights of performance of subsidiaries, associates and joint venture companies and their contribution to the overall performance of the company during the period under report.

The Board's report and any annexures, shall be signed by its chairperson, if he is authorised by the Board.

Where chairperson is not so authorised, shall be signed by at least 2 directors, one of whom shall be a managing director, or by the director where there is one director.

#### \* Other prescribed matters

- i. The **financial summary** or highlights
- ii. The change in the **nature of business**, if any
- iii. The details of **directors** or **KMP** who were **appointed** or have **resigned** during the year
- iiia. A statement regarding opinion of the Board with regard to **integrity**, **expertise** and **experience** (including the proficiency) of the independent directors appointed during the year
- iv. The names of companies which have **become** or **ceased** to be its **subsidiaries**, **joint ventures** or **associate companies** during the year
- v. The details relating to **deposits (accepted** during the year; remained **unpaid or unclaimed** as at the end of the year; any **default in repayment** of deposits or payment of interest thereon during the year)
- vi. The details of **deposits** which are **not** in **compliance** with **the requirements of Chapter V** (i.e., *Acceptance of Deposits by Companies*) of the Act

vii. The details of **significant and material orders** passed by the regulators or courts or tribunals **impacting the going concern status** and company's operations in future

- viii. The details in respect of **adequacy of internal financial controls** with reference to the Financial Statements
- ix. A disclosure, as to whether **maintenance of cost records** is required and accordingly such accounts and records are made and maintained
- x. A statement that the company has complied with provisions relating to the constitution of **Internal Complaints Committee** under the *Sexual Harassment of Women at Workplace* (*Prevention, Prohibition and Redressal) Act, 2013.*
- xi. The details of application made or **any proceeding pending** under the *Insolvency and Bankruptcy Code, 2016* during the year along-with their status as at the end of the financial year
- xii. The details of **difference** between amount of the **valuation** done at the time of one-time settlement and the valuation done while taking loan from the Banks or Financial Institutions along with the reasons thereof

### VII. DIRECTOR'S RESPONSIBILITY STATEMENT

Director's Responsibility Statement shall state-



Director's selection of accounting policies and applying them consistently to give a true and fair view of the state of affairs of the company and of the P&L of the company

Director's had taken care for the maintenance of adequate accounting records for safeguarding the assets of the company and for preventing and detecting fraud and other irregularities

The Director had prepared the annual accounts on a going concern basis

The Director, in the case of a listed company, had laid down internal financial controls (IFC) and that IFC are adequate and were operating effectively

The Director had devised proper systems to ensure compliance with the provisions of all applicable laws operating effectively

### VIII. CORPORATE SOCIAL RESPONSIBILITY (CSR)

(1) Meaning and activities which are specifically excluded:





#### CSR shall not include the following activities:-

- (i) activities undertaken in pursuance of normal course of business of the company
- Provided that any company engaged in research and development activity of new vaccine, drugs and medical devices in their normal course of business related to COVID-19 for financial years 2020-21, 2021-22, 2022-23 subject to the conditions that:
  - (a) such research and development activities shall be carried out in collaboration with any of the institutes or organisations mentioned in item (ix) of Schedule VII to the Act;
  - (b) details of such activity shall be disclosed separately in the Annual report on CSR
- (ii) any activity undertaken by the company outside India except for training of Indian sports personnel
- (iii) Contribution of any amount directly or indirectly to any political party
- (iv) Activities benefitting employees of the company (as defined in the Code on Wages, 2019)
- Activities supported by the companies on sponsorship basis for deriving marketing benefits
- (vi) Activities carried out for fulfilment of any other statutory obligations under any law in India
- (2) Companies required to constitute CSR committee and its composition



- **net worth** of ₹ 500 crore or more, or
- **turnover** of ₹ 1000 crore or more or
- a **net profit** of ₹ 5 crore or more
- during the immediately preceding financial year



3 or more directors, out of which at least 1 director shall be an independent director

However, where a company is not required to appoint an independent director under section 149(4)- it shall have in its CSR Committee 2 or more directors

#### (3) Duties of CSR Committee



(4) Amount of contribution towards CSR

The Board shall ensure that the company spends, in every financial year,

• at least 2% of the average net profits of the co. during the 3 immediately P.F.Ys

Where the company has not completed the period of 3 F.Ys, since its incorporation:

• at least 2% during such immediately preceding financial years, in pursuance of its CSR Policy

Where the company fails to spend such amount, the Board shall, in its report specify the reasons for not spending the amount.

Where the unspent amount relates to any ongoing project, transfer such unspent amount to a Fund specified in Schedule VII,

• within a period of 6 months of the expiry of the financial year.

Where the company spends an amount in excess of the requirements

 such company may set off such excess amount against the requirement to spend for such number of succeeding financial years and in such manner, as may be prescribed

#### (5) Transfer of unspent CSR amount to special account



#### (6) When it is not necessary to constitute CSR Committee

Where the amount to be spent by a company does not exceed 50 lakh rupees the requirement for constitution of the CSR Committee the applicable, and the funct applicable, and Direction of the CSR

the functions of such Committee shall, in such cases, be discharged by the Board of Directors

### IX. ENTITLEMENT OF MEMBERS TO RECEIVE FINANCIAL STATEMENT

#### (1) Time period for serving of copies of audited financial statement



### (2) Circumstances when a period can be less than prescribed period





(3) In case of listed companies:

copies of documents

are made available for inspection at its RO

for a period of 21 days

AGM

Un- adopted

in AGM/

Adjourned AGM

Filed within

AGM. Registrar

takes them as

Provisional in

their records

Further adopted in Adjourned AGM - filed with Registrar

within 30 days of the said meeting

30 days of

before the meeting

Held

[Copy of FS + CFS + other

Prescribed documents

Adopted

Filed with

registrar within

30 days of the

date of AGM

documents to be presented]

during Working

Hours

#### XI. INTERNAL AUDIT

(1) Who can be internal auditor?



#### (3) Function of Internal Auditor

more)



Paid up share capital (₹ 50 cr or more

during P.F.Y)

- In case of OPC, it shall file a copy of the financial statements duly adopted by its member, along with the required documents attached to such financial statements, within 180 days from the closure of the financial year.
- In case of companies having subsidiary/s: A company shall, along with its financial statements to be filed with the Registrar, attach accounts of its subsidiary/s which have been incorporated outside India and which have not established their place of business in India.
- In the case of a subsidiary which has been incorporated outside India ("foreign subsidiary"), which is not required to get its financial statement audited under any law of the country of its incorporation and which does not get such financial statement audited, the requirements of the fourth proviso to section 137(1), shall be met if the holding Indian company files such unaudited financial statement along with a declaration to this effect and where such financial statement is in a language other than English, along with a translated copy of the financial statement in English.

### QUANTITATIVE APTITUDE

# **CA FOUNDATION - PAPER 3: QUANTITATIVE APTITUDE**

The capsule on **CA Foundation Course Paper 3: Quantitative Aptitude** covers the essential concepts of **"Permutations and Combinations"** for the purpose of making students understand the arrangement of different objects using concrete examples.

# **Chapter 5 - Permutations and Combinations**



### INTRODUCTION

28

In this chapter we will learn problem of arranging and grouping of certain things, taking particular number of things at a time. It should be noted that (a, b) and (b, a) are two different arrangements, but they represent the same group. In case of arrangements, the sequence or order of things is also taken into account.

The manager of a large bank has a difficult task of filling two important positions from a group of five equally qualified employees. Since none of them has had actual experience, he decides to allow each of them to work for one month in each of the positions before he makes the decision. How long can the bank operate before the positions are filled by permanent appointments?

Solution to above-cited situation requires an efficient counting of the possible ways in which the desired outcomes can be obtained. A listing of all possible outcomes may be desirable, but is likely to be very tedious and subject to errors of duplication or omission. We need to devise certain techniques which will help us to cope with such problems. The techniques of permutation and combination will help in tackling problems such as above.

### FUNDAMENTAL PRINCIPLES OF COUNTING

(a) **Multiplication Rule:** If certain thing may be done in 'm' different ways and when it has been done, a second thing can be done in 'n' different ways then total number of ways of doing both things simultaneously =  $m \times n$ .

Eg. if one can go to school by 5 different buses and then come back by 4 different buses then total number of ways of going to and coming back from school =  $5 \times 4 = 20$ .

Eg. if one wants to go to school by bus where there are 5 buses or by auto where there are 4 autos, then total number of ways of going school = 5 + 4 = 9.

Note:- 1) **AND** 
$$\Rightarrow$$
 **Multiply**

 $\mathbf{OR} \Rightarrow \mathbf{Add}$ 

2) The above fundamental principles may be generalised, wherever necessary.

**The Factorial** Definition: The factorial n, written as n! or  $\lfloor n$ , represents the product of all integers from 1 to n both inclusive. To make the notation meaningful, when n = 0, we define it as 0! or  $\lfloor 0 \rfloor$ 

Thus, n! = n. (n - 1). (n - 2)... 3.2.1

Example 1: Find 5!, 4! and 6!

Solution:  $5! = 5 \times 4 \times 3 \times 2 \times 1 = 120$ ;  $4! = 4 \times 3 \times 2 \times 1 = 24$ ;  $6! = 6 \times 5 \times 4 \times 3 \times 2 \times 1 = 720$ .

**Example 2:** Find 9!/6!; 10!/7!.

Solution:

$$\frac{9}{6!} = \frac{9 \times 8 \times 7 \times 6!}{6!} = 9 \times 8 \times 7 = 504; \quad \frac{10!}{7!} = \frac{10 \times 9 \times 7!}{7!} = 10 \times 9 \times 8 = 720$$
  
Example 3: Find × if 1/9! + 1/10! = ×/11!  
Solution: 1/9! (1 + 1/10) = × / 11 × 10 × 9! or, 11/10 = ×/11 × 10  
i.e., × = 121

**Example 4:** Find n if |n + 1 = 30|n - 1

**Solution:**  $|n + 1| = 30 |n - 1| \Rightarrow (n+1).n$  |n - 1| = 30 |n - 1|

or  $n^2 + n = 30$  or  $n^2 + n - 30$  or,  $n^2 + 6n - 5n - 30 = 0$  or, (n + 6) (n - 5) = 0

#### **PERMUTATIONS:**

A group of persons want themselves to be photographed. They approach the photographer and request him to take as many different photographs as possible with persons standing in different positions amongst themselves. The photographer wants to calculate how many films does he need to exhaust all possibilities? How can he calculate the number?

In situations such as above, we can use permutations to find out the exact number of films.

**Definition:** The ways of arranging or selecting smaller or equal number of persons or objects from a group of persons or collection of objects with due regard being paid to the order of arrangement or selection, are called permutations.

Number of Permutations when r objects are chosen out of n different objects. (Denoted by nPr or nPr or P(n, r)):

Let us consider the problem of finding the number of ways in which the first r rankings are secured by n students in a class. As any one of the n students can secure the first rank, the number of ways in which the first rank is secured is n.

Now consider the second rank. There are (n - 1) students left and the second rank can be secured by any one of them. Thus the different possibilities are (n - 1) ways. Now, by applying fundamental principle, we can see that the first two ranks can be secured in n (n - 1) ways by these n students.

**Theorem** : The number of permutations of n things when r are chosen at a time  ${}^{n}P_{r} = n(n-1)(n-2)...(n-r+1)$ 

where the product has exactly r factors.

#### RESULTS

- 1 Number of permutations of n different things taken all n things at a time is given by  ${}^{n}P_{n} = n!$
- 2. <sup>n</sup>P<sub>r</sub> using factorial notation.

$$P_{r} = \frac{n!}{(n-r)!}$$

3. Justification for 0! = 1. Now applying r = n in the formula for  ${}^{n}P_{r}$ , we get

 ${}^{n}P_{n} = n!/(n-n)! = n!/0!$ 

**Example 1:** Evaluate each of  ${}^{5}P_{3}$ ,  ${}^{10}P_{2}$ ,  ${}^{11}P_{5}$ 

**Solution:**  ${}^{5}P_{2} = 5 \times 4 \times (5 - 3 + 1) = 5 \times 4 \times 3 = 60$ 

 ${}^{10}P_{2} = 10 \times \dots \times (10-2+1) = 10 \times 9 = 90$ 

 $^{11}\mathrm{P}_5 = 11! \; / \; (11-5)! = 11 \times 10 \times 9 \times 8 \times 7 \times 6! \; / \; 6! = 11 \times 10 \times 9 \times 8 \times 7 = 55440.$ 

**Example 2:** How many three letters words can be formed using the letters of the words

(a) SQUARE and (b) HEXAGON?

(Any arrangement of letters is called a word even though it may or may not have any meaning or pronunciation).

#### Solution:

- (a) Since the word 'SQUARE' consists of 6 different letters, the number of permutations of choosing 3 letters out of six equals  $6P_3 = 6 \times 5 \times 4 = 120$ .
- (b) Since the word 'HEXAGON' contains  $7P_3$  different letters, the number of permutations is  $7P_3 = 7 \times 6 \times 5 = 210$ .

**Example 3:** In how many different ways can five persons stand in a line for a group photograph?

**Solution:** Here we know that the order is important. Hence, this is the number of permutations of five things taken all at a time. Therefore, this equals

 ${}^{5}P_{5} = 5! = 5 \times 4 \times 3 \times 2 \times 1 = 120$  ways.

**Example 4:** First, second and third prizes are to be awarded at an engineering fair in which 13 exhibits have been entered. In how many different ways can the prizes be awarded?

**Solution:** Here again, order of selection is important and repetitions are not meaningful as no exhibit can receive more than one prize. Hence, the answer is the number of permutations of 13 things taken three at a time. Therefore, we find  ${}^{13}P_3 = 13!/10! = 13 \times 12 \times 11 = 1,716$  ways.

**Example 5:** In how many different ways can 3 students be associated with 4 chartered accountants, assuming that each chartered accountant can take at most one student?

**Solution:** This equals the number of permutations of choosing 3 persons out of 4. Hence, the answer is

 ${}^{4}P_{3} = 4 \times 3 \times 2 = 24.$ 

**Example 6:** If six times the number permutations of n things taken 3 at a time is equal to seven times the number of permutations of (n - 1) things taken 3 at a time, find n.

**Solution:** We are given that  $6 \times {}^{n}P_{_{3}} = 7 \times {}^{n-1}P_{_{3}}$  and we have to solve this equality to find the value of n. Therefore,

$$6\frac{|n|}{|n-3|} = 7\frac{|n-1|}{|n-4|}$$
  
or, 6 n (n - 1) (n - 2) = 7 (n - 1) (n - 2) (n - 3)  
or, 6 n = 7 (n - 3)  
or, 6 n = 7n - 21 or, n = 21

Therefore, the value of n equals 21.

**Example 7:** Compute the sum of 4 digit numbers which can be formed with the four digits 1, 3, 5, 7, if each digit is used only once in each arrangement.

**Solution:** The number of arrangements of 4 different digits taken 4 at a time is given by  ${}^{4}P_{4} = 4! = 24$ . All the four digits will occur equal number of times at each of the positions, namely ones, tens, hundreds, thousands.

Thus, each digit will occur 24 / 4 = 6 times in each of the positions. The sum of digits in one's position will be  $6 \times (1 + 3 + 5 + 7) =$ 96. Similar is the case in ten's, hundred's and thousand's places. Therefore, the sum will be  $96 + 96 \times 10 + 96 \times 100 + 96 \times 1000 =$ 1,06,656.

**Example 8:** Find n if  ${}^{n}P_{3} = 60$ .

**Solution:**  ${}^{n}P_{3} = \frac{n!}{(n-3)!} = 60$  (given) i.e., n (n-1) (n-2) = 60 = 5 × 4 × 3 Therefore, n = 5.

Example 8:  $56P_{r+3}$ :  $54P_{r+3}$  = 30800:1 find 'r' Solution: We know "p<sub>r</sub> =  $\frac{n!}{(n-r)!}$ ;  $\therefore {}^{56}P_{r+6} = \frac{56!}{\{56-(r+6)\}!} = \frac{56!}{(n+r)!}$ ; Similarly,  ${}^{54}P_{r+3} = \frac{54!}{\{54-(r+3)\}!} = \frac{54!}{(51-r)!} =$ Thus,  $\frac{{}^{56}P_{r+6}}{{}^{54}P_{r+3}} = \frac{56!}{(50-r!)} \times \frac{(51-r)!}{54!}$   $\frac{56 \times 55 \times 54!}{(50-r)!} \times \frac{(51-r)(51-r)!}{54!} = \frac{56 \times 55 \times (51-r)}{1}$ But we are given the ratio as 30800 : 1 ; therefore  $\frac{56 \times 55 \times (51-r)}{1} = \frac{30,800}{1}$ 

# QUANTITATIVE APTITUDE

or,  $(51-r) = \frac{30,800}{56 \times 55}$  ... r = 41Example 10: Prove the following

. .

 $(n + 1)! - n! \Rightarrow n.n!$ 

**Solution:** By applying the simple properties of factorial, we have (n + 1)! - n! = (n+1) n! - n! = n!. (n+1-1) = n.n!

**Example 11:** In how many different ways can a club with 10 members select a President, Secretary and Treasurer, if no member can hold two offices and each member is eligible for any office?

**Solution:** The answer is the number of permutations of 10 persons chosen three at a time. Therefore, it is  ${}^{10}P_3 = 10 \times 9 \times 8 = 720$ .

**Example 12:** When Jhon arrives in New York, he has eight shops to see, but he has time only to visit six of them. In how many different ways can he arrange his schedule in New York?

**Solution:** He can arrange his schedule in  ${}^{8}P_{6} = 8 \times 7 \times 6 \times 5 \times 4 \times 3 = 20,160$  ways.

**Example 13:** When Dr. Ram arrives in his dispensary, he finds 12 patients waiting to see him. If he can see only one patient at a time, find the number of ways, he can schedule his patients (a) if they all want their turn, and (b) if 3 leave in disgust before Dr. Ram gets around to seeing them.

**Solution:** (a) There are 12 patients and all 12 wait to see the doctor. Therefore the number of ways =  ${}^{12}P_{12} = 12! = 479,001,600$ 

(b) There are 12–3 = 9 patients. They can be seen  ${}^{12}\mathrm{P}_9$  = 79,833,600 ways.

#### **CIRCULAR PERMUTATIONS**

So far we have discussed arrangements of objects or things in a row which may be termed as linear permutation. But if we arrange the objects along a closed curve viz., a circle, the permutations are known as circular permutations.

The number of circular permutations of n different things chosen at a time is (n-1)!.

**Example 1:** In how many ways can 4 persons sit at a round table for a group discussions?

**Solution:** The answer can be got from the formula for circular permutations. The answer is (4-1)! = 3! = 6 ways.

**NOTE** : These arrangements are such that every person has got the same two neighbours. The only change is that right side neighbour and vice-versa.

Thus the number of ways of arranging n persons along a round table so that no person has the same two neighbours is =  $\frac{1}{2} |n-1|$ 

Similarly, in forming a necklace or a garland there is no distinction between a clockwise and anti clockwise direction because we can simply turn it over so that clockwise becomes anti clockwise and vice versa. **Hence, the number of necklaces formed with n beads** of different

### colours = $\frac{1}{2} \left| \frac{n-1}{2} \right|$

#### PERMUTATION WITH RESTRICTIONS

In many arrangements there may be number of restrictions. In such cases, we are to arrange or select the objects or persons as per the restrictions imposed. The total number of arrangements in all cases, can be found out by the application of a fundamental principle.

Theorem 1. Number of permutations of n distinct objects taken r at a time when a particular object is not taken in any arrangement is  ${}^{n-1}p_{r}$ .

**Theorem 2.** Number of permutations of r objects out of n distinct objects when a particular object is always included in any arrangement is r.  $^{n-1}p_{r-1}$ 

**Example 1:** How many arrangements can be made out of the letters of the word 'DRAUGHT', the vowels never beings separated?

**Solution:** The word 'DRAUGHT' consists of 7 letters of which 5 are consonants and two are vowels. In the arrangement we are to take all the 7 letters but the restriction is that the two vowels should not be separated.

We can view the two vowels as one letter. The two vowels A and U in this one letter can be arranged in 2! = 2 ways. (i) AU or (ii) UA. Further, we can arrange the six letters : 5 consonants and one letter compound letter consisting of two vowels. The total number of ways of arranging them is  ${}^{6}P_{6} = 6! = 720$  ways.

Hence, by the fundamental principle, the total number of arrangements of the letters of the word DRAUGHT, the vowels never being separated =  $2 \times 720 = 1440$  ways.

**Example 2:** Show that the number of ways in which n books can be arranged on a shelf so that two particular books are not together. The number is (n-2).(n-1)!

Solution: We first find the total number of arrangements in which all n books can be arranged on the shelf without any restriction. The number is,  $^{n}P_{n} = n! \dots (1)$ 

Then we find the total number of arrangements in which the two particular books are together.

The books can be together in  ${}^{2}p_{2} = 2! = 2$  ways. Now we consider those two books which are kept together as one composite book and with the rest of the (n-2) books from (n-1) books which are to be arranged on the shelf; the number of arrangements  ${}^{n-1}P_{n-1} =$ = (n-1)!. Hence by the Fundamental Principle, the total number of arrangements on which the two particular books are together equals  $= 2 \times (n-1)! \dots(2)$ 

the required number of arrangements of n books on a shelf so that two particular books are not together

- = (1) (2)
- = n! 2 x (n-1)!
- = n.(n 1)! 2.(n-1)!
- = (n-1)!.(n-2)

**Example 3:** There are 6 books on Economics, 3 on Mathematics and 2 on Accountancy. In how many ways can these be placed on a shelf if the books on the same subject are to be together?

**Solution:** Consider one such arrangement. 6 Economics books can be arranged among themselves in 6! ways, 3 Mathematics books can be arranged in 3! ways and the 2 books on Accountancy can be arranged in 2! ways. Consider the books on each subject as one unit. Now there are three units. These 3 units can be arranged in 3! ways.

Total number of arrangements  $= 3! \times 6! \times 3! \times 2!$ 

**Example 4:** How many different numbers can be formed by using any three out of five digits 1, 2, 3, 4, 5, no digit being repeated in any number?

How many of these will (i) begin with a specified digit? (ii) begin with a specified digit and end with another specified digit?

**Solution:** Here we have 5 different digits and we have to find out the number of permutations of them 3 at a time. Required number is  ${}^{3}p_{3}$ = 5.4.3 = 60.

(i) If the numbers begin with a specified digit, then we have to find the number of Permutations of the remaining 4 digits taken 2 at a time. Thus, the desired number is  ${}^{3}p_{2}$ = 4.3 = 12. (ii) Here two digits are fixed; first and last; hence, we are left with the choice of finding the number of permutations of 3 things taken one at a time i.e.,  ${}^{3}p_{1}=3$ .

**Example 5:** How many four digit numbers can be formed out of the digits 1,2,3,5,7,8,9, if no digit is repeated in any number? How many of these will be greater than 3000?

**Solution:** We are given 7 different digits and a four-digit number is to be formed using any 4 of these digits. This is same as the permutations of 7 different things taken 4 at a time.

Hence, the number of four-digit numbers that can be formed =  ${}^7p_4$ = 7 × 6 × 5 × 4 × = 840 ways.

Next, there is the restriction that the four-digit numbers so formed must be greater than 3,000. Thus, it will be so if the first digit—that is in the thousandth position, is one of the five digits 3, 5, 7, 8, 9. Hence, the first digit can be chosen in 5 different ways; when this is done, the rest of the 3 digits are to be chosen from the rest of the 6 digits without any restriction and this can be done in  ${}^{6}P_{1}$ ways.

Hence, by the Fundamental Principle, we have the number of four-digit numbers greater than 3,000 that can be formed by taking 4 digits from the given 7 digits =  $5 \times {}^{6}p_{3} = 5 \times 6 \times 5 \times 4 = 5 \times 120 = 600$ .

**Example 6:** Find the total number of numbers greater than 2000 that can be formed with the digits 1, 2, 3, 4, 5 with no digit being repeated in any number.

**Solution:** All the 5-digit numbers that can be formed with the given 5 digits are greater than 2000. This can be done in

$${}^{5}p_{s} = 5! = 120 \text{ ways}$$
(1)

The four digited numbers that can be formed with any four of the given 5 digits are greater than 2000 if the first digit, i.e.,the digit in the thousandth position is one of the four digits 2, 3, 4, 5. This can be done in  ${}^{4}p_{1} = 4$  ways. When this is done, the rest of the 3 digits are to be chosen from the rest of 5-1 = 4 digits. This can be done in  ${}^{4}p_{3} = 4 \times 3 \times 2 = 24$  ways.

Therefore, by the Fundamental Principle, the number of four-digit numbers greater than 2000

$$= 4 \times 24 = 96 \dots (2)$$

Adding (1) and (2), we find the total number greater than 2000 to be 120 + 96 = 216.

**Example 7:** There are 6 students of whom 2 are Indians, 2 Americans, and the remaining 2 are Russians. They have to stand in a row for a photograph so that the two Indians are together, the two Americans are together and so also the two Russians. Find the number of ways in which they can do so.

**Solution:** The two Indians can stand together in  ${}^{2}p_{2} = 2! = 2$  ways. So is the case with the two Americans and the two Russians.

Now these 3 groups of 2 each can stand in a row in  ${}^{3}p_{3}$ = 3 x 2 = 6 ways. Hence by the generalized fundamental principle, the total number of ways in which they can stand for a photograph under given conditions is  $6 \times 2 \times 2 \times 2 = 48$ 

**Example 8:** A family of 4 brothers and three sisters is to be arranged for a photograph in one row. In how many ways can they be seated if (i) all the sisters sit together, (ii) no two sisters sit together?

#### Solution:

 (i) Consider the sisters as one unit and each brother as one unit. 4 brothers and 3 sisters make 5 units which can be arranged in 5! ways. Again 3 sisters may be arranged amongst themselves in 3! ways

Therefore, total number of ways in which all the sisters sit together =  $5! \times 3! = 720$  ways.

(ii) In this case, each sister must sit on each side of the brothers. There are 5 such positions as indicated below by upward arrows :

 $\uparrow$  B1  $\uparrow$  B2  $\uparrow$  B3  $\uparrow$  B4  $\uparrow$ 

4 brothers may be arranged among themselves in 4! ways. For each of these arrangements 3 sisters can sit in the 5 places in  ${}^{5}p_{3}$  ways.

Thus the total number of ways =  ${}^{5}p_{3} \times 4! = 60 \times 24 = 1,440$ 

**Example 9:** In how many ways can 8 persons be seated at a round table? In how many cases will 2 particular persons sit together?

**Solution:** This is in form of circular permutation. Hence the number of ways in which eight persons can be seated at a round table is (n - 1)! = (8 - 1)! = 7! = 5040 ways.

Consider the two particular persons as one person. Then the group of 8 persons becomes a group of 7 (with the restriction that the two particular persons be together) and seven persons can be arranged in a circular in 6! ways.

Hence, by the Fundamental Principle, we have, the total number of cases in which 2 particular persons sit together in a circular arrangement of 8 persons =  $2! \times 6! = 2 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1 = 1,440$ .

**Example 10:** Six boys and five girls are to be seated for a photograph in a row such that no two girls sit together and no two boys sit together. Find the number of ways in which this can be done.

**Solution:** Suppose that we have 11 chairs in a row and we want the 6 boys and 5 girls to be seated such that no two girls and no two boys are together. If we number the chairs from left to right, the arrangement will be possible if and only if boys occupy the odd places and girls occupy the even places in the row. The six odd places from 1 to 11 may be filled in by 6 boys in <sup>6</sup>p<sub>6</sub>ways. Similarly, the five even places from 2 to 10 may be filled in by 5 girls in <sup>5</sup>p<sub>5</sub>ways.

Hence, by the Fundamental Principle, the total number of required arrangements =  ${}^{6}p_{6} \times {}^{5}p_{5}$  = 6! × 5! = 720 × 120 = 86,400.

#### **COMBINATIONS**

We have studied about permutations in the earlier section. There we have said that while arranging, we should pay due regard to order. There are situations in which order is not important. For example, consider selection of 5 clerks from 20 applicants. We will not be concerned about the order in which they are selected. In this situation, how to find the number of ways of selection? The idea of combination applies here.

**Definition :** The number of ways in which smaller or equal number of things are arranged or selected from a collection of things where the order of selection or arrangement is not important, are called combinations.

The selection of a poker hand which is a combination of five cards selected from 52 cards is an example of combination of 5 things out of 52 things.

# Number of combinations of n different things taken r at a time. (denoted by "C<sub>r</sub> C(n,r), $C_{n,r}$ )

Let  ${}^{n}C_{r}$  denote the required number of combinations. Consider any one of those combinations. It will contain r things. Here we are not paying attention to order of selection. Had we paid attention to this, we will have permutations or r items taken r at a time. In other words, every combination of r things will have 'P<sub>r</sub> permutations amongst them. Therefore,  ${}^{n}C_{r}$  combinations will give rise to  ${}^{n}C_{r}$ . 'P<sub>r</sub> permutations of r things. From the earlier section, we can say that  ${}^{n}C_{r}$ . 'P<sub>r</sub> =  ${}^{n}P_{r}$  as  ${}^{n}P_{r}$  denotes the number of permutations of r things chosen out of n things. Since,  ${}^{n}C$ .'P =  ${}^{n}P$ 

$${}^{n}C_{r} \cdot {}^{p}r_{r} = {}^{n}P_{r},$$

$${}^{n}C_{r} = {}^{n}P_{r} / {}^{r}P_{r} = n! / (n-r) ! ! ! ! ! / (r-r)!$$

$$= n! / (n-r)! \times 0! / r!$$

$$= n! / r! (n-r)!$$

$$\cdot {}^{n}C_{r} = n! / r! (n-r)!$$

# QUANTITATIVE APTITUDE

#### **Remarks:** Using the above formula, we get

(i)  ${}^{n}C_{0} = n! / 0! (n - 0)! = n!/n! = 1. [As 0! = 1]$ 

 $^nC_n = n! \ / \ n! \ (n-n) \ ! = n! \ / \ n! \ 0! = 1$  [Applying the formula for  $^nC_n$  with r = n]

**Example 1:** Find the number of different poker hands in a pack of 52 playing cards.

**Solution:** This is the number of combinations of 52 cards taken five at a time. Now applying the formula,

 ${}^{52}C_5 = 52!/5! (52-5)! = 52!/5! 47! = \frac{52 \times 51 \times 50 \times 49 \times 48 \times 47}{5 \times 4 \times 3 \times 2 \times 1 \times 47!}$ = 2,598,960

**Example 2:** Let S be the collection of eight points in the plane with no three points on the straight line. Find the number of triangles that have points of S as vertices.

**Solution:** Every choice of three points out of S determines a unique triangle. The order of the points selected is unimportant as whatever be the order, we will get the same triangle. Hence, the desired number is the number of combinations of eight things taken three at a time. Therefore, we get

 ${}^{8}C_{3} = 8!/3!5! = 8 \times 7 \times 6/3 \times 2 \times 1 = 56$  choices.

**Example 3:** A committee is to be formed of 3 persons out of 12. Find the number of ways of forming such a committee.

**Solution:** We want to find out the number of combinations of 12 things taken 3 at a time and this is given by

 ${}^{12}C_3 = 12!/3!(12 - 3)!$  [by the definition of  ${}^{n}C_{r}$ ]

 $= 12!/3!9! = 12 \times 11 \times 10 \times 9!/3!9! = 12 \times 11 \times 10/3 \times 2 = 220$ 

**Example 4:** A committee of 7 members is to be chosen from 6 Chartered Accountants, 4 Economists and 5 Cost Accountants. In how many ways can this be done if in the committee, there must be at least one member from each group and at least 3 Chartered Accountants?

**Solution:** The various methods of selecting the persons from the various groups are shown below:

Committee of 7 members							
C.A.s Economists Cost Accour							
Method 1	3	2	2				
Method 2	4	2	1				
Method 3	4	1	2				
Method 4	5	1	1				
Method 5	3	3	1				
Method 6	3	1	3				

```
Number of ways of choosing the committee members by
```

Method 1 = 
$${}^{6}C_{3} \times {}^{4}C_{2} \times {}^{5}C_{2} = \frac{6 \times 5 \times 4}{3 \times 2 \times 1} \times \frac{4 \times 3}{2 \times 1} \times \frac{5 \times 4}{2 \times 1} = 20 \times 6 \times 10 = 1,200$$

Method 2 =  ${}^{6}C_{4} \times {}^{4}C_{2} \times {}^{5}C_{1} = \frac{6 \times 5}{2 \times 1} \times \frac{4 \times 3}{2 \times 1} \times \frac{5}{1}$  =  $15 \times 6 \times 5 = 450$ Method 3 =  ${}^{6}C_{4} \times {}^{4}C_{1} \times {}^{5}C_{2} = \frac{6 \times 5}{2 \times 1} \times 4 \times \frac{5 \times 4}{2 \times 1}$  =  $15 \times 4 \times 10 = 600$ 

Method  $4 = {}^{6}C_{z} \times {}^{4}C_{1} \times {}^{5}C_{1} = 6 \times 4 \times 5 = 120.$ 

Method 5 =  ${}^{6}C_{3} \times {}^{4}C_{3} \times {}^{5}C_{1} = \frac{6 \times 5 \times 4}{3 \times 2 \times 1} \times \frac{4 \times 3 \times 2}{3 \times 2 \times 1} \times 5 = 20 \times 4 \times 5 = 400.$ 

 $Method \ 6 = {}^{6}C_{3} \times {}^{4}C_{1} \times {}^{5}C_{3} = \frac{6 \times 5 \times 4}{3 \times 2 \times 1} \times 4 \times \frac{5 \times 4}{2 \times 1} = 20 \times 4 \times 10 = 800.$ 

Therefore, total number of ways = 1,200 + 450 + 600 + 120 + 400 + 800 = 3,570

**Example 5:** A person has 12 friends of whom 8 are relatives. In how many ways can he invite 7 guests such that 5 of them are relatives?

**Solution:** Of the 12 friends, 8 are relatives and the remaining 4 are not relatives. He has to invite 5 relatives and 2 friends as his guests. 5 relatives can be chosen out of 8 in  ${}^{8}C_{5}$  ways; 2 friends can be chosen out of 4 in  ${}^{4}C_{2}$  ways.

Hence, by the fundamental principle, the number of ways in which he can invite 7 guests such that 5 of them are relatives and 2 are friends.

$$= {}^{8}C_{5} \times {}^{4}C_{2}$$

$$= \{8! / 5! (8 - 5)!\} \times \{4! / 2! (4 - 2)!\} = [(8 \times 7 \times 6 \times 5!) / 5! \times 3!]$$

$$= \frac{4 \times 3 \times 2!}{2! \times 2!} = 8 \times 7 \times 6 = 336.$$

**Example 6:** A Company wishes to simultaneously promote two of its 6 department heads to assistant managers. In how many ways these promotions can take place?

Solution: This is a problem of combination. Hence, the promotions can be done in

 ${}^{6}C_{2} = 6 \times 5 / 2 = 15$  ways

#### Form-IV (See Rule 8) 1. Place of Publication : New Delhi 2. Periodicity of the Publication : Monthly 3. Printer's Name CA. Vandana D. Nagpal Whether citizen of India? Yes (If foreigner, state the country of origin) : Director, Board of Studies The Institute Address of Chartered Accountants of India, Post Box. No.7100, Indraprastha Marg, New Delhi-110104 4. Publisher's Name : CA. Vandana D. Nagpal Whether citizen of India? Yes (If foreigner, state the country of origin) Director, Board of Studies The Institute Address of Chartered Accountants of India, Post Box. No.7100, Indraprastha Marg, New Delhi-110104 5. Editor's Name : CA. (Dr.) Rajkumar Satyanarayan Adukia Whether citizen of India? Yes (If foreigner, state the country of origin) Chairman, Board of Studies Address The Institute of Chartered Accountants of India, Post Box. No.7100, Indraprastha Marg, New Delhi-110104 6. Name and Addresses of individuals Council of the Institute of Chartered Accountants of India who own the newspapers and partners or the shareholders constituted under holding more than one percent the Chartered Accountants (Act xxxVIII of 1949) Act. 1949 of the total Capital There is no share capital

I, CA. Vandana D. Nagpal, hereby declare that the particulars given above are true to the best of my knowledge and belief.

Dated: February 26, 2024

Sd/-Signature of Publisher

# IMPORTANT ANNOUNCEMENT



# Examination Department The Institute of Chartered Accountants of India 25<sup>th</sup> January 2024

No. 13-CA (EXAM)/MAY - JUNE/2024: In pursuance of Regulation 22 of the Chartered Accountants Regulations, 1988, the Council of the Institute of Chartered Accountants of India is pleased to announce that the next Chartered Accountants Foundation, Intermediate and Final Examinations will be held on the dates and places which are given below provided that sufficient number of candidates offer themselves to appear from each of the below mentioned places.

Similarly, Examination in Post Qualification Course under Regulation 204, viz.: International Taxation – Assessment Test (INTT – AT) (which is open to the members of the Institute) will be held on the dates and places (centres in India only) which are given below provided that sufficient number of candidates offer themselves to appear from each of the below mentioned places.

#### FOUNDATION COURSE EXAMINATION

[As per syllabus contained in the scheme notified by the Council under Regulation 25 F of the Chartered Accountants Regulations, 1988.]

20th, 22nd, 24th & 26th June 2024

### INTERMEDIATE COURSE EXAMINATION

[As per syllabus contained in the scheme notified by the Council under Regulation 28 F of the Chartered Accountants Regulations, 1988.]

Group -I:	3 <sup>rd</sup> , 5 <sup>t</sup> h & 7 <sup>t</sup> h May 2024
Group -II:	9th, 11th & 13th May 2024

### FINAL EXAMINATION

[As per syllabus contained in the scheme notified by the Council under Regulation 31 of the Chartered Accountants Regulations, 1988.]

Group-I:	2 <sup>nd</sup> , 4 <sup>th</sup> & 6 <sup>th</sup> May 2024
Group-II:	8 <sup>th</sup> , 10 <sup>th</sup> & 12 <sup>th</sup> May 2024

#### **MEMBERS' EXAMINATION**

INTERNATIONAL TAXATION – ASSESSMENT TEST (INTT – AT)

#### 10th & 12th May 2024

It may be emphasized that there would be no change in the examination schedule in the event of any day of the examination schedule being declared a Public Holiday by the Central Government or any State Government / Local Bodies.

Paper(s) 3 & 4 of Foundation Examination are of 2 hours duration. Similarly, Paper – 6 of Final Examination and all papers of International Taxation – Assessment Test are of 4 hours duration. However, all other examinations are of 3 hours duration, and the examination wise timing(s) are given below:

Examination	Paper(s)	Exam. Timings (IST)	Duration
	Paper 1 & 2	2 PM to 5 PM	3 Hours
Foundation	Paper 3 & 4*	2 PM to 4 PM	2 Hours
Intermediate	All Papers	2 PM to 5 PM	3 Hours
ra. I	Paper 1 to 5	2 PM to 5 PM	3 Hours
Finai	Paper 6	2 PM to 6 PM	4 Hours
Post Qualification Course Examination i.e., International Taxation (INTT – AT)	ALL	2 PM to 6 PM	4 Hours

\*In Paper 3 and 4 of Foundation Examination and all papers of Post Qualification Course Examination there will not be any advance reading time, whereas in all other papers / exams mentioned above, an advance reading time of 15 minutes will be given from 1.45 PM (IST) to 2 PM (IST).

Further, in case of composite papers having both MCQs based & Descriptive Question Papers, seal of MCQs based Question Paper shall be opened at 2 PM (IST), in other words there will be no advance reading time for MCQs based Question Papers.

### 3. PLACES OF EXAMINATION CENTRES:

The Chartered Accountants Examinations, May / June 2024 will be held in the following Indian cities:

Name of the State	(No. of Cities)	Name of the Examination City			
Andaman and Nicobar Islands	1	Port Blair			
Andhra Pradesh	14	Anantapur, Eluru, Guntur, Kadapa, Kakinada, Kurnool, Nellore, Ongole, Rajamahendravaram, Srikakulam, Tirupati, Vijayawada, Visakhapatnam and Vizianagaram			
Assam	5	Dibrugarh, Guwahati, Jorhat, Silchar and Tinsukia			
Bihar	12	Begusarai, Bhagalpur, Darbhanga, Gaya, Madhubani, Motihari, Muzaffarpur, Patna, Purnea, Samastipur, Sitamarhi and Siwan			
Chhattisgarh	6	Bilaspur, Durg, Korba, Raigarh, Raipur and Rajnandgaon			
Chandigarh	1	Chandigarh			
Delhi / New Delhi	1	Delhi / New Delhi			
Goa	2	Mapusa and Margao			

# IMPORTANT ANNOUNCEMENT

Name of the State	(No. of Cities)	Name of the Examination City
Gujarat	22	Ahmedabad, Anand, Bharuch, Bhavnagar, Bhuj, Gandhidham, Gandhinagar, Himatnagar, Jamnagar, Junagadh, Mehsana, Morbi, Nadiad, Navsari, Palanpur, Patan, Porbandar, Rajkot, Surat, Surendranagar, Vadodara and Vapi
Haryana	18	Ambala, Bahadurgarh, Bhiwani, Faridabad, Fatehabad, Gurgaon (Gurugram), Hisar, Jind, Kaithal, Karnal, Kurukshetra, Narnaul, Panipat, Rewari, Rohtak, Sirsa, Sonepat and Yamuna Nagar
Himachal Pradesh	1	Shimla
Jammu & Kashmir	2	Jammu and Srinagar
Jharkhand	7	Bokaro Steel City, Deoghar, Dhanbad, Hazaribagh, Jamshedpur, Ramgarh and Ranchi
Karnataka	23	Bagalkot, Belgaum, Bellary, Bengaluru, Chikkaballapur, Chitradurga, Davangere, Gadag, Hassan, Haveri, Hubli, Kalaburgi (Gulbarga), Kolar, Koppal, Mandya, Mangalore, Mysore, Raichur, Shimoga, Sirsi, Tumakuru, Udupi and Vijayapura
Kerala	14	Adoor, Alappuzha, Ernakulam, Idukki, Kalpetta, Kannur, Kasaragod, Kollam (Quilon), Kottayam, Kozhikode, Malappuram, Palakkad, Thiruvananthapuram and Thrissur
Madhya Pradesh	16	Bhopal, Burhanpur, Chhatarpur, Chhindwara Gwalior, Indore, Jabalpur, Katni, Khandwa, Mandsaur, Neemuch, Ratlam, Rewa, Sagar, Satna and Ujjain
Maharashtra	36	Ahmednagar, Akola, Amravati, Aurangabad, Badlapur, Beed, Bhiwandi, Khamgaon (Buldhana), Chandrapur, Dhule, Gondia, Ichalkaranji, Jalgaon, Jalna, Kolhapur, Latur, Mumbai, Nagpur, Nanded, Nandurbar, Nashik, Navi Mumbai, Palghar, Panvel, Parbhani, Pimpri-Chinchwad, Pune, Ratnagiri, Sangli, Satara, Sindhudurg, Solapur, Thane, Vasai, Wardha and Yavatmal
Meghalaya	1	Shillong
Mizoram	1	Mizoram / Aizawal
Odisha	9	Balangir, Balasore, Berhampur (Brahmapur), Bhubaneswar, Cuttack, Jharsuguda, Rayagada, Rourkela and Sambalpur
Puducherry	1	Puducherry
Punjab	8	Amritsar, Bathinda, Jalandhar, Ludhiana, Mandi Gobindgarh, Pathankot, Patiala and Sangrur
Rajasthan	23	Ajmer, Alwar, Balotra, Banswara, Beawar, Bharatpur, Bhilwara, Bikaner, Bundi Chittorgarh, Churu, Jaipur, Jhunjhunu, Jodhpur, Kishangarh, Kota, Nagaur, Pali - Marwar, Rajsamand, Sikar, Sirohi, Sri Ganganagar and Udaipur
Sikkim	1	Gangtok
Tamil Nadu	27	Chennai, Coimbatore, Cuddalore, Dharmapuri, Dindigul, Erode, Hosur, Kancheepuram, Karaikudi, Karur, Kumbakonam, Madurai, Nagapattinam, Nagercoil, Namakkal, Pudukkottai, Salem, Sivakasi, Theni, Tiruchirapalli, Tirunelveli, Tirupur, Tiruvallur, Tiruvannamalai, Tuticorin, Vellore and Villupuram
Telangana	8	Adilabad, Hyderabad, Karimnagar, Khammam, Mahabubnagar, Nalgonda, Nizamabad and Warangal
Tripura	1	Agartala
Uttar Pradesh	18	Agra, Aligarh, Allahabad (Prayagraj), Bareilly, Bulandshahr, Firozabad, Ghaziabad, Gorakhpur, Jhansi, Kanpur, Lucknow, Mathura, Meerut, Moradabad, Muzaffarnagar, Noida, Saharanpur and Varanasi
Uttarakhand	4	Dehradun, Haldwani, Haridwar and Kashipur
West Bengal	7	Asansol, Durgapur, Hooghly, Kharagpur, Kolkata, Raniganj and Siliguri

### PLACES OF EXAMINATION CENTRES OVERSEAS:

### [FOR FOUNDATION, INTERMEDIATE AND FINAL EXAMINATIONS ONLY]

The May / June 2024 Examinations will also be held at 8 (Eight) overseas examination centres, namely:

Overseas Abu Dhabi, Bahrain, Thimpu (Bhutan), Doha, Dubai, Kathmandu (Nepal), Kuwait and Muscat

The Examination commencement timing at Abu Dhabi, Dubai and Muscat Centres will be 12.30 PM i.e., Abu Dhabi, Dubai and Muscat local time corresponding / equivalent to 2 PM. (IST). The Examination commencement timing at Bahrain, Doha, and Kuwait Centres will be 11.30 AM i.e., Bahrain / Doha / Kuwait local time corresponding / equivalent to 2 PM (IST). The Examination commencement Timing at Kathmandu (Nepal) Centre will be 2.15 PM Nepal local time corresponding / equivalent to 2 PM (IST). The Examination commencement timing at Thimpu (Bhutan) Centre will be 2.30 PM Bhutan local time corresponding / equivalent to 2 PM (IST).

The Council reserves the right to withdraw any city / centre at any stage without assigning any reason.

#### **Online filling up of examination forms:**

As a part of automation and platform consolidation, ICAI is pleased to announce that all candidates in respect of Foundation, Intermediate & Final Examinations will be required to apply online at https://eservices.icai.org (Self Service Portal - SSP) for May / June 2024 Exam and also pay the requisite examination fee online. These forms are based on your eligibility for your course based on announcements and regulations. These forms will be available on SSP, and you are requested to login with your credentials (Username <SRN@icai.org> and password). These Exam forms will be available in SSP effective designated dates as announced on www.icai.org.

Kindly Note: If you have never registered as a user in SSP, kindly open the following URL: https://eservices.icai.org/EForms/configuredHt-ml/1666/57499/Registration.html?action=existing

Please use forgot password option in case you have forgotten or lost your password. Students are also requested to Create Username, Register Course, Convert Course, Revalidate, Update Photo, Signature and Address on SSP only.

Members desirous to apply for Post Qualification Course Examination i.e., International Taxation – Assessment Test (INTT – AT) Examination (which is open to the members of the Institute) are required to apply on-line at pqc.icaiexam.icai.org and also pay the applicable examination fee online only.

Examination fee can be remitted online by using VISA or MASTER or MAESTRO Credit / Debit Card / Rupay Card / Net Banking / Bhim UPI. **Opening and closing of online window for submission of examination application forms.** 

The following dates(s) may be noted:

Details	For Main & PQC Exams [May 2024]	For Foundation Exam [June 2024]		
Commencement of submission of online examination application forms	2 <sup>nd</sup> February 2024 [Friday]	2 <sup>nd</sup> February 2024 [Friday]		
Last date for submission of online examination application forms (without late fees)	23 <sup>rd</sup> February 2024 [Friday]	23 <sup>rd</sup> February 2024 [Friday]		
Last date for submission of online examination application forms (with late fees of ` 600/- or US \$ 10)	2 <sup>nd</sup> March 2024 [Saturday]	2 <sup>nd</sup> March 2024 [Saturday]		

Further, for students seeking change of examination city / medium for the Chartered Accountants Examination – May / June 2024, the correction window for the examination forms already filled will be available during 3rd March 2024 [Sunday] to  $9^{th}$  March 2024 [Saturday].

#### **Examination Fee**

The examination fee(s) for various courses are as under: --

Intermediate Course Examination				
For Indian Centre(s)				
Single Group / Unit (All except 2)	₹ 1500/-			
Both Groups / Unit 2	₹ 2700/-			
For Overseas Centre(s) – Excluding Kathmandu & Bhutan Centre(s)				
Single Group / Unit (All except 2)	US\$ 325			
Both Groups / Unit 2	US\$ 500			
For Bhutan & Kathmandu Centre(s)				
Single Group / Unit (All except 2)	INR ₹ 2200			
Both Groups / Unit 2	INR ₹ 3400			
Final Course Examination				
For Indian Centre(s)				
Single Group	₹ 1800/-			
Both Groups	₹ 3300/-			
For Overseas Centre(s) – Excluding Kathmandu & Bhutan Centre(s)				
Single Group	US\$ 325			
Both Groups	US\$ 550			
For Bhutan & Kathmandu Centre(s)				
Single Group	INR ₹ 2200			
Both Groups	INR ₹ 4000			
INTERNATIONAL TAXATION – ASSESSMENT TEST				
Foundation Course Examination				
For Indian Centre(s)	₹ 1500/-			
For Overseas Centre(s) – Excluding Bhutan & Kathmandu Centre(s)				
For Bhutan & Kathmandu Centre(s)				

The late fee for submission of examination application form after the scheduled last date would be  $\stackrel{\textbf{F}}{\bullet}$  600/- (for Indian / Bhutan / Kathmandu Centres) and US \$ 10 (for Abroad Centres) as decided by the Council.

#### **OPTION TO ANSWER PAPERS IN HINDI:**

Candidates of Foundation, Intermediate and Final Examinations will be allowed to opt for English / Hindi medium for answering papers. Detailed information will be found in guidance notes hosted at https://eservices.icai.org. However, the medium of Examinations will be only English in respect of Post Qualification Course viz.: International Taxation – Assessment Test (INTT – AT) Examination.

It is pertinent to mention that General Elections to 18<sup>th</sup> Lok Sabha are scheduled to be held in 2024, notification for which is awaited. Accordingly, Examination Committee may reschedule May 2024 CA Examination, if the dates of General Elections coincide with the present Examination Schedule.

The Candidates are advised to note the above and stay in touch with the website of the Institute, www.icai.org.

#### (S. K. GARG) DIRECTOR (EXAMINATIONS)

Postal Registration: DL(C)-01/1280/2024-26, Licence To Post Without Prepayment, WPP Licence No.: MR/Tech/WPP-247/DL(C)/2024-26 Posted at Patrika Channel Sorting Office, Mumbai - 400001 Posting Date: Last Three Days of Advanced Month and first four days of current month days/ dates only Date of publication: 26th of previous month

### **CROSSWORD - MARCH 2024**

1	2		3	4	5		6	7	8	9
10			11					12		
13			14			15		16		
17				18					19	
		20	21							
		22		23			24	25		
			26				27		28	
29		30		31			32			
				33		34			35	
36	37		38			39				
40									41	

#### ACROSS

- 1. Earnings before interest, taxes, and amortization
- 6. States the relationship between the systematic risk and expected return for assets,
- 10. The restaurant industry's leading digital-first platform
- 11. The umbrella body of all neurologists in India
- 12. A signed document to confirm that one have received legal advice in relation to a particular matter
- 13. The fourth largest country in the world in area
- 14. Its independent member states agree to defend each other against attacks by third parties
- 16. A global infrastructure conglomerate
- 17. A set of related fields that encompass computer systems,
- 18. \_\_\_\_\_can be implemented in computer hardware using switches.
- 19. \_\_\_\_\_model predicts that a country's long-run growth rate
- 20. The average cost per unit of output.
- 22. A detailed record of the financial transactions of a business,
- 26. Abbre : Confederation of Trade Unions
- 27. Monitors programmes in the social sector and tracks funds disbursed is called \_\_\_\_\_\_
- 29. The highest officer charged with the management of an organization
- 31. \_\_\_\_\_shows combinations of interest rates and levels of output such that planned spending equals income
- 32. The amount of actual money a business has at its disposal
- \_\_\_\_\_is calculated as the loan amount divided by the construction cost

- 35. A periodic and systematic process whereby the job performance of an employee is documented and evaluated
- 36. An American multinational automotive manufacturing company
- 39. The fixed costs of production divided by the quantity of output produced
- 40. A type of tax provision that takes effect from the past
- 41. A web browser that formerly came bundled with the Microsoft Windows operating system

#### DOWN

- 1. The quality of being fair and impartial
- 2. Cast representation of the upper part of the human body,
- 3. A special 11-digit number given to businesses
- 4 A manually curated database containing detailed molecular information
- 5. \_\_\_\_\_refers to the regulation of the concentration of economic power,
- A global insurance organization providing a range of insurance and other financial services
- 8. To prevent and control money laundering
- 9. \_\_\_\_\_ refers to the portion or percentage of a market earned by a company or an organization
- 15. A category of hardware and software that monitors and controls how physical devices perform
- 20. \_\_\_\_\_curve is a trend line that shows an initial loss immediately followed by a dramatic gain

21. A factor that refers to the return on invested capital

- 23. Satisfaction is measured by a unit called a \_\_\_\_\_
- 24. A flagship brand of Schneider Electric
- 25. A methodology mainly used for designing, monitoring, and evaluating international development projects
- 28. An advisory price signal that is part of a larger set of agricultural policies in parts of India
- 29. Measures the rate of return for an investment
- 30. A symbol representing a sacred sound,
- 34. Abbre : Citizenship Amendment Act
- 37. Used by the speaker to refer to himself/herself
- The increase in revenue that results from the sale of one additional unit of output

