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The Chartered Accountant **STUDENT**

Your monthly guide to CA news, information and events

FINAL
Corporate and
Economic Laws



INTERMEDIATE
ENTERPRISE
INFORMATION
SYSTEMS



FOUNDATION
BUSINESS MATHEMATICS
AND LOGICAL REASONING
& STATISTICS

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SWACHH BHARAT - A STEP TOWARDS CLEANLINESS



Dear Students,

As the nation is gradually getting back to track after a long haul of lockdowns, as the economic activity begins to bustle again, it is time to revive our dreams, ambitions and aspirations, to get back to work with earnest efforts to turn them to reality. This phase has taught us many lessons, most importantly that challenges and adversities can strike unannounced at any moment and should be faced with courage, caution and calibre. As students, professionals and citizens of this great nation we all need to make a collective effort to empower ourselves in every sphere to redeem/maintain our position as one of the fastest growing economies in the world. We need to strengthen our education, health-care services and infrastructure, escalate the agricultural and industrial output to accelerate growth and spearhead the economy to become self-reliant or *Aatmanirbhar Bharat*, the path shown by our honourable Prime Minister Sh. Narendra Modiji.

As budding Chartered Accountants, you are the future change makers to take this regime forward by working shoulder to shoulder with the government, industry and society to bring about revolutionary policy changes, path breaking reforms that encourage and reward ethical practices across all sectors of the economy. You will have a significant role in forging the path ahead towards prosperity for all, foreseeing the nation taking a giant leap into the league of 5 trillion dollar economies. So, you need to work hard towards enabling yourself in every way to be at the rightful place as a capable and competent Chartered accountant.

Practical Training: Your learning turf

As most of you commence one of the most important phase of your course, i.e. the practical training, you need to pursue the same with utmost focus and commitment, taking each task or assignment as a learning opportunity.

Practical training is the vital link between theoretical knowledge base and the profession. While knowing theoretical concepts is important for examinations, knowing their practical application certainly gives you the winning edge in your professional career. You must make concerted efforts to learn diverse aspects of the profession during practical training to prepare yourself for a wide array of professional profiles, enhancing your employability. Take every task as an opportunity to learn, mixing theoretical knowledge with practical skills to deliver the best. During articleship training, you must learn from observation, experience and exposure.

Teachers' Day Greetings

I convey my greetings to all the students and members on the auspicious occasion of **Teacher's Day**, observed on **5th September** every year in the memory of birthday of **2nd President of India Dr. Sarvepalli Radhakrishnan**, a renowned scholar, noted educationist, a true statesman and above all a devoted teacher.

Teachers play an important role in our lives that of our mentors and guides who as a first lesson instil moral values, virtues and principles such as integrity, sincerity, truthfulness, self-discipline and organization apart from imparting knowledge. These ethical principles shape our lives and character.

During the three-year period of articleship, your Principal is your teacher, Guru, coach, mentor and guide. He teaches you not conventionally but through practical demonstration and delegation. As a trainer, he teaches you how to apply theoretical concepts in practice and instils life skills such as discipline, time management, personal organization and methods to improve efficiency and enhance productivity. He is like a sculptor who shapes your character, your personality and even your future.

This day belongs to your past/present teachers and your Principal, who kindled the *fire for learning, instilled the passion to excel and ingrained the confidence to achieve*. Seek their wishes, take their blessings and extend your sincere gratitude to felicitate them. In the words of our visionary **Past President of India Dr. A.P.J. Abdul Kalam**, "*Teachers are the backbone of any country, the pillar upon which all aspirations are converted into realities.*"

Additional Exam Centres: Safety comes first

Considering the on-going COVID-19 pandemic, as a proactive measure in the interest and wellbeing of our students & members, it has been decided to introduce Additional Examination Centres to cover small townships. You will be pleased to know that for November 2020 our examination cities coverage has almost doubled taking total number to 399 in India and 6 Overseas cities. This wide coverage will facilitate and ensure that most of you are able to appear in the forthcoming November 2020 examination from the closest centre without having to travel long distances. I am sure that most of you already would have opted for these exam centres for your safety and health, in the process, saving your time and effort.

Subject Capsules for revision

This issue features an inclusive capsule on **Business Mathematics in Foundation Enterprise Information Systems in Intermediate and Corporate and Economic Laws in Final**. These present the essence of concepts covered for easy comprehension and revision.

Irrespective of the career path you choose, you will have to exhibit utmost integrity, sincerity and thorough professionalism to be able to succeed in your endeavours. Remember- *Work hard to get good, and then work to get better until you succeed!*

All the Best! Stay Safe, Stay Healthy.

All the Best!

CA. ATUL K. GUPTA
PRESIDENT, ICAI, NEW DELHI

VICE PRESIDENT'S COMMUNICATION ||



Dear Students,

September 5 is a great day for the teaching fraternity. This day is observed as Teacher's day in India as a mark of respect to Dr. Sarvepalli Radhakrishnan, the second President of India, whose birth day falls on this day. Dr. Radhakrishnan was a philosopher, a scholar and above all a great teacher. I extend my best wishes to the teaching fraternity on this auspicious occasion. After parents, it is the mentor who plays a great role in the life of a person. Principals carve out your inherent personality. They impart quality education and help you become capable citizens of the country. As a tribute to your mentor, you should do your best to make them proud.

CA is the only course where you have the same Mentor for three years. You as an article-trainee spend quality time with them. This is a huge opportunity for you to forge a positive, mutually beneficial relationship with your Principal to create a conducive learning environment. Lasting relationships can only be built based on mutual respect, understanding and trust. You must respect and trust him as your mentor and guide, for he knows how to unleash your hidden potential, bringing out the best in you. You should value the guidance and learning imparted by him and he will ensure that you are empowered to accept any challenge in your life. He will trust you with important assignments thereby enhancing your knowledge and professional exposure as an article trainee. This synergy between you and your Mentor will benefit both, enhancing your career path and the firm's reputation.

As you know the examination system of the Institute is one of the best systems in the country and it has maintained very high standards of integrity, confidentiality and credibility over the years. It seeks to test the multifaceted knowledge, which a Chartered Accountant is expected to possess. In order to achieve success, you have to approach the examination with a positive attitude. I am sure; you would have already started your preparations for the November 2020 examinations. The study materials provided by the Institute would help you to develop a strong conceptual base. It gives you the outer periphery within which you have to study. Make it a habit of going through them thoroughly as these will enable you to understand the basic concepts of the subjects and develop your ability in understanding the different concepts and their application. Apart from the study material, attempt and solve all the illustrations and problems from RTPs and

previous papers. This will further build your conceptual clarity of a particular subject and strengthen your problem-solving skills.

From November, 2020 examination, in selected papers the assessment is partially MCQ based (i.e., 30:70 assessment), the 30 mark segment would comprise of integrated case scenario based MCQs in addition to independent MCQs. Thus, in this segment, assessment will be based on one or two integrated case scenarios with 3 to 5 MCQs based on such scenario in addition to independent MCQs. Integrated scenarios based MCQs are being included to more effectively assess the analytical skills of candidates. The Revision Test Paper and Mock Test Paper in these select subjects for November, 2020 examination will accordingly include both integrated scenario based MCQs and independent MCQs so as to familiarize students with the pattern of assessment. Students may note that in the 30 mark segment comprising of independent MCQs and integrated scenario based MCQs, no reasoning is required to be given and they are only required to shade the correct answer in the OMR sheet. However, in the 70 mark segment, step-wise problem solving with reasons, keeping in mind the requirement of the question and the marks it carries, are required. As students, you need to be thorough with the concepts/provisions and hone your analytical and application skills to apply such concepts/provisions in problem solving, whether the problem in question is by way of an independent MCQ, an integrated case scenario based MCQ or a detailed question in the 70 mark segment (descriptive segment). In effect, conceptual clarity and analytical skills are sine qua non for approaching any type of question.

I would also suggest you to make it a habit of visiting the Institute's website regularly. It contains all the educational inputs of the Board of Studies like latest study materials, video lectures, suggested answers, RTPs, mock test papers, capsules for Quick revision supplementary study materials, notifications etc. It also contains announcements like relevant list of publications, Accounting and Auditing Standards etc. applicable for the examination.

Wishing you all the best in all your pursuits of life.

Yours sincerely

A handwritten signature in black ink, appearing to read 'CA. Nihar Niranján Jambusaria'. The signature is written in a cursive style with some flourishes.

CA. NIHAR NIRANJAN JAMBUSARIA
VICE PRESIDENT, ICAI



Dear Students,

Extend warm greetings, best wishes and heartiest felicitations to you, faculty and your Principals on occasion of **Teachers' Day**. The day is celebrated on **September 5** every year to commemorate birth anniversary of the second President of India, **Sh. Sarvepalli Radhakrishnan**. He was a great scholar, eminent philosopher and above all a teacher par excellence. The day reminds us that our teachers are our guides who not only disseminate knowledge but also impart vital life lessons that sculpt our personality. In the words of our Past President **Dr. A.P.J. Abdul Kalam**, "*Teachers shape the character, calibre and future of an individual.*"

Education is imperative for any society to grow and educating the future generation is the greatest service rendered by the teachers towards building a truly civic and progressive society. Likewise, our Members train and guide their student articles by imparting practical knowledge and vital life skills such as communication, articulation, presentation and interpersonal skills. They enable you to transform into confident, capable and responsible professionals as well as dutiful citizens thus helping in building a strong nation of conscientious individuals. Teachers are your role models as they not only motivate you to learn and acquire knowledge but also instil a strong desire to consistently work towards realizing your goals and aspirations. You should express gratitude towards them, applaud them and seek their blessings.

Gear up for November 2020 examination

As you prepare for the forthcoming examination, you should pay due attention to the subject details, concepts and complexity of the topics. This will help you to segregate the theoretical portions from the practical one in each chapter. You must work out separate strategies to prepare for each of these portions. Theory can be best prepared by reading the contents intently a few times, carefully interpreting the technical terminology and its usage. Notes can be prepared to jot down the vital aspects to be used later for revision closer to the exams. Practical portion can be best studied by understanding the underlying formula used for problem solving, analysing each problem down to the basic steps in its solution and practising as many problems as possible to gradually maximize accuracy and minimize the time to attempt.

You are advised to attend the on-going **Free Live Virtual Coaching Classes** to gain insightful details in the subject matters and to learn from the experts. Recorded lectures can also be viewed on our You tube Channel or Digital Learning Hub as and when required. Besides the study material, you should also refer to the **Subject Capsules** that feature every month in this publication to get tips and cues about presenting your answers with clarity and precision.

BoS Endeavours

We at BoS along with the entire faculty and team members are working relentlessly to facilitate best learning resources and inputs to help you to enrich your knowledge and supplement your preparation for the November 2020 exams. Here are a few on-going/upcoming initiatives:

- **Virtual Coaching Classes:** These **free of cost** classes that started in July 2020 will continue till mid-October and have been organized to help you to learn from home. Thousands of our students from different parts of the country are benefitting from these.
- **Revision Test Papers** (with answers) are being prepared for all the subjects at all the levels to provide ample questions with model answers for practice. Case Scenario based questions will also be included for practice. These will be available shortly.
- **Systematic Quality Enhancement of Study Material:** The initiative is in progress to add substantive value to the existing study material by appending more illustrations, examples and exercises to make it more informative and riveting for our students. Specifically for a few subjects in Intermediate and Final (Electives), descriptive **Case Scenarios and Case studies** encompassing all vital concepts entailed in a topic are being prepared to enable you to hone your analytical and problem solving skills by studying various such cases.

Current issue comprises an inclusive capsule on **Business Mathematics for Foundation course, Enterprise Information Systems in Intermediate course and Corporate and Economic Laws in Final**. These present vital concepts concisely and precisely for easy understanding, revision and retention.

As students of this coveted course, you must remember the words of **Leonardo Da Vinci**, one of the greatest painters of all time "*Learning is the only thing the mind never exhausts, never fears and never regrets.*" So, keep learning!

All the best,

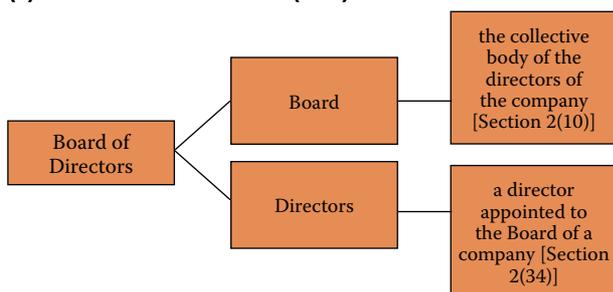
CA. (DR.) DEBASHIS MITRA
CHAIRMAN, BOARD OF STUDIES (ACADEMIC), ICAI

PAPER 4: CORPORATE AND ECONOMIC LAWS, FINAL NEW COURSE

At the Final level, the subject of "Corporate and Economic Laws" largely involves analysis and application of various laws to solve application-oriented issues. This subject is very dynamic on account of the large number of amendments/circulars/ notification as issued by the Ministry of Corporate Affairs. In this capsule for students, an attempt has been made to capture the significant provisions of Companies Act, 2013 covering the specific chapters of Appointment and Qualifications Of Directors; Appointment and Remuneration of Managerial Personnel and Meetings of Board and Its Powers. You are advised to read the August, 2019 edition of the Study Material with relevant RTP of November 2020 for a thorough understanding of the relevant provisions and the related amendments of Companies Act, 2013 and solve the illustrations and exercise questions given therein to hone your application skills. This capsule on Final Paper 4: Corporate and Economic Laws is intended to assist you in the process of revision of concepts discussed in the Study Material.

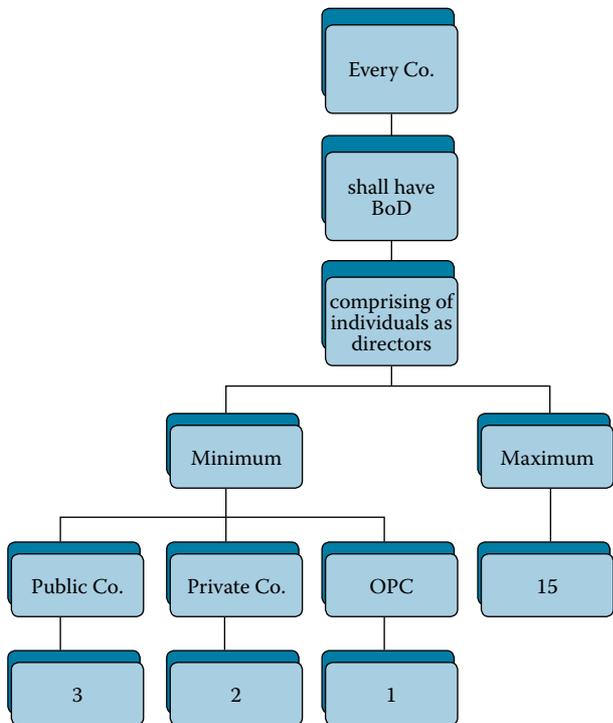
CHAPTER 1: APPOINTMENT AND QUALIFICATIONS OF DIRECTORS

(1) BOARD OF DIRECTORS (BoD)



(2) PROVISIONS RELATED TO APPOINTMENT OF DIRECTORS IN A COMPANY

(i) Number of directors [Section 149(1)]



* A co. may appoint more than 15 directors after passing special resolution (SR)

* Limit of maximum of 15 directors and their increase in limit by special resolution shall not apply to Government & section 8 companies

(ii) Provision related to Women director (WD) [Proviso to section 149(1) + relevant Rule]

No. of Women Director	❖ Atleast one
Companies which requires to have Women directors	❖ every listed co.;
	❖ every other public co. having -
	➤ paid-up share capital of one hundred crore rupees or more; or
	➤ turnover of three hundred crore rupees or more.
Filling of Intermittent Vacancy	❖ Immediate next Board meeting or three months from the date of such vacancy, whichever is later.

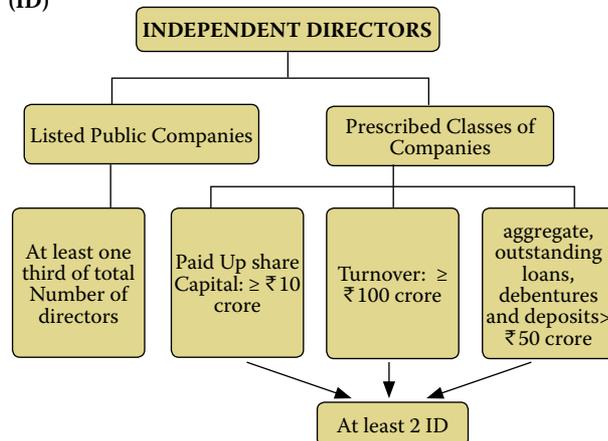
(iii) Provision related to Resident director (RD) [Section 149(3)]

Resident Director	Meaning of Resident Director	Who has stayed in india for a total period of not less than 182 days during financial year
	Number	Atleast One
	Companies which appoints residential director	Every Company

*In case of a newly incorporated company, the requirement under this sub-section shall apply proportionately at the end of the financial year in which it is incorporated.

(iv) Provisions related to Independent Directors (Section 149 read with the relevant rules)

(a) Companies required to appoint Independent Directors (ID)



Higher number of ID appointed: Due to composition of audit committee in the prescribed companies, higher number of ID shall be appointed

Non-Applicability: If company ceases to fulfil any of the 3 conditions for 3 consecutive years

Exemption from appointment of ID'S in the following class of unlisted public companies: *a Joint Venture, Wholly Owned Subsidiary, and a Dormant Company.*

(vii) Provision related to Alternate director [Section 161(2)]

Alternate Director (ALT. DIR)	Appointed by-	BoD, if so authorised by AOA, or resolution passed by company in GM
	Time of appointment	during the absence of original director for a period of not less than 3 months from India.
	Exception: No person shall be appointed as ALT. DIR-	who is holding any alternate directorship for any other director in the co. / holding directorship in the same co. for an independent director who is not qualified to be appointed as an ID
	Term of holding office:	Till the period permissible to the original director
	Vacation:	if & when the original director returns to India.
	automatic re-appointment:	apply to the original, and not to the alternate director.

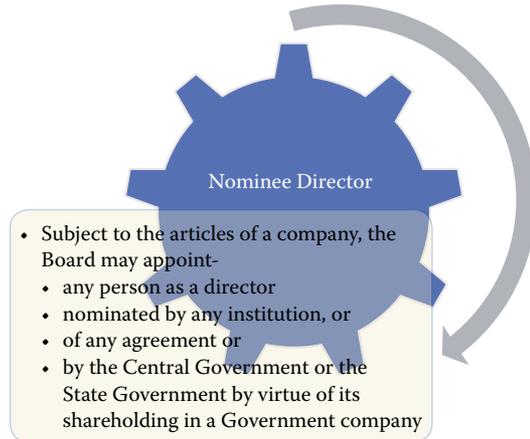
(b) Remuneration of Independent Directors

Entitled to:	Not Entitled to:
Fee provided under section 197(5)	Any stock option
Reimbursement of expenses for participation in: (i) Board Meetings (ii) Other Meetings	
Profit related commission as may be approved by the members	

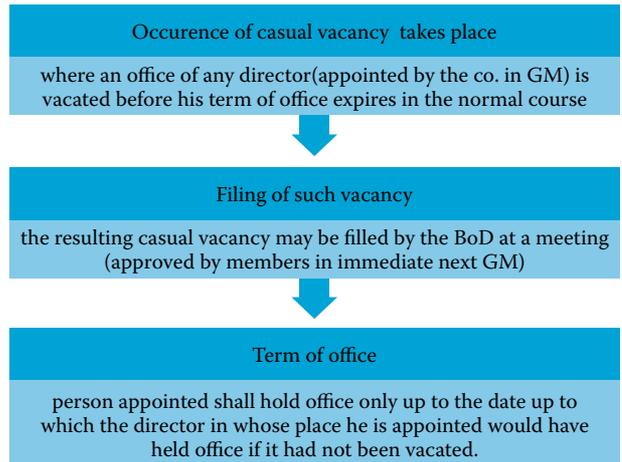
(v) Provisions related to small shareholder director (SSD) [Section 151]

Small Shareholders Director	Is it compulsory to appoint SSD	No (not mandatory)
	Which co. may appoint?	Listed co.
	Number	One
Who is Small Shareholders Director		A shareholder holding shares of nominal value of not more than ₹20,000 or such other sum as may be prescribed
How SSD is appointed?		by notice - of not less than 1000 small shareholders; or one-tenth of the total number of such shareholders whichever is lower

(viii) Nominee Director [Section 161(3)]



(ix) Appointment of director through casual vacancy [Section 161(4)]



(vi) Provisions related to Additional director [Section 161(1)]

Additional Director		
Appointment • AOA of a co. may confer on its BoD the power to- • appoint any person as an additional director • at any time	Disqualified • A person, who fails to get appointed as a director in a GM, cannot be appointed	Term • Hold office up to the date of the next AGM or the last date on which the AGM should have been held, whichever is earlier.

CORPORATE AND ECONOMIC LAWS

[3] MODES OF APPOINTMENT [SECTION 162 & 163]

(i) Appointment through single resolution

Appointment of Directors to be voted Individually

- Each director shall be appointed by a separate resolution
- Unless the meeting first agreed that the appointment shall be made by a single resolution and no vote has been cast against such agreement.
- Contravention of above shall be void.
- A motion for approving a person or for nominating a person, for appointment as a director, shall be treated as a motion for his appointment.

*Non applicability of section 162 to the following companies:

- (1) A Government company in which the entire paid up share capital is held by the Central Government / by any State Government / Governments / by the Central Government and one or more State Governments;
- (2) A subsidiary of a Government company, referred above, in which the entire paid up share capital is held by the Government company.
- (3) A Private company

(ii) Appointment through proportional representation

AOA of co. may provide for appointment of not less than 2/3rd of total number of directors, in accordance with principle of proportional representation,

by single transferable vote / by system of cumulative voting / otherwise

Option to adopt principle of proportional representation for appointment of directors

Such appointments may be made once in every three years

Casual vacancies of such directors shall be filled as per section 161(4).

* Non applicability of section 163 to the following companies:

- (1) 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 Government and one or more State Governments;
- (2) A subsidiary of a Government company, referred to above, in which the entire paid up share capital is held by the Government company.

[4] DISQUALIFICATIONS FOR APPOINTMENT OF DIRECTOR [SECTION 164 (1)]

General disqualification of directors in the following situations:	of unsound mind and so declared by a competent court;
	an undischarged insolvent;
	applied to be adjudicated as an insolvent and his application is pending
	convicted by a court of any offence, and sentenced in respect thereof to imprisonment for minimum 6 months and a period of 5 years has not elapsed from the date of expiry of the sentence. However, if a person has been convicted of any offence and sentenced in respect thereof to imprisonment for a period of 7 years / more, he shall not be eligible to be appointed as a director in any company.

an order disqualifying him for appointment as a director has been passed by a court or Tribunal and the order is in force;

not paid any calls in respect of any shares of the company held by him, and 6 months have elapsed from the last day fixed for the payment of the call;

he has been convicted of the offence of dealing with related party transactions under section 188 at any time during the last preceding 5 years; or

he has not complied with section 152(3) which requires a director to have a DIN under section 154.

he has not complied with the provisions of section 165(1).

Other disqualifications [Section 164(2)]

person who is /has been a director of a company which has not filed financial statements or annual returns for any continuous period of three financial years; or

or

has failed to repay the deposits accepted by it or pay interest thereon or to redeem any debentures on the due date or pay interest due thereon or pay any dividend declared and such failure to pay or redeem continues for one year or more

shall not be eligible to be-

re-appointed as a director of that company or

appointed in other company for a period of five years from the date on which the said company fails to do so

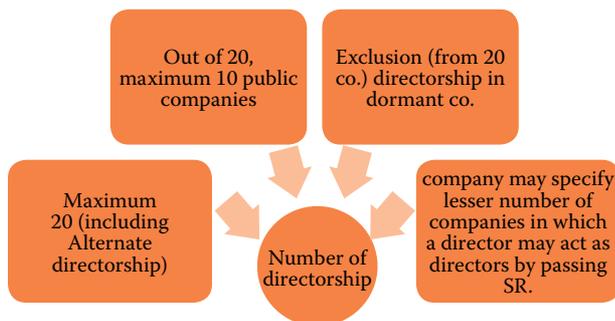
Provided that where a person is appointed as a director of a company which is in default as above

he shall not incur the disqualification for a period of six months from the date of his appointment.

*A private company may by its articles provide for any disqualifications for appointment as a director in addition to those specified in sub-sections (1) and (2).

**Section 164(2) is not applicable to Government company.

[5] HOLDING OF MAXIMUM NUMBER OF DIRECTORSHIP [SECTION 165]



* Provision related to maximum holding of directorship shall not apply to section 8 companies.

**If a person accepts an appointment as a director in contravention to holding directorship in more than 20 companies / more than 10 public companies, he is liable to Rs. 5000 for each day after the first during which such contravention continues.

[6] DUTIES OF DIRECTORS [SECTION 166]

act in accordance with AOA, subject to the provisions of the Act.

act in good faith to promote the objects of co. for benefit of its members & in the best interests of co., its employees, shareholders, community & for protection of environment.

exercise his duties with due & reasonable care, skill & diligence & with independent judgment.

not involve in a situation in which he may have a direct /indirect interest that conflicts, or possibly may conflict, with interest of co.

not achieve / attempt to achieve any undue gain or advantage either to himself or to his relatives, partners, or associates & if such director is found guilty of making any undue gain, he shall be liable to pay an amount equal to that gain to the company

not assign his office & if any assignment so made, it shall be void.

*In case of contravention, a director of the company shall be levied fine from ₹ 1,00,000 to ₹ 5,00,000.

[7] VACATION OF OFFICE OF DIRECTOR [SECTION 167]

Director incurs any of the disqualifications specified in sec. 164;

In case, he incurs disqualification under section 164(2), the office shall become vacant in all the companies, except the company in default

on absence from all meetings of BoD held during a period of 12 months

acts in contravention of provisions of sec. 184 relating to entering into contracts /arrangements in which he is interested;

fails to disclose his interest in any contract / arrangement in which he is interested, in contravention of the provisions of sec. 184;

becomes disqualified by an order of a court / the Tribunal;

convicted by a court for any offence & sentenced to imprisonment for not less than 6 months.

removed in pursuance of the provisions of this Act;

having been appointed a director by virtue of his holding any office / other employment in the holding, subsidiary or associate company, ceases to hold such office or other employment in that company.

[8] RESIGNATION OF DIRECTOR [SECTION 168]

Director may by giving a notice in writing to co.

Co. shall within 30 days from receipt, intimate the Registrar & post the information on its website, if any.

Director may forward a copy of his resignation with reasons to Registrar within 30 days of resignation

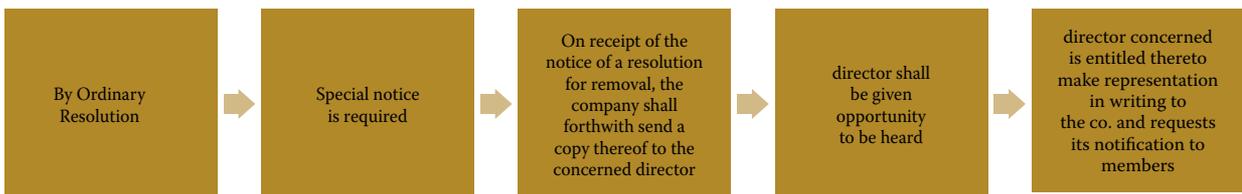
Board shall on receipt take note of the same

Co. shall also place the fact of such resignation in BoD's Report laid in immediately following GM.

Resignation will be effective from the date on which the notice is received by co. / the date, specified by the director in the notice, whichever is later.

[9] REMOVAL OF DIRECTORS [SECTION 169]

(i) Steps for removal



(ii) Restrictions on removal of certain directors

Directors appointed by Tribunal u/s 242

ID: who are re-appointed for second term u/s 149(10) can be removed only by passing SR+ opportunity of being heard

Directors appointed u/s 163

CHAPTER 2: APPOINTMENT AND REMUNERATION OF MANAGERIAL PERSONNEL

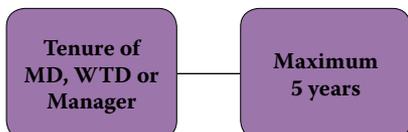
[1] APPOINTMENT OF MANAGING DIRECTOR, WHOLE-TIME DIRECTOR OR MANAGER [SECTION 196]

(i) Appointment of MD and Manager [Section 196(1)]

Company shall not appoint/employ at the same time

- MD
- Manager

(ii) Tenure [Section 196(2)]



(iii) Disqualifications for MD, WTD or Manager [Section 196(3)]

- *below the age of 21 years or has attained the age of 70 years; or
- is an undischarged insolvent or has at any time been adjudged as an insolvent; or
- has at any time suspended payment to his creditors or makes, or has at any time made, a composition with them; or
- has at any time been convicted by a court of an offence and sentenced for a period of more than six months.
- Additional conditions prescribed through Schedule V (for appointment without approval of Central Government)

*Provided that appointment of a person who has attained the age of seventy years may be made by:

- (1) passing a special resolution with an explanatory statement indicating the justification for appointing such person:
- (2) further that where no such special resolution is passed but votes cast in favour of such motion, and the Central Government is satisfied, on an application made by the Board, that such appointment is most beneficial to the company, the appointment of the person who has attained the age of seventy years may be made.

(iv) Procedure of appointment of MD, WTD or Manager [Section 196(4)]

Subject to provisions of Sec. 197 and Schedule V

Terms and conditions and remuneration payable be approved by BOD at meeting

Approval of shareholders in next GM

Approval of Central Government (if appointment is at variance with Part I of Schedule V)

Return in prescribed form shall be filled with Registrar within 60 days of such appointment.

*In case of private company – given Section 196(4) shall not apply

**In case of government company – given Section 196(2) and (4) shall not apply

[2] OVERALL MAXIMUM MANAGERIAL REMUNERATION [SECTION 197(1)]

S. No.	Conditions	Maximum remuneration in any financial year	Conditions when remuneration can exceed as referred in column (b)
	(a)	(b)	(c)
(i)	Overall limit	11% of the net profits of the company for that financial year	Company in general meeting may authorize the payment of remuneration exceeding eleven per cent of the net profits of the company subject to provisions of Schedule V.
(ii)	If there is one Managing director/ Whole time director/ manager	5% of the net profits of the company for that year	With the approval of the company in general meeting by SR, this limit may be exceeded.
(iii)	If there is more than one Managing director/ Whole time director/ manager	10% of the net profits	With the approval of the company in general meeting by SR, this limit may be exceeded.
(iv)	If there is directors who are neither Managing director nor whole time directors	1% of the net profits of the company if there is a managing director or a whole time director	Approval of the company in general meeting by SR is required.
(v)	If there are directors who are neither Managing director nor whole time directors	3% of the net profits of the company if there is no managing director or whole time director	Approval of the company in general meeting by SR is required.

*Where the company has defaulted in payment of dues to any bank / PFI/ non-convertible debenture holders / any other secured creditor, the prior approval of the bank / PFI concerned / the non-convertible debenture holders / other secured creditor, as the case may be, shall be obtained by the company before obtaining the approval in the general meeting.

*In case of Government Company, Section 197 shall not apply.

[3] APPOINTMENT OF KMP [SECTION 203]

(i) KMP [section 2(51)]



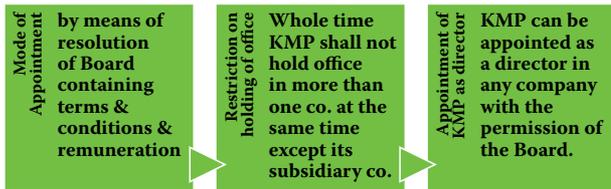
- MD/ CEO / M
- WTD (in absence of MD/CEO/M)
- CS;
- CFO.
- Officer not more than one level below the directors (in whole time employment designated as KMP)
- Other prescribed officer

(ii) Companies which mandatorily required appointment of whole time KMP [Section 203(1) + relevant Rule]

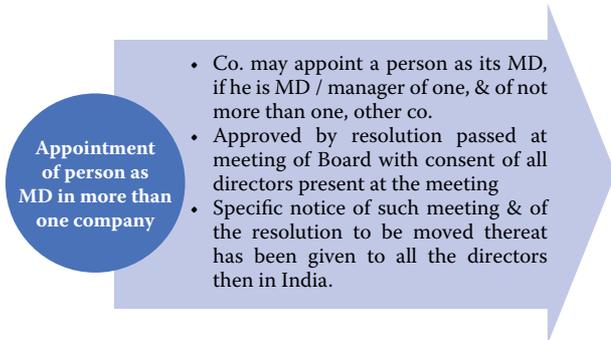
companies mandatorily required to appoint whole-time KMP

every listed co. &
every other public co. having a paid-up share capital of Rs. 10 crore or more

(iii) Provisions related to appointment of whole time KMP [Section 203(2) & (3)]



(iv) Managing Director / Manager in more than one company [Third proviso to section 203(3)]



(v) Vacancy in office of KMP [Section 203(4)]

Vacancy of KMP {

- filled up by the board
- within 6 months from date of vacancy

*In case of government Company, as per section 4A, the provisions of sub-sections (1), (2), (3) and (4) of section 203, shall not apply to a managing director / Chief Executive Officer / manager and in their absence, a whole-time director of the Government Company."

[vi] Penalty [Section 203(5)]

<p style="text-align: center; font-weight: bold;">On company</p> <ul style="list-style-type: none"> fine of 5 lakh rupees 	<p style="text-align: center; font-weight: bold;">Every Director & KMP in default</p> <ul style="list-style-type: none"> fine extending to fifty thousand rupees 	<p style="text-align: center; font-weight: bold;">where the contravention is a continuing one</p> <ul style="list-style-type: none"> with a further fine from one thousand rupees to five lakh rupees for each day after the first during which default continues.
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[4] FUNCTIONS OF THE COMPANY SECRETARY [SECTION 205]

Functions of the CS includes	<p>to report to the Board about compliance to ensure that the co. complies with the applicable secretarial standards;</p> <p>to provide to the directors of the co. guidance as they may require, with regard to their duties, responsibilities and powers;</p> <p>to facilitate the convening of meetings and attend Board, committee and general meetings and maintain the minutes of these meetings;</p> <p>to obtain approvals from the Board, general meeting, the government and other authorities as required</p> <p>to represent before various regulators, and other authorities in connection with discharge of various duties under the Act;</p> <p>to assist the Board in the conduct of the affairs of the co.;</p> <p>to assist and advise the Board in ensuring good corporate governance and compliance & best practices</p> <p>to discharge such other duties as have been specified under the Act or rules; &</p> <p>such other duties as may be assigned by the Board from time to time.</p>
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[5] SECRETARIAL AUDIT (SECTION 204)

Companies that are required to conduct Secretarial Audit

- Every Listed co.
- Every public company having a paid up share capital of ` 50 crore or more; or
- Every public company having a turnover of ₹ 250 crore or more.

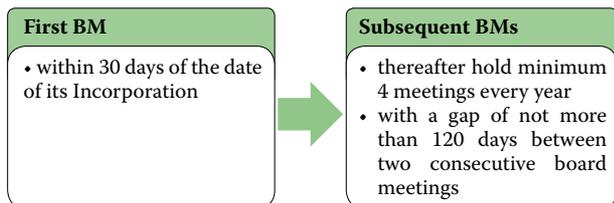
* The above companies shall annex with its Board's report made in section 134(3), a secretarial audit report, given by a company secretary in practice.

CHAPTER 3: MEETINGS OF BOARD AND ITS POWERS

(1) BOARD MEETING (BM) [SECTION 173]

(i) Holding of BM [Section 173(1)]-

Every company shall hold Board meeting of its Board of Directors



(ii) Participation in BM [Section 173 (2)]



- in person
- Through video conferencing
- other audio visual means as prescribed under Rule 3 of the Companies (Meetings of Board and its Powers) Rules, 2014

(iii) Notice of the BM [Section 173(3) + Relevant Rules]

A meeting of the Board shall be called by giving

- not less than seven days' notice in writing
- to all the directors at registered address
- sent by hand delivery/ by post/ by electronic means

Shorter notice less than 7 days may be served

- to transact an urgent business
- atleast one independent director, if any, shall be present
- In absence, decisions taken shall be circulated to all the directors and shall be final only on ratification thereof by at least one independent director, if any

Option to participate through video conferencing mode/ other audio visual means (Rule 3)

- notice of the meeting shall inform the directors regarding the option available to them to participate through video conferencing mode or other audio visual means, and shall provide all the necessary information to enable the directors to participate through video conferencing mode or other audio visual means

On receipt of notice

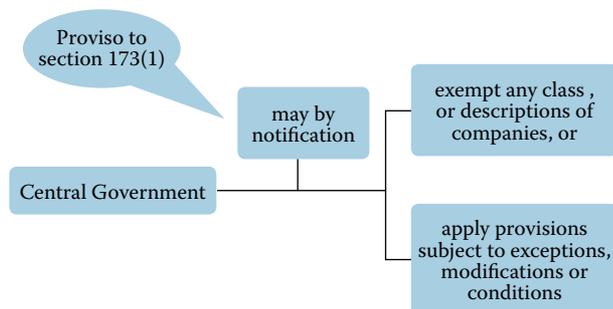
- a director intending to participate through video conferencing or audio visual means shall communicate his intention to the Chairperson or the company secretary of the company

No intimation from director of his participation through the electronic mode

- it shall be assumed that the director shall attend the meeting in person

⇒ In case of failure to serve the notice - Every officer of the company whose duty is to give notice, shall be liable to a penalty of Rs.25,000.

(iv) Exemption/relaxation from applicability of section 173(1)

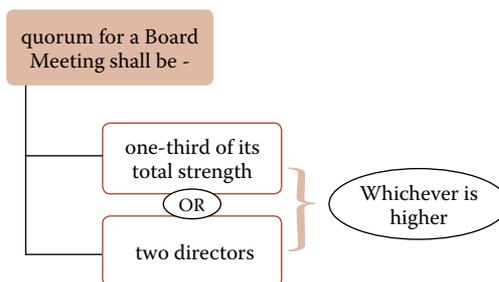


Relaxation to companies from compliance of section 173	
Section 8 companies- Applicable to the extent that the Board of Directors shall hold at least one meeting within every six calendar months	OPC, Small Co., Dormant Co., Private start ups- deemed to have been complied with the provisions of section 173, if at least one meeting of the BoDs has been conducted- <ul style="list-style-type: none"> • in each half of a calendar year, and • the gap between the two meetings is not less than 90 days.

⇒ In case of OPC, in which there is only one director on its Board of Directors, it shall not be required to hold at least one Board meeting in each half of a calendar year.

(2) QUORUM [SECTION 174]

(i) Quorum



⇒ For section 8 Companies, quorum for the BM, either 8 members or 25% of its total strength whichever is less, however, quorum shall not be less than two members.

(ii) Quorum when directors participate through Video Conferencing

In case of participation of director through video conferencing or by other audio visual means

- shall also be counted for the purpose of determining the quorum at the meeting,
- unless he is to be excluded for any items of business under any provisions of the Act or the rules [Explanation as given in Rule 3 of the Companies (Meetings of Board and its Powers) Rules, 2014]

(iii) Where quorum is less than prescribed under the Act [Section 174(3)]

Where the quorum of continuing directors is reduced (as fixed by Act)

- the continuing directors /director may act for the purpose of-
- increasing the number of directors to that fixed for the quorum, or
- of summoning a general meeting of the company

Where at any time the number of interested directors exceeds or is equal to 2/3 of the total strength of the BOD

- the number of directors who are not interested directors and present at the meeting, being not less than two, shall be the quorum during such time

⇒ In case of Private Company - Section 174(3), shall apply with the exception that the interested director may also be counted towards quorum in such meeting after disclosure of his interest pursuant to section 184.

(iv) Where a meeting of the Board could not be held for want of quorum [Section 174(4)]

Unless the articles of the company otherwise provide,

- the meeting shall automatically stand adjourned
- to the same day
 - at the same time and place
 - in the next week,

if that day is a national holiday, till the next succeeding day, which is not a national holiday, at the same time and place

(3) POWERS OF BOARD(SECTION 179)

(i) Powers to be exercised by the Board [Section 179(1)]

The BoD of a company shall be entitled to

- exercise all such powers, and to do all such acts and things, as the company is authorised to exercise and do

Exception to Board's Power:

- The Board shall not exercise any power or do any act or thing which is directed or required,
- whether under this Act or by the memorandum or articles of the company or otherwise, to be exercised or done by the company in general meeting

(ii) Illustrative Powers of Board [Section 179(3)]

Board may exercise its powers by means of the resolution passed at a duly convened Board meeting	(a)make calls on shareholders in respect of money unpaid
	(b)authorise buy-back of securities
	(c)issue securities
	(d)borrow monies
	(e)invest the funds of the company
	(f)grant loans or give guarantee or provide security

- (g)diversify the business
- (h)approve financial statement and the Board's report
- (i)approve amalgamation, merger or reconstruction
- (j)take over a company or acquire a controlling or substantial stake in another company
- (k)any other matter which may be prescribed in Rule 8 of the Companies (Meetings of Board and its Powers) Rules, 2014

The Board may, by a resolution passed at a meeting, delegate the powers specified in clauses (d) to (f) on conditions as it may specify to-

- any committee of directors, the managing director, the manager or any other principal officer of the company, or
- in the case of a branch office of the company, the principal officer of the branch office

Additional powers prescribed under Rule 8 of the Companies (Meetings of Board and its Powers) Rules, 2014

to make political contributions;

to appoint or remove KMP

to appoint internal auditors and secretarial auditor;

(4) RESTRICTIONS ON POWERS OF BOARD [SECTION 180]

The BoD of a company shall exercise the following powers only with the consent of the company by a special resolution

(a) To sell, lease or dispose of the undertaking(whole / substantially of the whole) of the company, if more than one , of the whole/substantially the whole of any of such undertakings

(b) To invest in trust securities the amount of compensation received as a result of any merger or amalgamation;

(c) borrow money, together with the money already borrowed by the company exceeding aggregate of its paid-up share capital, free reserves and securities premium apart from temporary loans obtained from the company's bankers in the ordinary course of business

(d) To remit, or give time for the repayment of, any debt due from a director

Restriction as to borrowing of money under Clause(c) [Section 180(2) & (5)]

Every special resolution passed by the company in general meeting in relation to the borrowing of money-

- shall specify the total amount up to which monies may be borrowed by the Board of Directors.

No debt incurred by the company in excess of the limit imposed -

- shall be valid or effectual, unless the lender proves that he advanced the loan in good faith and without knowledge that the limit imposed had been exceeded.

⇒ Section 180, is not applicable to private company.

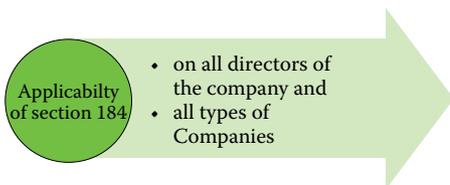
CORPORATE AND ECONOMIC LAWS ||

(5) POWERS OF BOD OF A COMPANY TO MAKE CONTRIBUTIONS [SECTION 181, 182, & 183]

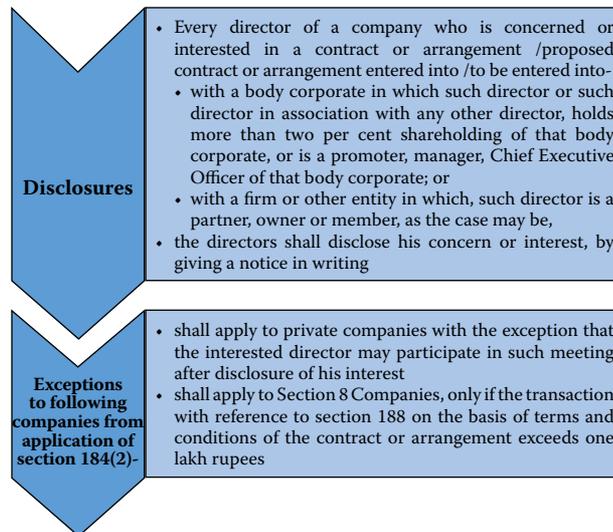
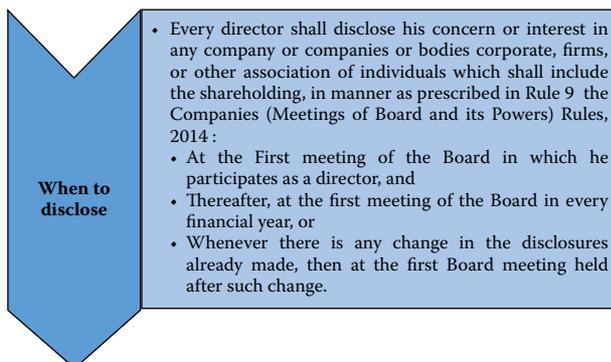
- To Bona fide charitable and other funds**
 - any amount the aggregate of which, in any financial year, exceed 5% of its average net profits for the three immediately preceding financial years.
 - prior permission of the company in general meeting shall be required
- To Political Contributions**
 - a company
 - may contribute any amount to any political party,
 - with a resolution authorising the making of such contribution is passed at a meeting of the Board of Directors,
 - and such resolution shall, subject to the other provisions of this section, be deemed to be justification in law for the making of the contribution authorised by it.
 - Except a Government company, and a company which has been in existence for less than three financial years
- To National Defence Fund, etc.**
 - BoD or any person or authority exercising the powers of the Board of Directors of a company in general meeting, may-
 - contribute such amount as it thinks fit to the National Defence Fund or any other Fund approved by the Central Government for the purpose of national defence

(6) DISCLOSURE OF INTEREST BY DIRECTOR [SECTION 184]

(i) Applicable to:

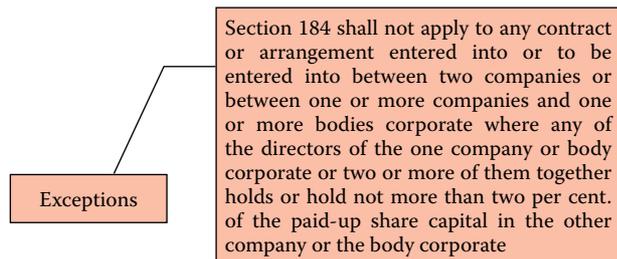
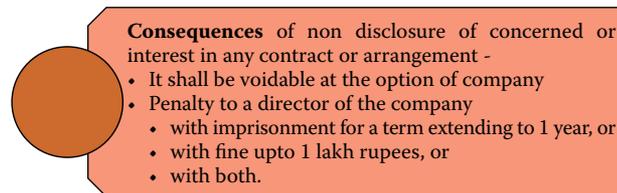


(ii) When to disclose & what are the disclosures [Section 184(1) & (2)]



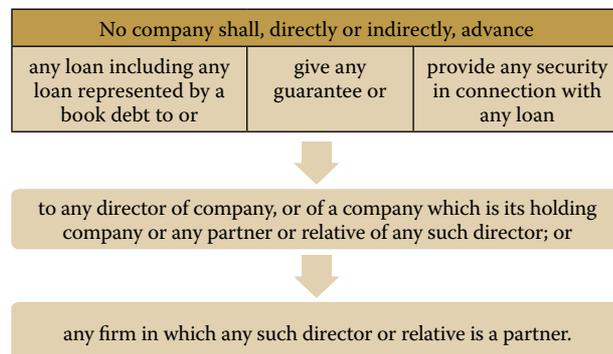
⇒ **Provided** that where any director who is not so concerned or interested at the time of entering into such contract or arrangement, he shall, if he becomes concerned or interested after the contract or arrangement is entered into, disclose his concern or interest forthwith when he becomes concerned or interested or at the first meeting of the Board held after he becomes so concerned or interested

(iii) **Consequences of non-disclosure [Section 184(3) & 184(4)]**



(7) LOAN TO DIRECTORS, ETC. [SECTION 185]

(i) **Loan / guarantee / security not provided-General Law [Section 185(1)]**



(ii) Conditions when company may advance loan/give guarantee/provide security [Section 185(2)]

A company may advance any loan / give any guarantee / provide any security in connection with any loan taken by any person in whom any of the director of the company is interested, only when-

a Special Resolution is passed by the company in general meeting along with the Explanatory statement

the loans are utilised by the borrowing company for its principal business activities.

(iii) Who will be "any person in whom any of the director of the company is interested" [Explanation to section 185(2)]

Any person in whom any of the director of the company is interested" means—

any private company of which any such director is a director /member;

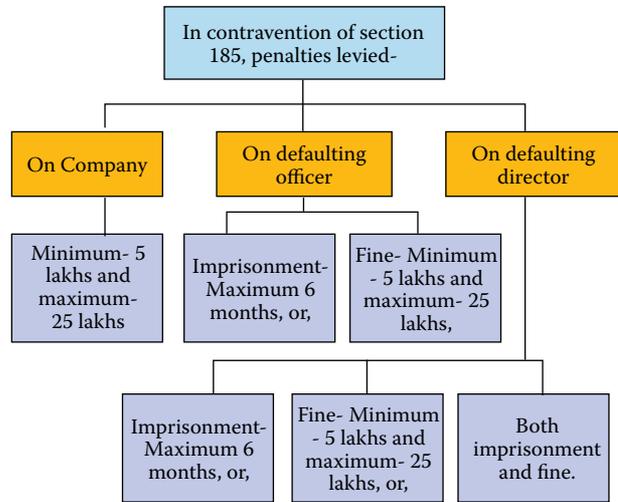
any body corporate at a general meeting of which not less than 25% of the total voting power may be exercised or controlled by any such director, or by 2 or more such directors, together; or

any body corporate, the Board of directors, managing director or manager, whereof is accustomed to act in accordance with the directions / instructions of the Board, or of any director or directors, of the lending company.

(iv) Exceptions to section 185 [Section 185(3)]

Exceptions to section 185	giving of any loan to a managing director or whole-time director—	as a part of the conditions of service extended by the company to all its employees; or pursuant to any scheme approved by the members by a special resolution; or
	a company which in the ordinary course of its business provides loans/ /gives guarantees / securities for-	the due repayment of any loan and in respect of such loans an interest is charged at a rate not less than the rate of prevailing yield of one year, three years, five years or ten years Government security closest to the tenor of the loan; or
	any loan made by a holding company to its wholly owned subsidiary company / any guarantee given/ security provided by a holding company in respect of any loan made to its wholly owned subsidiary company; or Any guarantee given or security provided by a holding company in respect of any loan made by any bank or financial institution to its subsidiary company;	Provided loans made are utilized by the subsidiary company for its principal business activities

(v) Contravention [Section 185(4)]



(vi) Exemptions

Exemptions to following companies from application of section 185 –		
Nidhis • Provided the loan is given to a director or his relative in their capacity as members and such transaction is disclosed in the annual accounts by a note.	Private company • In whose share capital no other body corporate has invested any money; • If the borrowings of such a company from banks or financial institutions or any body corporate is less than twice of its paid up share capital or fifty crore rupees, whichever is lower, and • Such company has no default in repayment of such borrowings subsisting at the time of making transactions under this section	Government company • Such company obtains approval of the Ministry or Department of the Central Government which is administratively in charge of the company, or, as the case may be, the state Government before making any loan or giving any guarantee or providing any security under the Section.

(8) LOAN AND INVESTMENT BY COMPANY [SECTION 186]

(i) Investment by company [Section 186(1)]

Investment by company

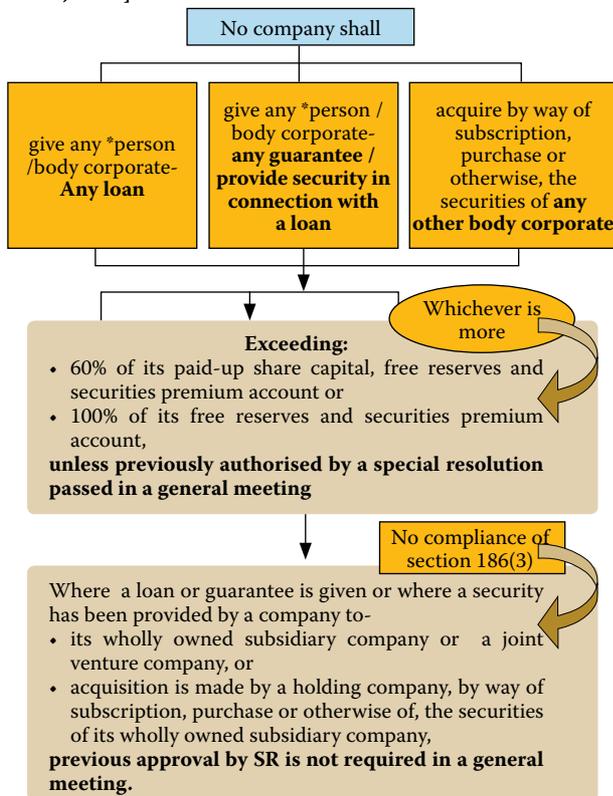
- a company shall unless otherwise prescribed, make investment through not more than 2 layers of investment companies

Exemption

- However, above provisions shall not affect,—
 - a company from acquiring any other company incorporated in a country outside India if such other company has investment subsidiaries beyond two layers as per the laws of such country;
 - a subsidiary company from having any investment subsidiary for the purposes of meeting the requirements under any law / under any rule / regulation framed under any law for the time being in force.

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(ii) Ceiling on the investment [Section 186(2) & (3) Read with Rule 13 of the Companies (Meetings of Board and its Powers) Rules, 2014]



*the word "person" does not include any individual who is in the employment of the company.

(iii) Disclosure to members [Section 186(4)]

Company shall disclose to the members in the financial statement the full particulars of-		
loan given,	investment made or guarantee given or security provided,	the purpose for which the loan / guarantee / security is proposed to be utilized by the recipient of the loan / guarantee / security.

(iv) Requirements for the process of investment/ loan/ guarantee/providing of security [Section 186(5)]



* **Provided** that prior approval of a public financial institution shall not be required –

- where the aggregate of the loans and investments **so far made**, the amount for which guarantee or security **so far provided** to or in all other bodies corporate,
- along with the investments, loans, guarantee or security **proposed to be made or given**

does not exceed the limit specified under section 186(2) and there is **no default in repayment of loan instalments or payment of interest** thereon as per the terms and conditions of such loan to the public financial institution.

(v) Maintenance of register [Section 186(9) & (10)]

Every company giving loan /a guarantee / providing security / making an acquisition shall

- keep a register
- containing such particulars and maintained as per Rule 12 of the Companies (Meetings of Board and its Powers) Rules, 2014
- be kept at the registered office of the company
- be open to inspection at such office and extracts may be taken there from by any member

(vi) Non-applicability of section 186 [Section 186(11)]

Section 186 shall not apply	
to a loan made, guarantee given /security provided or investment made by-	to any investment-
<ul style="list-style-type: none"> • a banking company or • an insurance company or • a housing finance company in the ordinary course of its business or • or a company established with the object of and engaged in the business of financing industrial enterprises or • of providing infrastructural facilities. 	<ul style="list-style-type: none"> • made by an investment company; • of shares allotted in pursuance of section 62(1) (a) or in shares allotted in pursuance of rights issues made by a body corporate; • made, in respect of investment or lending activities, by a NBFC registered under Chapter III-B of the RBI Act, 1934 and whose principal business is acquisition of securities.

(vii) Penalty [Section 186(13)]

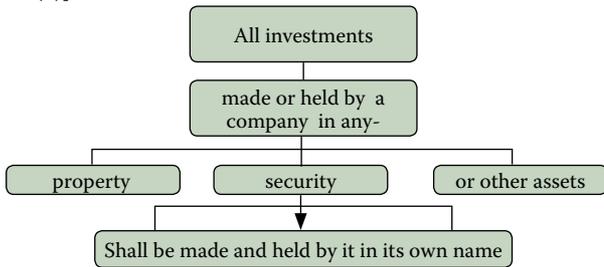
<p>In contravention to section 186</p> <ul style="list-style-type: none"> • company shall be punishable with fine - • Min.- Rs. 25,000 • Max.- Rs.5 lakh 	And	<p>In contravention to section 186</p> <ul style="list-style-type: none"> • every officer of the company who is in default shall be punishable- • with imprisonment -extending upto 2 years, and • with fine - • Min.- Rs. 25,000 • Max.- Rs.1,00,000
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⇒ Non-applicability of Section 186:

- to a Government company engaged in defence production.
- A Government company, other than a listed company, in case such company obtains approval of the Ministry or Department of the Central Government which is administratively in charge of the company, or, as the case may be, the State Government before making any loan or giving any guarantee or providing any security or making any investment under the section.

(9) INVESTMENTS OF COMPANY TO BE HELD IN ITS OWN NAME [SECTION 187]

(i) Investment made by company in its own name [Section 187(1)]



⇒ However, the company may hold any shares in its subsidiary company in the name of any nominee or nominees of the company, if it is necessary to do so, to ensure that the number of members of the subsidiary company is not reduced below the statutory limit.

(ii) Following investment is allowable to the company [Section 187(2)]

Nothing in section 187 shall be deemed to prevent a company from—

- (a) depositing with a bank, being the bankers of the company, any shares / securities for the collection of any dividend / interest payable thereon; or
- (b) depositing with, or transferring to, or holding in the name of, the State Bank of India or a scheduled bank, being the bankers of the company, shares or securities, in order to facilitate the transfer thereof
- (c) depositing with, or transferring to, any person any shares or securities, by way of security for the repayment of any loan advanced to the company or the performance of any obligation undertaken by it;
- (d) holding investments in the name of a depository when such investments are in the form of securities held by the company as a beneficial owner.

(ii) Contracts with related parties (RP) which are covered under section 188 [Section 188(1)]

Company shall enter into any contract or arrangement with a RP with respect to the below transactions, with the consent of the Board of Directors given by a resolution at a meeting of the Board and subject to such conditions as prescribed under rule 15(1) of the Companies (Meetings of Board and its Powers) Rules, 2014

Transactions

- (a) sale, purchase or supply of any goods or materials;
- (b) selling or otherwise disposing of, or buying, property of any kind;
- (c) leasing of property of any kind;
- (d) availing or rendering of any services;
- (e) appointment of any agent for purchase or sale of goods, materials, services or property;
- (f) such related party's appointment to any office or place of profit in the company, its subsidiary company or associate company; and
- (g) underwriting the subscription of any securities or derivatives thereof, of the company

⇒ However, no contract or arrangement, in the case of a company having a paid-up share capital of not less than such amount, or transactions not exceeding such sums, as prescribed under Rule 15(3) of the Companies (Meetings of Board and its Powers) Rules, 2014, shall be entered into except with the prior approval of the company by a resolution. [First proviso to section 188(1)]

(10) RELATED PARTY TRANSACTIONS [SECTION 188 READ WITH RULE 3 OF THE COMPANIES (SPECIFICATION OF DEFINITIONS DETAILS) RULES, 2014]

(i) Meaning of Related Party

Related Party (Section 2 clause 76) with reference to a company, means-

a director / his relative;	a KMP / his relative;	a firm, in which a director, manager / his relative is a partner;	a private company in which a director / manager / his relative is a member or director;	a public company in which a director / manager is a director and holds along with his relatives, more than 2% of its paid-up share capital;	any body corporate whose BoD, MD or manager is accustomed to act in accordance with the advice, directions or instructions of a director / manager;	any person on whose advice, directions or instructions a director or manager is accustomed to act:	any body corporate which is—	such other person as prescribed in Rule 3 of the Companies (Specification of Definitions Details) Rules, 2014 ;
							<div style="display: flex; justify-content: space-around;"> <div style="width: 25%; padding: 5px;">a holding, subsidiary or an associate company of such company; or</div> <div style="width: 25%; padding: 5px;">a subsidiary of a holding company to which it is also a subsidiary;</div> <div style="width: 25%; padding: 5px;">an investing company or venturer of the company</div> </div>	

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(iii) Prescribed limits for the transactions to be entered into as contracts or arrangements with the prior approval of the Company [Rule 15(3) of the Companies (Meetings of Board and its Powers) Rules, 2014]

(A) Where the transaction/s to be entered into as contracts or arrangements with respect to clauses (a) to (e) of section 188(1), with criteria as mentioned below -

Conditions with respect to transactions to be entered into with the prior approval	Prescribed limits for the transactions to be entered into as contracts or arrangements
sale, purchase or supply of any goods or materials, directly or through appointment of agent	Amounting to 10% or more of the turnover of the company, as mentioned in clause (a) and clause (e) respectively of sub-section (1) of section 188
selling or otherwise disposing of or buying property of any kind, directly or through appointment of agent	Amounting to 10% or more of net worth of the company, as mentioned in clause (b) and clause (e) respectively of sub-section (1) of section 188
leasing of property of any kind	Amounting to 10% or more of the turnover of the company, as mentioned in clause (c) of sub-section (1) of section 188
availing or rendering of any services, directly or through appointment of agent	Amounting to 10% or more of the turnover of the company, as mentioned in clause (d) and clause (e) respectively of sub-section (1) of section 188

⇒ It is hereby clarified that the limits specified above, shall apply for transaction/s to be entered into either individually or taken together with the previous transactions during a financial year.

(B) **Transaction entered is for appointment to any office or place of profit:** Where the transaction/s to be entered into as contracts or arrangements is for appointment to any office or place of profit in the company, its subsidiary company or associate company at a monthly remuneration **exceeding 2.5 lakh rupees**; or

(C) **Transaction entered is for remuneration for underwriting the subscription of any securities etc.:** Where the transaction/s to be entered into as contracts or arrangements is for remuneration for underwriting the subscription of any securities or derivatives thereof, of the company **exceeding 1% of the net worth** as mentioned in section 188(1)(g).

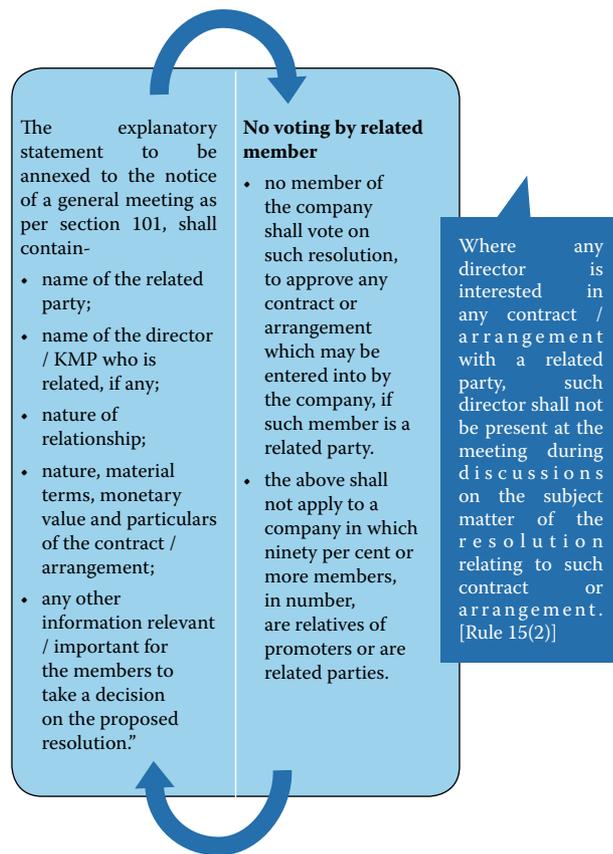
(iv) Concept of “Arm’s length transaction”

Meaning			
a transaction	between two related parties	conducted as if they were unrelated,	so that there is no conflict of interest

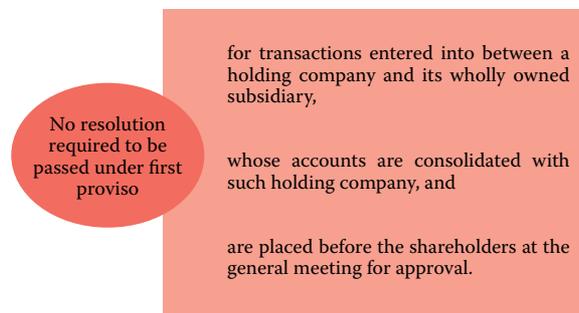


Applicability of section 188 on transactions on arm's length basis	
Section 188(1) shall not apply to any transactions <ul style="list-style-type: none"> entered into by the company in its ordinary course of business 	Except the transactions which are not on an arm's length basis

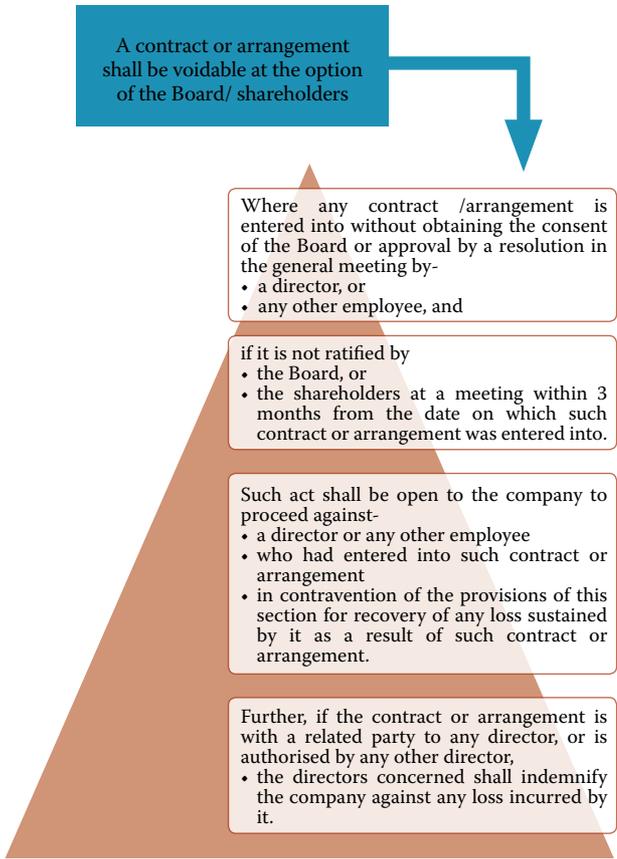
(v) Relevant particulars to disclose in the notice of a general meeting and consequences on being a related party/or in relation to a related party, in a transaction.[Proviso & explanation to Section 188]



(vi) Passing of resolution is not necessitated [Proviso to Section 188(1)]



(vii) Consequences of Related party transaction [Section 188(3) & (4)]



(viii) Penalty for contravention [Section 188 (5)]:

In the case of a-	Liability- Any director or any other employee of a company, who had entered into or authorised the contract or arrangement in violation of the provisions of this section shall-
listed company	be punishable with imprisonment for a term which may extend to 1 year or with fine which shall not be less than 25,000 rupees but which may extend to 5 lakh rupees, or with both; and
any other company	be punishable with fine which shall not be less than 25,000 rupees but which may extend to 5 lakh rupees.

⇒ Exemption from applicability of section 188 for transactions arising out of Compromises, Arrangements and Amalgamations dealt with under specific provisions of the Companies Act, 2013.

CROSSWORD SOLUTION – AUGUST 2020

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PAPER 7A: ENTERPRISE INFORMATION SYSTEMS

The capsule on Intermediate Paper 7A: Enterprise Information Systems that covers the “Chapter 1- Automated Business Processes” and “Chapter 2- Financial and Accounting Systems” of the subject is another step of Board of Studies in its endeavour to provide quality academic inputs to the Intermediate students of Chartered Accountancy Course. This capsule intends to assist students in their quick revision and should not be taken as a substitute for the detailed study of the aforesaid two chapters. Students are advised to refer to the relevant Study Material and Revision Test Paper for comprehensive study and revision.

CHAPTER 1: AUTOMATED BUSINESS PROCESSES

This chapter deals with the basic concepts of Business Process, its automation and implementation; risks and controls associated with various business processes, and provide the comprehensive knowledge about the specific regulatory and compliance requirements of The Companies Act, 2013 and The IT Act, 2000.

An **Enterprise Information System (EIS)** may be defined as any kind of information system which improves the functions of an enterprise business processes by integration. This means classically offering high quality services, dealing with large volumes of data and capable of supporting some huge and possibly complex organization or enterprise. All parts of EIS should be usable at all levels of an enterprise as relevant. A **Business Process** is an activity or set of activities that will accomplish a specific organizational goal.

Categories of Business Processes

Operational Processes	Supporting Processes	Management Processes
Operational or Primary Processes deal with the core business and value chain. These processes deliver value to the customer by helping to produce a product or service. Operational processes represent essential business activities that accomplish business objectives.	Supporting Processes back core processes and functions within an organization. Examples of supporting or management processes include Accounting, Human Resource (HR) Management and workplace safety.	Management processes measure, monitor and control activities related to business procedures and systems. Examples of management processes include internal communications, governance, strategic planning, budgeting, and infrastructure or capacity management.
Example- Order to Cash (O2C) cycle.	Example- Human Resource Process.	Example – Budgeting.

BUSINESS PROCESS AUTOMATION

Business Process Automation (BPA) is the tactic a business uses to automate processes to operate efficiently and effectively.

CONFIDENTIALITY

- To ensure that data is only available to persons who have right to see same.

INTEGRITY

- To ensure that no unauthorized amendments can be made in data.

BPA Objectives

AVAILABILITY

- To ensure that data is available when asked for.

TIMELINESS

- To ensure that data is made available in at the right time.

Benefits of Business Process Automation

QUALITY & CONSISTENCY

- Ensures that every action is performed identically - resulting in high quality reliable results and stakeholders consistently experience the same level of service.

TIME SAVING

- Automation reduces the number of tasks employees would otherwise need to do manually, thus allowing innovation and increasing employees' levels of motivation.

VISIBILITY

- Automated processes are controlled and consistently operate accurately within the defined timeline. It gives visibility of the process status to the organization.

IMPROVED OPERATIONAL EFFICIENCY

- Automation reduces the time it takes to achieve a task, the effort required to undertake it and the cost of completing it successfully.
- Automation not only ensures systems run smoothly and efficiently, but that errors are eliminated and that best practices are constantly leveraged.

GOVERNANCE & RELIABILITY

- The consistency of automated processes means stakeholders can rely on business processes to operate and offer reliable processes to customers, maintaining a competitive advantage.

REDUCED TURNAROUND TIMES

- Eliminate unnecessary tasks and realign process steps to optimize the flow of information throughout production, service, billing and collection.
- This adjustment of processes distills operational performance and reduces the turnaround times for both staff and external customers.

REDUCED COSTS

- Manual tasks, given that they are performed one-at-a-time and at a slower rate than an automated task, will cost more. Automation allows us to accomplish more by utilizing fewer resources.

Steps involved in the Implementation of BPA

Step 1: Define why we plan to implement BPA?

- The answer to this question will provide justification for implementing BPA.

Step 2: Understand rules/ regulation under which it needs to comply with?

- The underlying issue is that any BPA created needs to comply with applicable laws and regulations.

Step 3: Document the process, we wish to automate.

- The current processes which are planned to be automated need to be correctly and completely documented at this step.

Step 4: Define the objectives/goals to be achieved by implementing BPA.

- This enables the developer and user to understand the reasons for going for BPA. The goals need to be precise and clear.

Step 5: Engage business process consultant.

- Once the entity has been able to define the above, the entity needs to appoint an expert, who can implement it for the entity.

Step 6: Calculate the RoI for project.

- The answer to this question can be used for convincing top management to say 'yes' to the BPA exercise.

Step 7: Development of BPA.

- Once the top management grant their approval, the right business solution has to be procured and implemented or developed and implemented covering necessary BPA.

Step 8: Testing the BPA.

- Before making the process live, the BPA solutions should be fully tested.

Risk is defined as any event that may result in a significant deviation from a planned objective resulting in an unwanted negative consequence.

Types of Business Risks

Strategic	Risk that would prevent an organization from accomplishing its objectives.
Financial	Risk that could result in a negative financial impact to the organization.
Regulatory (Compliance)	Risk that could expose the organization to fines and penalties from a regulatory agency due to non-compliance with laws and regulations.
Operational	Risk that could prevent the organization from operating in the most effective and efficient manner or be disruptive to other operations.
Hazard	Risks that are insurable, such as natural disasters; various insurable liabilities; impairment of physical assets; terrorism etc.
Residual	Any risk remaining even after the counter measures are analyzed and implemented is called Residual Risk.

Risk Management and related terms

Asset can be defined as something of value to the organization.

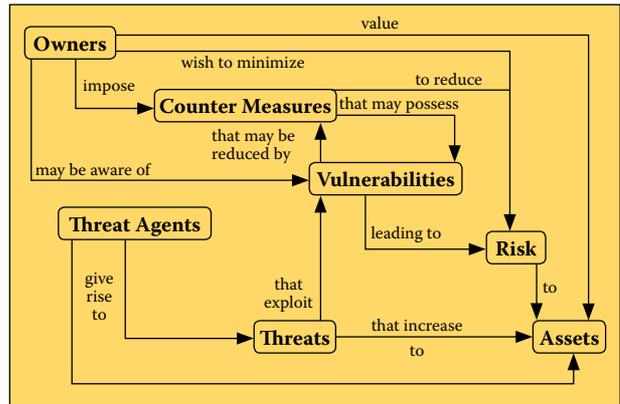
Threat is an action, event or condition where there is a compromise in the system, its quality and ability to inflict harm to the organization.

Likelihood of the threat occurring is the estimation of the probability that the threat will succeed in achieving an undesirable event.

Attack is an attempt to gain unauthorized access to the system's services or to compromise the system's dependability.

Exposure is the extent of loss the enterprise has to face when a risk materializes.

Vulnerability is the weakness in the system safeguards that exposes the system to threats.



Risk Management Strategies

Tolerate/ Accept the risk

- In this case, consciously accepting the risk as a cost of doing business is appropriate, as well as periodically reviewing the risk to ensure its impact remains low.

Terminate/ Eliminate the risk

- The risk can be eliminated by replacing the technology with more robust products and by seeking more capable suppliers and vendors.

Transfer/Share the risk

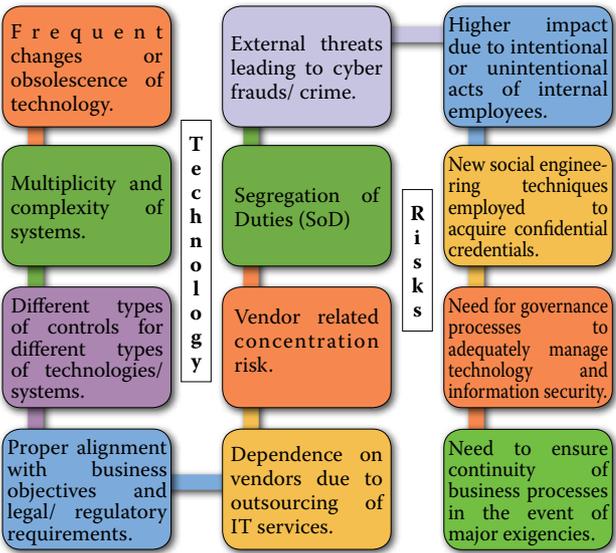
- Risk mitigation approaches can be shared with trading partners and suppliers.
- Risk also may be mitigated by transferring the cost of realized risk to an insurance provider.

Treat/Mitigate the risk

- Where other options have been eliminated, suitable controls must be devised and implemented to prevent the risk from manifesting itself or to minimize its effects.

Turn back

- Where the probability or impact of the risk is very low, then management may decide to ignore the risk.



ENTERPRISE INFORMATION SYSTEMS

Control

- Defined as policies, procedures, practices and organization structure that are designed to provide reasonable assurance that business objectives are achieved and undesired events are prevented or detected and corrected.

Internal Controls

- These are a system consisting of specific policies and procedures.
- Designed to provide management with reasonable assurance that the goals and objectives it believes important to the entity will be met.

Internal Control System

- Facilitates the effectiveness and efficiency of operations.
- Helps ensure the reliability of internal and external financial reporting.
- Assists compliance with applicable laws and regulations.
- Helps safeguarding the assets of the entity.

Information and Communication

Information is necessary for the entity to carry out internal control responsibilities in support of the achievement of its objectives. **Communication** is the continual, iterative process of providing, sharing, and obtaining necessary information.

Monitoring of Controls

Ongoing evaluations, separate evaluations, or some combination of two are used to ascertain whether each of five components of internal control, including controls are present and functioning.

ENTERPRISE RISK MANAGEMENT (ERM)

It may be defined as a process, effected by an entity's Board of Directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives.

IT Control objectives is defined as: "A statement of the desired result or purpose to be achieved by implementing control procedures within a particular IT activity".
Classification of IT controls is as follows:

General Controls: Also, known as Infrastructure Controls, these are pervasive controls and apply to all systems components, processes, and data for a given enterprise or systems environment.

Application Controls: These are implemented in an application to prevent or detect and correct errors. Application controls ensure that all transactions are authorized, complete and accurate.

General Controls include, but are not limited to:

- Information Security Policy;
- Administration, Access, and Authentication;
- Separation of key IT functions;
- Management of Systems Acquisition and Implementation;
- Change Management;
- Backup, Recovery & Business Continuity;
- Proper Development and Implementation of Application S/w;
- Confidentiality, Integrity & Availability of Software & data files; and
- Incident response and management.

Some examples of Application controls are as follows:

- Data edits (editing of data is allowed only for permissible fields);
- Separation of business functions (e.g., transaction initiation versus authorization);
- Balancing of processing totals (debit and credit of all transactions are tallied);
- Transaction logging (all transactions are identified with unique id and logged);
- Error reporting (errors in processing are reported); and
- Exception Reporting (all exceptions are reported).

Components of Internal Control System

Control Environment

Set of standards, processes and structures that provide the basis for carrying out internal control across the organization.

Risk Assessment

This forms the basis for determining how risks will be managed. A precondition to risk assessment is establishment of objectives, linked at different levels of entity.

Control Activities

Actions established through policies and procedures that help ensure that management's directives to mitigate risks to the achievement of objectives are carried out.

Benefits of Enterprise Risk Management (ERM)

Align risk appetite and strategy

- Risk appetite is degree of risk, on a broad-based level that an enterprise is willing to accept in pursuit of its goals. Management considers the entity's risk appetite first in evaluating strategic alternatives, then in setting objectives aligned with the selected strategy and in developing mechanisms to manage the related risks.

Link growth, risk and return

- Entities accept risk as part of value creation and preservation, and they expect return commensurate with the risk. ERM provides an enhanced ability to identify and assess risks, and establish acceptable levels of risk relative to growth and return objectives.

Enhance risk response decisions

- ERM provides the rigor to identify and select among alternative risk responses - risk avoidance, reduction, sharing and acceptance. ERM provides methodologies and techniques for making these decisions.

Minimize operational surprises and losses

- Entities have enhanced capability to identify potential events, assess risk and establish responses, thereby reducing the occurrence of surprises and related costs or losses.

Identify and manage cross-enterprise risks

- Every entity faces a myriad of risks affecting different parts of the enterprise. Management needs to not only manage individual risks, but also understand interrelated impacts.

Provide integrated responses to multiple risks

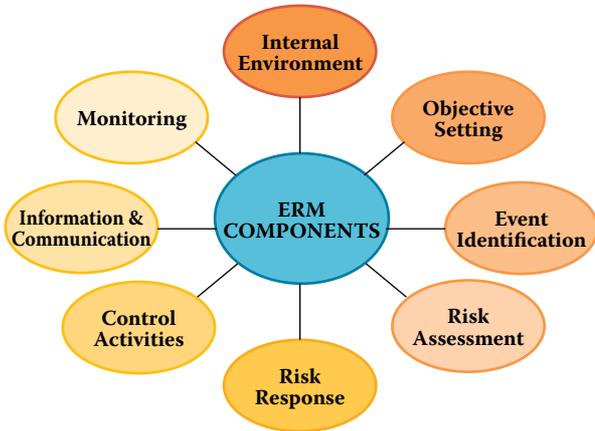
- Business processes carry many inherent risks, and ERM enables integrated solutions for managing the risks.

Seize opportunities

- Management considers potential events, rather than just risks, and by considering a full range of events, management gains an understanding of how certain events represent opportunities.

Rationalize capital

- More robust information on an entity's total risk allows management to more effectively assess overall capital needs and improve capital allocation.



Diagrammatic Representation of Business Processes

Flowcharts

- These are used in designing and documenting simple processes or programs. Like other types of diagrams, they help visualize what is going on and thereby help understand a process, and perhaps also find flaws, bottlenecks, and other less-obvious features within it.

Data Flow Diagrams (DFDs)

- DFD basically provides an overview of
 - What data a system processes;
 - What transformations are performed;
 - What data are stored; and
 - What results are produced and where they flow.

Internal Environment

Encompasses the tone of an organization, and sets the basis for how risk is viewed and addressed by an entity's people, including risk management philosophy and risk appetite, integrity and ethical values, and the environment in which they operate.

Objective Setting

ERM ensures that management has a process in place to set objectives and that the chosen objectives support and align with the entity's mission/vision and are consistent with the entity's risk appetite.

Event Identification

Event identification includes identifying factors - internal and external - that influence how potential events may affect strategy implementation and achievement of objectives.

Risk Assessment

Identified risks are analyzed to form a basis for determining how they should be managed. Risks are associated with related objectives that may be affected.

Risk Response

Management selects an approach or set of actions to align assessed risks with the entity's risk tolerance and risk appetite, in the context of strategy and objectives.

Control Activities

Policies and procedures are established and executed to help ensure that the risk responses management selected, are effectively carried out.

Information and Communication

Relevant information is identified, captured and communicated in a form and time frame that enable people to carry out their responsibilities.

Monitoring

Monitoring is accomplished through ongoing management activities, separate evaluations of the ERM processes or a combination of the both.

In Computer systems, Controls should be checked at three levels

Configuration

- Refers to the methodical process of defining options that are provided.
- Defines how software functions and what menu options are displayed.

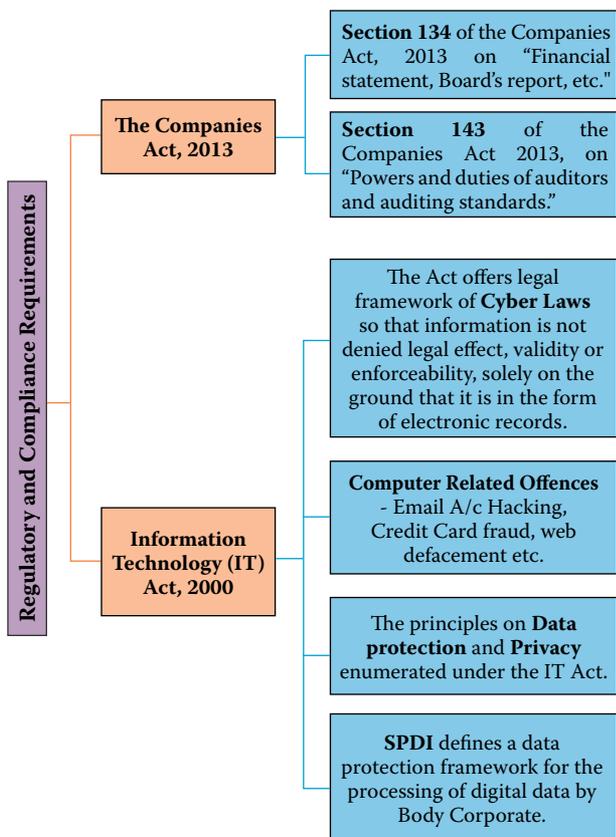
Masters

- Refers to the way various parameters are set up for all modules of software like Purchase, Sales, Inventory, Finance etc.
- Set up first time during installation and these are changed whenever the business process rules or parameters are changed.
- Examples are Vendor Master, Customer Master, Material Master, Accounts Master, Employee Master etc.

Transactions

- Refers to the actual transactions entered through menus and functions in the application software, through which all transactions for specific modules are initiated, authorized or approved.
- For example: Sales transactions, Purchase transactions, Stock transfer transactions, Journal entries and Payment transactions.

ENTERPRISE INFORMATION SYSTEMS



Section 134 of the Companies Act, 2013 on "Financial statement, Board's report, etc." states inter alia: The Directors' Responsibility Statement referred to in clause (c) of sub-section (3) shall state that:

the Directors had taken proper and sufficient care for the maintenance of adequate accounting records in accordance with the provisions of this Act for safeguarding the assets of the company and for preventing and detecting fraud and other irregularities;

the directors, in the case of a listed company, had laid down internal financial controls to be followed by the company and that such internal financial controls are adequate and were operating effectively.

Section 143(3)(i) contains the **Auditor's Report** which shall state that:

"Whether the company has adequate internal financial controls system in place and the operating effectiveness of such controls";

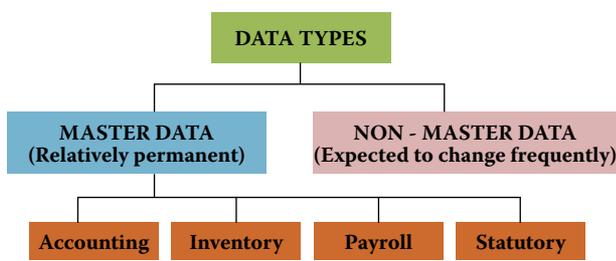
When we talk in terms of "adequacy and effectiveness of controls"; it refers to the adequacy of the control design and whether the control has been working effectively during the relevant financial year.

CHAPTER 2: FINANCIAL AND ACCOUNTING SYSTEMS

This chapter provides an overview of the concept of **Financial and Accounting Systems, Integrated and Non-integrated Systems** and further acquaint the students about **Regulatory and Compliance requirements with Financial and Accounting systems.**

From a business perspective, a **Process** is a coordinated and standardized flow of activities performed by people or machines, which can traverse functional or departmental boundaries to achieve a business objective and creates value for internal or external customers.

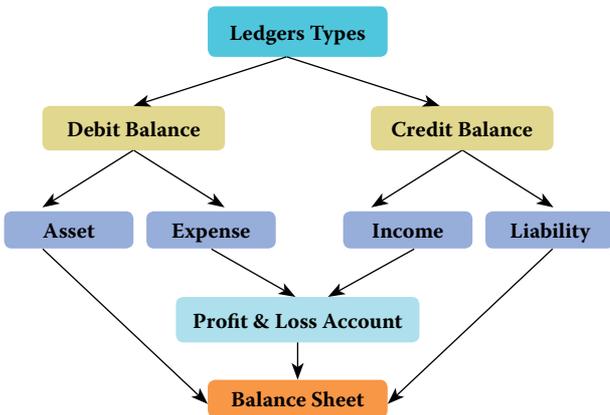
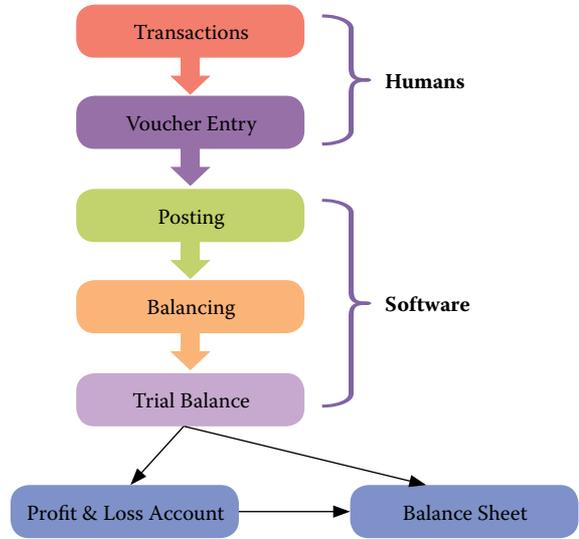
In accounting language, a **Voucher** is a documentary evidence of a transaction. There may be different documentary evidences for different types of transactions.



Voucher Types			
1	Contra	Accounting	For recording of four types of transactions as under. <ul style="list-style-type: none"> Cash deposit in bank. Cash withdrawal from bank. Cash transfer from one location to another. Fund transfer from our one bank account to our own another bank account.
2	Payment	Accounting	For recording of all types of payments. Whenever the money is going out of business by any mode (cash/bank).
3	Receipt	Accounting	For recording of all types of receipts. Whenever money is being received into business from outside by any mode (cash/bank).

4	Journal	Accounting	For recording of all non-cash/bank transactions. E.g. Depreciation, Provision, Write-off, Write-back, discount given/received, Purchase/Sale of fixed assets on credit, etc.
5	Sales	Accounting	For recording all types of trading sales by any mode (cash/bank/credit).
6	Purchase	Accounting	For recording all types of trading purchase by any mode (cash/bank/credit).
7	Credit Note	Accounting	For making changes/corrections in already recorded sales/purchase transactions.
8	Debit Note	Accounting	For making changes/corrections in already recorded sales/purchase transactions.
9	Purchase Order	Inventory	For recording of a purchase order raised on a vendor.
10	Sales Order	Inventory	For recording of a sales order received from a customer.
11	Stock Journal	Inventory	For recording of physical movement of stock from one location to another.
12	Physical Stock	Inventory	For making corrections in stock after physical counting.
13	Delivery Note	Inventory	For recording of physical delivery of goods sold to a customer.
14	Receipt Note	Inventory	For recording of physical receipt of goods purchased from a vendor.
15	Memorandum	Accounting	For recording of transaction which will be in the system but will not affect the trial balance.
16	Attendance	Payroll	For recording of attendance of employees.
17	Payroll	Payroll	For salary calculations.

Steps involved in the Accounting Flow



Installed Applications vs. Cloud Based Applications		
Particulars	Installed Application	Cloud Based Application
Installation & Maintenance	As software is installed on hard disc of the computer used by user, it needs to be installed on every computer one by one.	Installation on user computer is not required. Update and maintenance are defined responsibility of service provider.
Accessibility	The user needs to go the computer only, i.e. computer where software is installed, to use the software.	As software is available through online access, to use the software a browser and an internet connection is needed.
Mobile Application	Using the software through mobile application is difficult in this case.	Mobile application becomes very easy as data is available 24x7 and makes cloud based application future oriented.
Data Storage	Data is physically stored in the premises of the user, i.e. on the hard disc of the user's server computer.	Data is stored on a web server and ownership of data is defined in Service Level Agreement (SLA).
Data Security	As the data is in physical control of the user, user shall have the full physical control over the data and he/she can ensure that it is not accessed without proper access.	Data security is a challenge in this case as the data is not in control of the user or owner of data.
Performance	A well written installed application shall always be faster than web application.	Access is dependent on speed of internet. Slow internet slows access to information and may slow operations.
Flexibility	Installed applications shall have more flexibility and controls as compared to web application.	The cloud based applications allow flexibility against both capital expenditure (CAPEX) and Operating Expense (OPEX) to the user.

ENTERPRISE INFORMATION SYSTEMS

Enterprise Resource Planning (ERP)

An ERP system is based on a common database and a modular software design. The common database can allow every department of a business to store and retrieve information in real-time. The information should be reliable, accessible, and easily shared. An ERP system supports most of the business system that maintains in a single database the data needed for a variety of business functions such as Manufacturing, Supply Chain Management, Financials, Projects, Human Resources and Customer Relationship Management.

Benefits of an ERP System

- Information Integration
- Reduction of lead-time
- On-time Shipment
- Reduction in cycle Time
- Improved Resource utilization
- Better Customer satisfaction
- Use of latest Technology
- Improved Supplier Performance
- Increased Flexibility
- Reduced Quality costs
- Better Analysis and Planning Capabilities
- Improved information accuracy and decision making capability

The successful implementation of ERP depends on the following parameters:

Risks and Controls associated with ERP related to People Issues

Aspect	Risk Associated	Control Required
Change Management	Change will occur in the employee's job profile in terms of some jobs becoming irrelevant and some new jobs created.	Practical hands on training of the ERP System should be provided so that the transition from old system to ERP system is smooth and hassle free.
	The way in which organization functions will change, the planning, forecasting and decision-making capabilities will improve, information integration happening etc.	The project requirements are to be properly documented and signed by the users and senior management.
	Changing the scope of the project is another problem.	This requires clear defining of change control procedures and holds everyone to them.
Training	Since the greater part of the raining takes place towards the end of the ERP implementation cycle, management may curtail the training due to increase in the overall cost budget.	Training is a project-managed activity and shall be imparted to the users in an organization by the skilled consultants and representatives of the hardware and package vendors.
Staff Turnover	As the overall system is integrated and connected with each other department, it becomes complicated and difficult to understand.	This can be controlled and minimized with help of proper staff training system, having help manuals, having backup plans for staff turnover, etc.

Aspect	Risk Associated	Control Required
Top Management Support	ERP implementation will fail if the top management does not provide the support and grant permission for the availability of the huge resources that are required during the transition.	The ERP implementation shall be started only after the top management is fully convinced and assure of providing the full support.
Consultants	These are experts in the implementation of the ERP package and might not be familiar with the internal workings and organizational culture.	The consultants should be assigned a liaison officer - a senior manager - who can familiarize them with the company and its working.

Risks and Controls associated with ERP related to Process Risk

Aspect	Risk Associated	Control Required
Program Management	There could be a possibility of an information gap between day-to-day program management activities and ERP-enabled functions.	This requires bridging the information gap between traditional ERP-based functions and high value operational management functions.
Business Process Reengineering (BPR)	BPR means not just change - but dramatic change and dramatic improvements.	This requires overhauling of organizational structures, job descriptions, performance measurements etc.

Risks and Controls associated with ERP related to Technological Risk

Aspect	Risk Associated	Control Required
Software Functionality	Implementing all the functionality and features just for the sake of it can be disastrous for an organization.	Care should be taken to incorporate the features that are required by the organization and supporting additional features and functionality that might be required at a future date.
Technological Obsolescence	With the advent of more efficient technologies every day, the ERP system also becomes obsolete as time goes on.	This requires critical choice of technology, architecture of the product, ease of enhancements, ease of upgrading, quality of vendor support.
Enhancement and Upgrades	ERP Systems are not upgraded and kept up-to-date. Patches and upgrades are not installed and the tools are underutilized.	Care must be taken while selecting the vendor and upgrade/support contracts should be signed to minimize the risks.
Application Portfolio Management	These processes focus on the selection of new business applications and the projects required delivering them.	By bringing to the light the sheer number of applications in the current portfolio, IT organizations can begin to reduce duplication and complexity.

Risks and Controls associated with ERP related to implementation issues		
Aspect	Risk Associated	Control Required
Lengthy implementation time	Due to technological developments happening every day, the business and technological environment during the start and completion of the project will never be the same.	Care must be taken to keep the momentum high and enthusiasm live amongst the employees, so as to minimize the risk.
Insufficient Funding	The budget for ERP implementation is generally allocated without consulting experts and then implementation is stopped along the way, due to lack of funds.	It is necessary to allocate necessary funds for the ERP implementation project and then allocate some more for contingencies.
Data Safety	As there is only one set of data, if this data is lost, whole business may come to stand still.	Back up arrangement needs to be very strong. Also, strict physical control is needed for data.
Speed of Operation	As data is maintained centrally, gradually the data size becomes more and more and it may reduce the speed of operation.	This can be controlled by removing redundant data, using techniques like data warehousing and updating hardware on a continuous basis.
System Failure	As everybody is connected to a single system and central database, in case of failure of system, the whole business may come to stand still may get affected badly.	This can be controlled and minimized by having proper and updated back up of data as well as alternate hardware / internet arrangements.
Data Access	Data is stored centrally and all the departments access the central data. This creates a possibility of access to non-relevant data.	Access rights need to be defined very carefully and to be given on "Need to know" and Need to do" basis only.

Risks and Controls associated with ERP related to post-implementation issues		
Aspect	Risk Associated	Control Required
Lifelong commitment	Even after the ERP implementation, there will always be new modules/versions to install, new persons to be trained, new technologies to be embraced, refresher courses to be conducted and so on.	This requires a strong level of commitment and consistency by the management and users of the system.

Role-Based Access Control (RBAC) is an approach to restricting system access to authorized users. RBAC sometimes referred to as Role-Based Security, is a policy neutral access control mechanism defined around roles and privileges that lets employees having access rights only to the information they need to do their jobs and prevent them from accessing information that doesn't pertain to them. It is used by most enterprises and can implement **Mandatory Access Control (MAC)** or **Discretionary Access Control (DAC)**. The components of RBAC such as role-permissions; user-role and role-role relationships make it simple to perform user assignments. While assigning access to Master Data, Transaction Data and Reports to different users; following options are possible.

- (i) Create – Allows to create data;
- (ii) Alter – Allows to alter data;
- (iii) View – Allows only to view data; and
- (iv) Print – Allows to print data.

Audit of ERP Systems

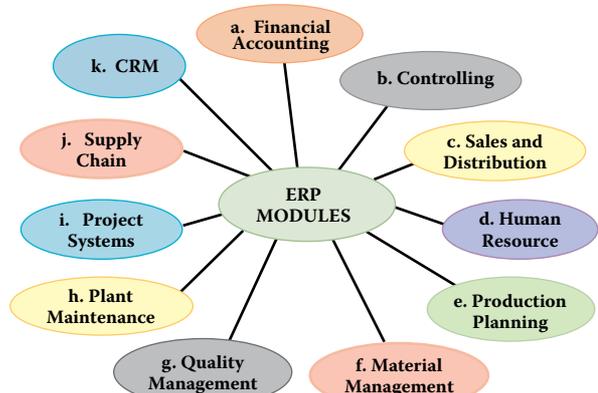
When evaluating controls over ERP systems decisions must be made regarding the relevance of operational internal control procedures to Information Technology (IT) controls. Controls are divided into **General Controls** and **Application Controls**.

• **General Controls** include controls over Information Technology management controls addressing the information technology oversight process; Information Technology infrastructure security management and software acquisition; monitoring and reporting information technology activities; business improvement initiatives; and development and maintenance. General controls can be further divided into **Management Controls** and **Environmental Controls**.

• **Application Controls** pertain to the scope of individual business processes or application systems. Individual applications may rely on effective operation of controls over information systems to ensure that interface data are generated when needed, supporting applications are available and interface errors are detected quickly.

Auditing aspects in case of any ERP system can be summarized as under:

- (i) **Auditing of Data**
 - **Physical Safety** – Ensuring physical control over data.
 - **Access Control** – Ensuring access to the system is given on "need to know" and "need to do basis".
- (ii) **Auditing of Processes**
 - **Functional Audit** – This includes testing of different functions/features in the system and testing of the overall process or part of process in the system and its comparison with actual process.
 - **Input Validations** – This stands for checking of rules for input of data into the system.



ENTERPRISE INFORMATION SYSTEMS

- Financial Accounting Module** { This module is the most important module of the overall ERP System and it connects all the modules to each other.
- Controlling Module** { This module facilitates coordinating, monitoring, and optimizing all the processes in an organization. The key fetures of this module are- element accounting, cost center accounting, activity based acconting, internal orders, product cost controlling , profitability analysis and profit center accounting.
- Sales and Distribution Module** { This is used by organizations to support sales and distribution activities of products and services, starting from enquiry to order and then ending with delivery.
- Human Resource Module** { This module enhances the work process and data management within HR department of enterprises.
- Production Planning (PP) Module** { PP module is another important module that includes software designed specifically for production planning and management.
- Material Management (MM) Module** { MM module as the term suggests manages materials required, processed and produced in enterprises.
- Quality Management Module** { Quality Management module helps in management of quality in productions across processes in an organization. The process of quality management module includes quality planning, control, Assurance, Improvement etc.
- Plant Maintenance Module** { This is a functional module which handles the maintaining of equipment and enables efficient planning of production and generation schedules.
- Project Systems** { These are used for planning and managing projects.
- Supply Chain Module** { This module provides extensive functionality for logistics, manufacturing, planning, and analytics.
- Customer Relationship Management (CRM)** { Customer Relationship Management is a system which aims at improving the relationship with existing customers, finding new prospective customers, and winning back former customers.

Management Information Systems (MIS) Report	
It is a tool that managers use to evaluate business processes and operations.	<p>An MIS report for this would likely contain data such as:</p> <ul style="list-style-type: none"> • The number of calls your staff takes; • The number of emails that come in each day; • The average amount of time it takes to answer a phone call or email; and • The number of questions that your staff answers correctly vs. the number that are incorrect.

The information must meet following criteria to become useful for the user:

Relevant	Timely	Accurate	Structured
MIS reports need to be specific to the business area they address. This is important because a report that includes unnecessary information might be ignored.	Managers need to know what's happening now or in the recent past to make decisions about the future.	It's critical that numbers add up and that dates and times are correct. Financial information is often required to be accurate to the dollar.	Try to break long passages of information into more readable blocks or chunks and give these chunks meaningful headings.

Data Analytics { **Data Analytics** is the process of examining data sets to draw conclusions about the information they contain, increasingly with the aid of specialized systems and software.

Business Intelligence (BI) { **BI** encompasses a wide variety of tools, applications and methodologies that enable organizations to collect data from internal systems and external sources, prepare it for analysis, develop and run queries against the data, and create reports, dashboards and data visualizations to make the analytical results available to corporate decision makers as well as operational workers.

- Business Reporting** {
- It is the public reporting of operating and financial data by a business enterprise, or the regular provision of information to decision-makers within an organization to support them in their work.
 - **XBRL (eXtensible Business Reporting Language)** is a freely available and global standard for exchanging business information. XBRL allows the expression of semantic meaning commonly required in business reporting.
 - **Who uses XBRL?** Regulators; Companies; Governments; Data Providers; Analysts and investors and Accountants.
 - **Important features of XBRL**
 - Clear Definitions
 - Testable Business Rules
 - Multi-lingual Support
 - Strong Software Support

Regulatory Compliance describes the goal that organizations aspire to achieve in their efforts to ensure that they are aware of and take steps to comply with relevant laws, policies, and regulations. This approach is used to ensure that all necessary governance requirements can be met without the unnecessary duplication of effort and activity from resources. Violations of regulatory compliance regulations often result in legal punishment, including interest, penalty and prosecution in some cases.

The compliance and regulatory requirements can be categorizes in two types as under:

- a. **General** – Applicable to all irrespective of anything.
- b. **Specific** – Applicable to specific type of businesses only.

Most of the regulatory Compliance requires accounting data and accounting data comes from accounting systems. There may be two approaches for making compliances requiring accounting data.

- a. Using same software for accounting and tax compliance; and
- b. Using different software for accounting and tax compliance.

BUSINESS MATHEMATICS AND LOGICAL REASONING & STATISTICS

CAPSULE: FOUNDATION PAPER 3: BUSINESS MATHEMATICS LOGICAL REASONING AND STATISTICS: CHAPTER 15 UNIT-I: MEASURES OF CENTRAL TENDENCY

At the foundation level with regards to Paper 3 Statistics part of the topic Measures of Central Tendency is very important for students not only to acquire professional knowledge but also for examination point of view. Here in this capsule an attempt is made for solving and understanding the concepts of Measures of Central Tendency with the help of following questions with solutions.

Definition of Central Tendency: Central tendency defined as the tendency of a given set of observations to cluster around a single central or middle value and the single value that represents the given set of observations is described as a measure of central tendency or, location, or average.

Following are the different measures of central tendency:

- Arithmetic Mean (AM)
- Median (Me)
- Mode (Mo)
- Geometric Mean (GM)
- Harmonic Mean (HM)

Criteria for an Ideal Measure of Central Tendency

- It should be properly and unambiguously defined.
- It should be easy to comprehend.
- It should be simple to compute.
- It should be based on all the observations.
- It should have certain desirable mathematical properties.
- It should be least affected by the presence of extreme observations.

Arithmetic Mean: defined as the sum of all the observations divided by the number of observations. Thus, if a variable x assumes n values $x_1, x_2, x_3, \dots, x_n$, then the AM of x , to be denoted by, $\bar{x} = \frac{\sum_{i=1}^n x_i}{n}$, $\bar{x} = \frac{x_1 + x_2 + x_3 + \dots + x_n}{n}$ is given by;

In case of a simple frequency distribution relating to an attribute, we have

$$\bar{x} = \frac{\sum_{i=1}^n f_i x_i}{\sum_{i=1}^n f_i}$$

$\bar{x} = \frac{\sum_{i=1}^n f_i x_i}{N}$ assuming the observation x_i occurs f_i times, $i=1,2,3, \dots, n$ and $N = \sum_{i=1}^n f_i$.

In case of grouped frequency distribution also we may use formula with x_i as the mid value of the i -th class interval, on the assumption that all the values belonging to the i -th class interval are equal to x_i .

If classification is uniform, we consider the following formula for the computation of AM from grouped frequency distribution:

$$\bar{x} = A + \frac{\sum f_i d_i}{N} \times C$$

Where, $d_i = \frac{x_i - A}{C}$ A = Assumed Mean C = Class Length

- **Properties of AM**
- **If all the observations assumed by a variable are constants, say k , then the AM is also k .**
- The algebraic sum of deviations of a set of observations from their AM is zero
- i.e. for unclassified data, $\sum (x_i - \bar{x}) = 0$ and for grouped frequency distribution, $\sum (f_i(x_i - \bar{x})) = 0$
- AM is affected due to a change of origin and/or scale which implies that if the original variable x is changed to another variable y by effecting a change of origin, say a , and scale say b , of x i.e. $\bar{y} = a + b\bar{x}$, then the AM of y is given by
- If there are two groups containing n_1 and n_2 observations and \bar{x}_1 and \bar{x}_2 as the respective arithmetic means, then combined AM is given by $\bar{x} = \frac{n_1 \bar{x}_1 + n_2 \bar{x}_2}{n_1 + n_2}$

Question 1: Following are the daily wages in rupees of a sample of 10 workers: 58, 62, 48, 53, 70, 52, 60, 84, 75, 100. Compute the mean wage.

Solution: Let x denote the daily wage in rupees.

Applying the mean wage is given by,

$$\bar{x} = \frac{\sum_{i=1}^{10} x_i}{10} = \frac{58 + 62 + 48 + 53 + 70 + 52 + 60 + 84 + 75 + 100}{10} = \frac{\text{₹}662}{10} = \text{₹}66.2$$

Question 2: Compute the mean weight of a group of B. Com students of Sri Ram College from the following data:

Weight in kgs	44-48	49-53	54-58	59-63	64-68	69-73
No. of students	3	4	5	7	9	12

Solution: Computation of mean weight of 40 B. Com students Applying formula, we get the average weight as

$$\bar{x} = \frac{\sum f_i x_i}{N} = \frac{2495}{40} \text{ kgs.} = 62.38 \text{ kgs.}$$

Weight in kgs. (1)	No. of Student (f_i) (2)	Mid-Value (x_i) (3)	$f_i x_i$ (4) = (2) x (3)
44 - 48	3	46	138
49 - 53	4	51	204
54 - 58	5	56	280
59 - 63	7	61	427
64 - 68	9	66	594
69 - 73	12	71	852
Total	40	-	2495

Question 3: Find the AM for the following distribution:

Class Interval	5-14	15-24	25-34	35-44	45-54	55-64
Frequency	10	18	32	26	14	10

Solution: Any mid value can be taken as A. However, usually A is taken as the middle most mid-value for an odd number of class intervals and any one of the two middle most mid-values for an even number of class intervals. The class length is taken as C.

The required AM is given by

$$\bar{x} = A + \frac{\sum f_i d_i}{N} \times C = 39.5 + \frac{-64}{110} \times 10 = 39.5 - 5.82 = 33.68$$

Table: Computation of AM

Class Interval	Frequency (f_i)	Mid-Value (x_i)	$d_i = \frac{x_i - A}{C}$	$f_i d_i$
(1)	(2)	(3)	(4)	(5) = (2) x (4)
5-14	10	9.5	-3	-30
15-24	18	19.5	-2	-36
25-34	32	29.5	-1	-32
35-44	26	39.5(A)	0	0
45-54	14	49.5	1	14
55-64	10	59.5	2	20
Total	110	-	-	-64

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Question 4: Given that the mean height of a group of students is 67.45 inches. Find the missing frequencies for the following incomplete distribution of height of 100 students.

Height in inches	60-62	63-65	66-68	69-71	72-74
No. of students	5	18	-	-	8

Solution: Let x denote the height and f_3 and f_4 as the two missing frequencies

Table: Estimation of missing frequencies

Class Interval	Frequency	Mid-Value (x_i)	$d_i = \frac{x_i - A}{C} = \frac{x_i - 67}{3}$	$F_i d_i$ (f_i)
(1)	(2)	(3)	(4)	(5)
				$= (2) \times (4)$
60-62	5	61	-2	-10
63-65	18	64	-1	-18
66-68	f_3	67 (A)	0	0
69-71	f_4	70	1	f_4
72-74	8	73	2	16
Total	$31 + f_3 + f_4$	-	-	$-12 + f_4$

As given, we have

$$31 + f_3 + f_4 = 100, f_3 + f_4 = 69 \dots \dots \dots (1)$$

$$\bar{x} = 67.45$$

and $A + \frac{\sum f_i d_i}{N} \times C = 67.45 = 67 + \frac{(12 + f_4)}{100} \times 3 = 67.45$

$$(-12 + f_4) \times 3 = (67.45 - 67) \times 100$$

$$-12 + f_4 = 15, f_4 = 27$$

On substituting 27 for f_4 in (1), we get $f_3 + 27 = 69, f_3 = 42$. Thus, the missing frequencies would be 42 and 27.

Question 5: The mean salary for a group of 40 female workers is ₹5,400 per month and that for a group of 60 male workers is ₹7,800 per month. What is the combined mean salary?

Solution: As given $n_1 = 40, n_2 = 60, \bar{x}_1 = ₹5,400$ and $\bar{x}_2 = ₹7,800$ hence, the combined mean salary per month is

$$\bar{x} = \frac{n_1 \bar{x}_1 + n_2 \bar{x}_2}{n_1 + n_2} = \frac{40 \times ₹5,400 + 60 \times ₹7,800}{40 + 60} = ₹6,840.$$

Question 6: The mean weight of 150 students (boys and girls) in a class is 60 kg. The mean weight of boy student is 70 kg and that of girl student is 55 kg. Find number of boys and girls in that class.

Solution: Let the number of boy students be n_1 and girl students be n_2 , as given $n_1 + n_2 = 150$, Then $n_2 = 150 - n_1$, also $\bar{x} = 60, \bar{x}_1 = 70, \bar{x}_2 = 55$

$$\bar{x} = \frac{n_1 \bar{x}_1 + n_2 \bar{x}_2}{n_1 + n_2}, 60 = \frac{n_1 \times 70 + (150 - n_1) \times 55}{150}$$

$$60 = \frac{70n_1 + 8250 - 55n_1}{150} = \frac{15n_1 + 8250}{150}$$

$$= 9000 = 15n_1 + 8250$$

$$15n_1 = 750, n_1 = 50$$

$$n_2 = 150 - n_1 = 150 - 50 = 100$$

Therefore, number of boys (n_1) = 50.

Number of girls (n_2) = 100

Question 7: The average salary of a group of unskilled workers is Rs. 10,000 and that of a group of skilled workers is Rs. 15000. If the combined salary is Rs. 12000, then what is the percentage of skilled workers

Solution: Let x be unskilled and y be skilled
 $10000x + 15000y = 12000(x+y) = 12000x + 12000y$
 $2000x = 3000y$ then $2x = 3y$
 skilled workers is $2x/3$
 total workers $x + 2x/3 = 5x/3$
 percentage of skilled = $2x/3$ divided by $5x/3 = 40\%$

Question 8: The average age of a group of 10 students was 20 years. The average age increased by two years when the two new students joined in the group. What is the average age of two new students joined who joined in the group?

Solution: Average age of 10 students = 20 years, then sum of ages of 10 students = 200 years
 If the two boys are included, then total number of students = $10 + 2 = 12$
 And average increased by two years = $20 + 2 = 22$
 The average age of 12 students = 22, then sum of ages of 12 students = $22 \times 12 = 264$
 The Sum of ages of two boys = $264 - 200 = 64$
 Average age of boys = $64/2 = 32$

Median

- Partitioned Values
- As compared to AM, median is a positional average which means that the value of the median is dependent upon the position of the given set of observations for which the median is wanted. Median, for a given set of observations, may be defined as the middle-most value when the observations are arranged either in an ascending order or a descending order of magnitude.

Question 9: The median of the data 13, 8, 11, 6, 4, 15, 2, 18, 20 is **Solution:** Arranging the data in an ascending order, we get 2, 4, 6, 8, 11, 13, 15, 18, 20

Here $n = 9$, which is odd number of observations.

$$\text{Median} = \left(\frac{n+1}{2} \right)^{\text{th}} \text{ item} = \left(\frac{9+1}{2} \right)^{\text{th}} \text{ item} = 5^{\text{th}} \text{ item} = 11$$

Question 10: What is the median for the observations 5, 8, 6, 9, 11 and 4

Solution: We write in ascending order 4, 5, 6, 8, 9 and 11

Here $n = 6$. So Median = Average of 3rd and 4th term = $\frac{6+8}{2} = 7$

In case of a grouped frequency distribution, we find median from the cumulative frequency distribution of the variable under consideration.

$$M = l_1 + \left(\frac{\frac{N}{2} - N_1}{N_u - N_1} \right) \times C$$

Where,

l_1 = lower class boundary of the median class i.e. the class containing median.

N = total frequency.

N_1 = less than cumulative frequency corresponding to l_1 . (Pre median class)

N_u = less than cumulative frequency corresponding to l_2 . (Post median class)

l_2 being the upper class boundary of the median class.

$C = l_2 - l_1$ = length of the median class.

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Question 11: What is the Median for the following data?

Marks	5-14	15-24	25-34	35-44	45-5	50-59
No. of Students	10	18	32	26	14	10

Solution: First, we find the cumulative frequency distribution which is exhibited in the table

Marks	Frequency (f)	Marks	Less than Cumulative Frequency (CF)
5-14	10	14.5	10
15-24	18	24.5	28(N _l)
25-34	32	34.5	60(N _u)
35-44	26	44.5	86
45-54	14	54.5	100
55-64	10	64.5	110
Total (N)	110		

We find from table $N/2 = 55$

$$\frac{N}{2} = \frac{110}{2} = 55 \text{ lies between the two cumulative frequencies } 28 \text{ and } 60 \text{ i.e. } 28 < 55 < 60.$$

Thus, we have $N_l = 28$, $N_u = 60$, $l_1 = 24.5$ and $l_2 = 34.5$.

Hence $C = 34.5 - 24.5 = 10$.

Substituting these values formula, we get,

$$M = 24.5 + \frac{55 - 28}{60 - 28} \times 10 = 24.5 + 8.44 = 32.94$$

Question 12: Find the missing frequency from the following data, given that the median mark is 23.

Marks	0-10	10-20	20-30	30-40	40-50
No. of Students	5	8	?	6	3

Solution: Let us denote the missing frequency by f_3 . Following table shows the relevant computation.

Table (Estimation of Missing frequency)	
Marks	Less than cumulative frequency
0	0
10	5
20 (l_1)	13(N_l)
30 (l_2)	13 + f_3 (N_u)
40	19 + f_3
50	22 + f_3

Going through the mark column, we find that $20 < 23 < 30$. Hence $l_1 = 20$, $l_2 = 30$ and accordingly $N_l = 13$, $N_u = 13 + f_3$. Also the total frequency i.e. N is $22 + f_3$. Thus,

$$M = l_1 + \left(\frac{N - N_l}{N_u - N_l} \right) \times C$$

$$23 = 20 + \left(\frac{22 + f_3}{13 + f_3} \right) \cdot 13$$

$$3 = \frac{22 + f_3 - 26}{f_3} \times 5, \quad 3f_3 = 5f_3 - 20, \quad f_3 = 20$$

$f_3 = 10$, So, the missing frequency is 10.

Properties of median: We cannot treat median mathematically; the way we can do with arithmetic mean. We consider below two important features of median.

(i) If x and y are two variables, to be related by $y = a + bx$ for any two constants a and b, then the median of y is given by

$$y_{me} = a + bx_{me}$$

For example, if the relationship between x and y is given by $2x - 5y = 10$ and if x_{me} i.e. the median of x is known to be 16.

$$\text{Then } 2x - 5y = 10$$

$$\Rightarrow y = -2 + 0.40x$$

$$\Rightarrow y_{me} = -2 + 0.40x_{me}$$

$$\Rightarrow y_{me} = -2 + 0.40 \times 16$$

$$\Rightarrow y_{me} = 4.40.$$

(ii) For a set of observations, the sum of absolute deviations is minimum when the deviations are taken from the median. This property states that $\sum |x_i - A|$ is minimum if we choose A as the median.

PARTITION VALUES OR QUANTILES :

These may be defined as values dividing a given set of observations into a number of equal parts. When we want to divide the given set of observations into two equal parts, we consider median. Similarly, quartiles are values dividing a given set of observations into four equal parts. So there are three quartiles – first quartile or lower quartile denoted by Q_1 , second quartile or median to be denoted by Q_2 or Me and third quartile or upper quartile denoted by Q_3 . First quartile is the value for which one fourth of the observations are less than or equal to Q_1 and the remaining three – fourths observations are more than or equal to Q_1 . In a similar manner, we may define Q_2 and Q_3 .

Deciles :

Deciles are the values dividing a given set of observation into ten equal parts. Thus, there are nine deciles to be denoted by $D_1, D_2, D_3, \dots, D_9$. D_1 is the value for which one-tenth of the given observations are less than or equal to D_1 and the remaining nine-tenth observations are greater than or equal to D_1 when the observations are arranged in an ascending order of magnitude.

percentiles or centiles

Percentiles divide a given set of observations into 100 equal parts. The points of sub-divisions being P_1, P_2, \dots, P_{99} . P_1 is the value for which one hundredth of the observations are less than or equal to P_1 and the remaining ninety-nine hundredths observations are greater than or equal to P_1 once the observations are arranged in an ascending order of magnitude.

For unclassified data, the p^{th} quartile is given by the $(n+1)p^{\text{th}}$ value, where n denotes the total number of observations. $p = 1/4, 2/4, 3/4$ for Q_1, Q_2 and Q_3 respectively. $p = 1/10, 2/10, \dots, 9/10$.

For D_1, D_2, \dots, D_9 respectively and lastly $p = 1/100, 2/100, \dots, 99/100$ for $P_1, P_2, P_3, \dots, P_{99}$ respectively.

In case of a grouped frequency distribution, we consider the following formula for the computation of quartiles.

$$Q = l_1 + \left(\frac{N_p - N_l}{N_u - N_l} \right) \times C$$

The symbols, except p, have their usual interpretation which we have already discussed while computing median and just like the unclassified data, we assign different values to p depending on the quartile.

Another way to find quartiles for a grouped frequency distribution is to draw the ogive (less than type) for the given distribution. In order to find a particular quartile, we draw a line parallel to the horizontal axis through the point N_p . We draw perpendicular from the point of intersection of this parallel line and the ogive. The x-value of this perpendicular line gives us the value of the quartile.

Question 13: Following are the wages of the labourers: ₹ 82, ₹ 56, ₹ 90, ₹ 50, ₹ 120, ₹ 75, ₹ 75, ₹ 80, ₹ 130, ₹ 65. Find Q_1, D_6 and P_{82} .

Solution: Arranging the wages in an ascending order, we get ₹ 50, ₹ 56, ₹ 65, ₹ 75, ₹ 75, ₹ 80, ₹ 82, ₹ 90, ₹ 120, ₹ 130. Hence, we have

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$$Q_1 = \frac{(n+1)}{4} \text{th value} = \frac{(10+1)}{4} \text{th value} = 2.75^{\text{th}} \text{ value}$$

$$= 2^{\text{nd}} \text{ value} + 0.75 \times \text{difference between the third and the } 2^{\text{nd}} \text{ values.}$$

$$= ₹ [56 + 0.75 \times (65 - 56)] = ₹ 62.75$$

$$D_6 = (10 + 1) \times \frac{6}{10} \text{th value} = 6.60^{\text{th}} \text{ value}$$

$$= 6^{\text{th}} \text{ value} + 0.60 \times \text{difference between the } 7^{\text{th}} \text{ and the } 6^{\text{th}} \text{ values.}$$

$$= ₹ (80 + 0.60 \times 2) = ₹ 81.20$$

$$P_{82} = (10+1) \times \frac{82}{100} \text{th value} = 9.02^{\text{th}} \text{ value}$$

$$= 9^{\text{th}} \text{ value} + 0.02 \times \text{difference between the } 10^{\text{th}} \text{ and the } 9^{\text{th}} \text{ values}$$

$$= ₹ (120 + 0.02 \times 10) = ₹ 120.20$$

Question 14: Compute the Third Quartile and 65th percentile for the following data

Profits '000 Rs	Less than 10	10-19	20-29	30-39	40-49	50-59
No. of firms	5	18	38	20	9	2

Solution:

Profits'000(Rs.)	Frequency (f)	Cumulative Frequency (CF)
Less than 9.5	5	5
9.5-19.5	18	23
19.5-29.5	38	61
29.5-39.5	20	81
39.5-49.5	9	90
49.5-59.5	2	92
110		

$$Q_3 = \text{Third Quartile} = \frac{3N}{4} = \frac{3 \times 92}{4} = 69 \quad Q_3 \text{ lies } 29.5 \text{ and } 39.5$$

$$Q_3 = 29.5 + \left(\frac{69 - 61}{20} \right) \times 10 = 33.5$$

$$Q_3 = ₹ 33,500$$

$$\text{For } 65^{\text{th}} \text{ percentile} = P_{65} = \frac{iN}{100} = \frac{65 \times 92}{100} = 59.8 = 65^{\text{th}}$$

percentile lies in the class 19.5-29.5, here $l = 19.5$, $c = 23$, $f = 38$ and $C = 10$

$$P_{65} = 19.5 + \frac{(59.8 - 23)}{38} \times 10$$

$$P_{65} = 29.184$$

$$= ₹ 29,184$$

Question 15: Compute mode for the distribution for the following distribution

Class Interval	350-369	370-389	390-409	410-429	430-449	450-469
Frequency	15	27 (f ₋₁)	31 (f ₀)	19 (f ₁)	13	6

Solution: Going through the frequency column, we note that the highest frequency i.e., $f_0 = 31$ and $f_{-1} = 27$, $f_1 = 19$, $LCB = 389.5$, $C = 409.5 - 389.5 = 20$

$$\text{Mode} = 389.5 + \frac{(31 - 27)}{2 \times 31 - (27 + 19)} \times 20$$

$$\text{Mode} = 389.5 + \frac{4}{16} \times 20 = 389.5 + 5 = 394.5$$

Question 16: For a moderately skewed distribution of marks in statistics for a group of 200 students, the mean mark and median mark were found to be 55.60 and 52.40. What is the modal mark?

Solution: Since in this case, mean = 55.60 and median = 52.40, applying, we get the modal mark as,
 Mode = $3 \times \text{Median} - 2 \times \text{Mean} = 3 \times 52.40 - 2 \times 55.60 = 46$.

Question 17: If x and y related by $x - y - 10 = 0$ and mode of x is known to be 23, then the mode of y is :

Solution: Mode of $x = 23$, $x - y - 10 = 0$ then $y = x - 10$, Mode of $y = 23 - 10 = 13$

Geometric Mean: For a given set of n positive observations, the geometric mean is defined as the n -th root of the product of the observations. Thus if a variable x assumes n values $x_1, x_2, x_3, \dots, x_n$, all the values being positive, then the GM of x is given by $G = (x_1 \times x_2 \times x_3 \dots \times x_n)^{1/n}$

For a grouped frequency distribution, the GM is given by $G = (x_1^f \times x_2^f \times x_3^f \dots \times x_n^f)^{1/N}$, Where $N = \sum f_i$

In connection with GM, we may note the following properties:

- Logarithm of G for a set of observations is the AM of the logarithm of the observations
- if all the observations assumed by a variable are constants, say $K > 0$, then the GM of the observations is also K .
- GM of the product of two variables is the product of their GM's i.e. if $z = xy$, then
 $GM \text{ of } z = (GM \text{ of } x) \times (GM \text{ of } y)$
- GM of the ratio of two variables is the ratio of the GM's of the two variables i.e. if $z = x/y$ then

$$GM \text{ of } z = \frac{GM \text{ of } x}{GM \text{ of } y}$$

Question 18: Find the GM of 8, 24 and 40.

Solution: As given $x_1 = 8$, $x_2 = 24$, $x_3 = 40$ and $n = 3$.
 Applying, we have $G = (8 \times 24 \times 40)^{1/3} = 8\sqrt[3]{15}$

Question 19: If GM of x is 10, and GM of y is 15, then GM of xy

Solution: According to the GM of $XY = GM \text{ of } x \times GM \text{ of } y = 10 \times 15 = 150$

Harmonic Mean: For a given set of non-zero observations, harmonic mean is defined as the reciprocal of the AM of the reciprocals of the observation. So, if a variable x assumes n non-zero values $x_1, x_2, x_3, \dots, x_n$, then the HM of x is given by

$$H = \frac{n}{\sum (1/x_i)}$$

For a grouped frequency distribution, we have $H = \frac{N}{\sum \left[\frac{f}{x_i} \right]}$

Properties of HM

- If all the observations taken by a variable are constants, say k , then the HM of the observations is also k .
- If there are two groups with n_1 and n_2 observations and H_1 and H_2 as respective HM's than the combined HM is given

$$\text{by} = \frac{\frac{n_1 + n_2}{\frac{n_1}{H_1} + \frac{n_2}{H_2}}}$$

BUSINESS MATHEMATICS AND LOGICAL REASONING & STATISTICS

Question 20: A man travels at a speed of 20 km/hr and then returns at a speed of 30 km/hr. His average of the whole journey is

Solution: Harmonic Mean is the method which is preferred for the computation of average speed

$$HM = \frac{2ab}{a+b} = \frac{2 \times 20 \times 30}{20+30} = 24 \text{ km/hr}$$

Question 21: Find the HM for 4, 6 and 10.

Solution: Applying formula, we have

$$H = \frac{3}{\frac{1}{4} + \frac{1}{6} + \frac{1}{10}} = \frac{3}{0.25 + 0.17 + 0.10} = 5.77$$

Question 22: An aeroplane flies from A to B at the rate of 500 km/hr and comes back B to A at the rate of 700 km/hr. The average speed of the aeroplane is;

Solution: Required average speed of the aeroplane =

$$\frac{2}{\left(\frac{1}{500} + \frac{1}{700}\right)} = \frac{2 \times 3500}{7+5} = 583.33 \text{ km/hr}$$

Question 23: Find the HM for the following data:

x	2	4	8	16
f	2	3	3	2

Solution: Using formula, we get $H = \frac{10}{\frac{2}{2} + \frac{3}{4} + \frac{3}{8} + \frac{2}{16}} = 4.44$

Relation between AM, GM, and HM

→

For any set of positive observations, we have the following inequality: $AM \geq GM \geq HM$

→

The equality sign occurs, as we have already seen, when all the observations are equal.

Question 24: compute AM, GM, and HM for the numbers 6, 8, 12, 36.

Solution: In accordance with the definition, we have

$$AM = \frac{6+8+12+36}{4} = 15.50$$

$$GM = (6 \times 8 \times 12 \times 36)^{1/4} = (2^8 \times 3^4)^{1/4} = 12$$

$$HM = \frac{4}{\frac{1}{6} + \frac{1}{8} + \frac{1}{12} + \frac{1}{36}} = 9.93$$

The computed values of AM, GM, and HM establish $AM \geq GM \geq HM$

Question 25: If there are two groups with 75 and 65 as harmonic means and containing 15 and 13 observations, then the combined HM is given by

Solution: Combined HM is given by $= \frac{n_1 + n_2}{\left(\frac{n_1}{H_1} + \frac{n_2}{H_2}\right)} = \frac{15+13}{\left(\frac{15}{75} + \frac{13}{65}\right)} = 70$

Weighted average
When the observations under consideration have a hierarchical order of importance, we take recourse to computing weighted average, which could be either weighted AM or weighted GM or weighted HM.

Weighted AM = $\frac{\sum w_i x_i}{\sum w_i}$

Weighted GM = $\text{Ante log} \left(\frac{\sum w_i \log x_i}{\sum w_i} \right)$

Weighted HM = $\frac{\sum w_i}{\sum \left(\frac{w_i}{x_i} \right)}$

THE INSTITUTE OF CHARTERED ACCOUNTANTS OF INDIA
(Set up by an Act of Parliament)

Article Placement & Industrial Training Portal

It is the one-stop destination for the Articled Assistants and the companies intend to engage them as Industrial Trainees

Highlights of Industrial Training Portal

User-Friendly Interface for students and companies both

Auto-Populated data for students & members

Regular Updation of records and integration with the SSP Portal

Online Approval of Companies by the Institute

Reminder mails to all students, 6 months prior to their eligibility

Email : app@icai.in Visit: <https://app.icai.org>

Students Skills Enrichment Board (BOS-Operations)

NEWS UPDATES ||

FINANCE UPDATES

SEBI issues disclosure norms for proxy advisers

Securities Exchange Board of India (SEBI) has issued disclosure standards for proxy advisory firms, policy for managing conflict of interest, and asked them to give companies a chance to respond.

This is the first time the regulator has issued disclosure standards for such firms. So far, proxy advisory firms were registered under and governed by research analyst norms of 2014 which prescribed a code of conduct.

<https://www.livemint.com/news/india/sebi-issues-disclosure-standards-for-proxy-advisory-firms-11596457774523.html>

No transaction fee on commodity derivatives till September: NSE

Leading stock exchange National Stock Exchange (NSE) has extended the zero transaction charge for trades done in commodity derivatives segment till September 30, 2020.

<https://economictimes.indiatimes.com/markets/stocks/news/no-transaction-fee-on-commodity-derivatives-till-september-nse/articleshow/76980797.cms>

SEBI notified segregation of investment adviser, distributor roles

SEBI notified the segregation of advisory and distribution activities at client level to avoid conflict of interest, as part of amendments to SEBI (Investment Advisers) Regulations, 2013.

<https://economictimes.indiatimes.com/markets/stocks/news/sebi-notifies-segregation-of-investment-adviser-distributor-roles/articleshow/76776014.cms>

New SEBI norms to give more fund-raising flexibility to stressed firms

Promoters of stressed companies will get more flexibility in attracting investors and the process of determining the right price for assets would get easier following a new set of amendments introduced by capital market regulator SEBI in its preferential share issuance norms.

<https://economictimes.indiatimes.com/markets/stocks/news/new-sebi-norms-to-give-more-fund-raising-flexibility-to-stressed-firms/articleshow/76797264.cms>

India-made gold bars to be used for futures contracts at NSE

NSE announced the launch of NSE Refiner Standards (NRS) for Bureau of Indian Standard (BIS) standard gold. This will enable the acceptance of gold bars produced by the domestic refiners in India for settlement of the gold futures contracts traded on the NSE platform.

<https://economictimes.indiatimes.com/markets/commodities/news/nse-to-accept-gold-bars-produced-by-indian-refiners-for-settlement-of-gold-futures-contract/articleshow/76890677.cms>

SEBI to alter norms for debt funds

The markets regulator, SEBI has set up a working group to assess the liquidity risk management of debt funds. The

working group is tasked to tweak the liquidity forms for debt funds, especially open ended.

<https://www.livemint.com/mutual-fund/mf-news/sebi-to-tweak-liquidity-norms-for-debt-funds-11594734094858.html>

SEBI decentralises portfolio managers registration work

Markets regulator SEBI has decided to decentralise work related to registration of portfolio managers. It has been decided that the processing of registration applications for portfolio managers received will be decentralised and delegated to the respective regional offices or head office in Mumbai, based on the registered address of the applicant.

<https://www.moneycontrol.com/news/business/markets/sebi-decentralises-portfolio-managers-registration-work-5645371.html>

Bad loans sold to ARCs: Banks may have to increase provision for security receipts

Due to the fear of a fall in the valuation of distressed assets as the Covid pandemic continues to rage Banks may face a new dilemma. They may need to raise the provisioning not just for expected bad loans, but also for the NPAs they have sold to Asset Reconstruction Companies (ARCs).

<https://www.thehindubusinessline.com/money-and-banking/banks-may-have-to-increase-provision-for-security-receipts/article32279329.ece#>

SEBI issued Guidelines to provide assistance to trustees to monitor mutual fund activities

SEBI issued guidelines to provide administrative assistance to mutual fund trustees for monitoring the various activities of mutual funds.

The regulator in the circular said that mutual fund trustees should appoint a dedicated officer having professional qualification and minimum five years of experience in finance and financial services related field.

<https://www.livemint.com/news/india/sebi-provides-for-assistance-to-trustees-to-monitor-mutual-fund-activities-11597077333806.html>

ECONOMIC UPDATES

New Education Policy: Five big changes in school, higher education explained

The Indian government replaced a 34-year-old National Policy on Education, framed in 1986, with the New Education Policy of 2020. The NEP, approved by the union cabinet, makes sweeping reforms in school and higher education including teaching. Some of the biggest highlights of the NEP 2020 are, 1) a single regulator for higher education institutions, 2) multiple entry and exit options in degree courses, 3) discontinuation of MPhil programmes, 4) low stakes board exams, 5) common entrance exams for universities.

<https://www.livemint.com/education/news/new-education-policy-five-big-changes-in-school-higher-education-explained-11596098141333.html>

EXAMINATION ANNOUNCEMENT

Examination Department
The Institute of Chartered Accountants of India

4th August, 2020



IMPORTANT ANNOUNCEMENT

In continuation to Important Announcement No. 13-CA (EXAM)/N/2020 dated 15th July 2020, while considering the ongoing COVID-19 pandemic and in the interest of the well-being of students & members and to mitigate their hardships,

as proactive measure for benefit and welfare of the students & members, it has been decided to open **Additional Examination Centres**, provided that sufficient number of candidates offer themselves to appear from each of the below mentioned cities.

Name of the State	Name of the Examination City
Andhra Pradesh	Srikakulam and Vizianagaram
Assam	Silchar, Golaghat, Jorhat, Nagaon, Sibsagar and Tezpur
Bihar	Aurangabad, Banka, Begusarai, Arrah, Motihari, Gaya, Gopalganj, Jamui, Jehanabad, Katihar, Lakhisarai, Madhepura, Madhubani, Munger, Bihar Sharif, Nawada, Purnea, Sasaram, Samastipur, Chhapra, Sitamarhi, Siwan, Supaul, Hajipur and Bettiah
Chhattisgarh	Janjgir, Korba and Rajnandgaon
Dadra & Nagar Haveli	Silvassa
Gujarat	Amreli, Palanpur, Nadiad, Mehsana, Godhra, Porbandar and Himatnagar
Haryana	Narnaul
Himachal Pradesh	Solan, Kangra, Mandi and Una
Jharkhand	Bokaro Steel City, Deoghar, Dumka, Giridih, Hazaribagh and Ramgarh
Karnataka	Bagalkot, Bidar, Vijayapura, Chamaraja Nagar, Chikamgalur, Chikkaballapur, Chitradurga, Gadag, Hassan, Haveri, Madikere, Kolar, Koppal, Mandya, Raichur, Tumakuru and Sirsi
Kerala	Idukki, Kasaragod, Adoor and Kalpetta
Madhya Pradesh	Balaghat, Betul, Chhatrapur, Dewas, Dhar, Khandwa, Guna, Itarsi, Hoshangabad, Katni, Narsinghpur, Sagar, Sehore, Shahdol, Shajapur, Shivpuri, Singrauli, Vidisha and Khargone
Maharashtra	Bhandara, Buldhana, Hingoli, Nandurbar, Osmanabad, Sindhudurg, Wardha and Washim
Meghalaya	Shillong
Manipur	Imphal
Nagaland	Kohima
Odisha	Angul, Balangir, Balasore, Bargarh, Bhadrak, Jagatsinghpur, Jajpur, Kendrapara, Keonjhar, Jeypore, Puri and Rayagada
Punjab	Mandi Gobindgarh, Ferozepur, Pathankot, Hoshiarpur, Phagwara, Mansa and Sri Muktsar Sahib
Rajasthan	Bundi, Dausa, Dungarpur, Hanumangarh Town, Jalore, Jhalawar, Nagaur, Rajsamand and Tonk
Sikkim	Gangtok
Tamil Nadu	Cuddalore, Dharmapuri, Dindigul, Nagercoil, Karur, Hosur, Nagapattinam, Namakkal, Ooty, Pudukkottai, Karaikudi, Theni, Tiruvallur, Tiruvannamalai and Villupuram
Telangana	Adilabad, Sangareddy, Shamshabad, Khammam, Mahabubnagar, Medak and Nalgonda
Tripura	Agartala
Uttar Pradesh	Faizabad, Azamgarh, Baghpat, Bahraich, Ballia, Basti, Bijnor, Badaun, Deoria, Etah, Etawah, Ghazipur, Gonda, Hathras, Jaunpur, Amroha, Lakhimpur Kheri, Kushinagar, Mirzapur, Pilibhit, Pratapgarh, Rae Bareilly, Rampur, Bhadohi, Shahjahanpur, Sonbhadra and Sultanpur
Uttarakhand	Almora, Kotdwar and Kashipur
West Bengal	Haldia, Hooghly, Purulia and Kharagpur
Overseas*	Kampala (Uganda)

*Only for Students' Examinations

Further Ambikapur, Balotra, Kalaburgi (Gulbarga), Raigarh (Chhattisgarh) and Port Blair which were the examination centres for Foundation Examination only will now be an examination centre for all students as well as member examinations scheduled in the month of November 2020.

The candidates are advised to note the above additions in the examination cities and stay in touch with the website of the Institute, www.icaai.org.

(S. K. GARG)
ADDITIONAL SECRETARY (EXAMINATIONS)

CROSSWORD - SEPTEMBER 2020

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23. An Indian multinational conglomerate company headquartered in Kolkata, West Bengal.
24. Feminine, 3rd Person
25. Fuss
26. _____ income is the sum of all wages, salaries, profits, interest payments, rents, and other forms of earning, before any deductions or taxes.
27. In a set of data values _____ is the value that appears most often.
33. Outlet
34. _____ Pro is a scientific data analysis software, numerical computing environment and programming language that runs on Windows or Mac operating systems.
35. Imitation
36. An electronic-pyrotechnic or mechanical device that automatically opens the main or reserve parachute container at a pre-set altitude or after a pre-set time.
37. An organisation that processes insurance claims of certain aspects of employee benefit plans for a separate entity.
40. Numbers which cannot be divided by 2 are called _____ numbers.
42. Go-ahead

ACROSS

- The unit for information is _____
- A wireless method of sending information using radio waves is _____
- _____ is a method of exchanging message between people using electronic devices.
- A digital radio technology for broadcasting radio stations.
- An error in a program that prevents the program from running as expected _____
- In proportion
- _____ facto means 'by the fact itself'.
- The bank collects _____ time to time from its borrowers to avoid the debt becoming 'Time Barred'.
- The leading stock exchange of India, located in Mumbai, Maharashtra.
- The _____ command displays information about groups containing user name, or users contained in group name.
- _____ is used to describe a complete data processing system, with the flow of data through clerical operations involved, down to the level of individual programs, but excluding such programmes.
- The _____ command is a powerful Windows Command Prompt function that lists all files and subdirectories contained in a specific directory.
- The highest-ranking executive in a company.
- When the value of elasticity of demand is more than _____, then we say that product in question has elastic demand.
- An Operating System that runs from a hard disk drive.
- The concept of _____ PE is expressly provided for in the UN Model Convention, 2017.
- UN Model Convention, 2017 has a separate article 12A on _____ (in short) which is not present in the OECD Model Convention, 2017.
- A social networking game

DOWNWARD

- A programming language
- An _____ is a sequence of numbers such that the difference of any two successive members is a constant.
- No
- _____ mode is a feature that lets you switch the colour theme of an app or an entire desktop operating system to black or something close to it.
- Attempt
- It is used to label or number years in the Julian and Gregorian calendars.
- _____ what comes in, credit what goes out.
- Above board
- In information system, _____ are the keywords or terms assigned to a piece of information.
- Branch of Computer science concerned with building smart machines capable of performing tasks that typically require human intelligence.
- Icon
- The _____ rule implies that when a foreign enterprise sets up a permanent establishment (PE) in the Source State, it brings itself within the fiscal jurisdiction of that State to such a degree that all profits that the enterprise derives from that State, whether through the PE or not, can be taxed by it.
- _____ is an Indian consumer electronics company.
- A number assigned to any item that is connected to the Internet _____
- Regret
- Rear end
- Mindful
- Computers that exist only to provide things to others is called _____
- BEPS Action 15 is on "Developing a _____ (short form) to modify bilateral treaties".

If undelivered, please return to: The Institute of Chartered Accountants of India, ICAI Bhawan, Indraprastha Marg, New Delhi-110104