

Auditing Course Material

Part 39 of 61 (Chapters 3801-3900)

2. Computation of Advance Tax Liability

Ascertain the advance tax payable during the financial year 2024-25 for Mr. X (25 years), assuming his tax liability (including surcharge and health & education cess) on his estimated income and tax deducted at source is Rs. 2,19,575 and Rs. 2,06,000 respectively.

Solution:

Advance Tax Computation for AY 2025–26

(Amount in Rs.)

Description	Amount (Rs.)
Tax Liability	2,19,575
Less: TDS	2,06,000
Amount Payable by way of Advance Tax	13,575
Advance Tax payable on or before June 15, 2024 (15% of Rs. 13,575)	2,036
Advance Tax payable after June 15 but on or before September 15, 2024 (45% of Rs. 13,575 – Rs. 2,036)	4,072
Advance Tax payable after September 15 but on or before December 15, 2024 (75% of Rs. 13,575 – Rs. 2,036 – Rs. 4,072)	4,072
Advance Tax payable after December 15 but on or before March 15, 2025 (Remaining amount)	3,395

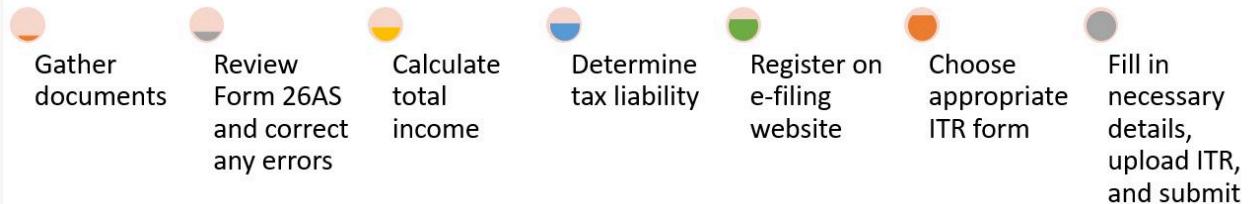
3. Calculation of Interest under section 234C

In case of a Taxpayer other than the one opting for Presumptive Taxation Scheme u/s 44AD

Conditions	Rate of Interest	Period of Interest	Amount on which Interest is calculated
If Advance Tax paid on or before June 15 is less than 15% of the Estimated Tax Amount	Simple interest @1% per month	3 months	15% of Amount (-) Tax already deposited before June 15
If Advance Tax paid on or before September 15 is less than 45% of the Estimated Tax Amount	Simple interest @1% per month	3 months	45% of Amount (-) Tax already deposited before September 15
If Advance Tax paid on or before December 15 is less than 75% of the Estimated Tax Amount	Simple interest @1% per month	3 months	75% of Amount (-) Tax already deposited before December 15
If Advance Tax paid on or before March 15 is less than 100% of the Estimated Tax Amount	Simple interest @1% per month	1 month	100% of Amount (-) Tax already deposited before March 15

1. Introduction

PROCESS OF FILING ITR



An Income Tax Return (ITR) can be filed online by entering the relevant particulars and submitting it.

If you are filing your return for the first time, then click on the 'New Registration' tab and create your profile. While creating your user ID, you must ensure that you have an active e-mail ID and mobile number and it is mentioned correctly.

The Income Tax Return is filed as per following steps:

Step 1: Collect required documents such as TDS certificates (Form16/16A), capital gain statements.

Step 2: Download and check Form 26AS and get the error rectified from the deductor, if any.

Step 3: Compute total income for the financial year.

Step 4: Compute tax liability and final tax to be paid (after considering Form 26AS – details of TDS, Advance payment of Tax or Self-Assessment Tax).

Step 5: Register on e-filing website.

Step 6: Select the appropriate ITR form.

Step 7: Fill in the required details and upload ITR (Upload DSC, if applicable) and submit. A Digital Signature Certificate (DSC) is an electronic format of physical or paper certificate that serves as a proof of identity of an individual. One can also authenticate himself using Aadhaar OTP.

Step 8: On successful submission, ITR-V (acknowledgement) would be displayed (if DSC is not used). Click on the link and download the ITR-V. ITR-V will also be sent to the registered email. If ITR is uploaded with DSC, the Return Filing process is complete.

OR

If the return is not uploaded with DSC, the ITR-V Form should be printed, signed and submitted to the Central Processing Centre (CPC) within 120 days from the date of e-Filing. The return will be processed only upon receipt of signed ITR-V (Verification of ITR-V).

The main sections which are applicable with respect to various types of returns under Income Tax Act are:

- 1) Section 139(1) – Compulsory filing of Return of Income
- 2) Section 139(3) – Filing Income Tax in case of Loss
- 3) Section 139(4) – Belated Tax Return
- 4) Section 139(5) – Revised Return
- 5) Section 139(9) – Defective Return

2. ITR Forms

The Income Tax Return forms are used to file income tax returns for the income earned during a particular financial year.

ITR FORMS

ITR 1	• For individual being a resident (other than not ordinarily resident) having total income up to Rs. 50 lakh, having Income from Salaries/one house property/other sources/agricultural income up to Rs. 5000
ITR 2	• Individuals and HUFs not having income from PGBP
ITR 3 (Sahaj)	• For individuals and HUFs having income from PGBP
ITR 4 (Sugam)	• For Individuals, HUFs and Firms (other than LLPs), being resident having total income up to Rs. 50 lakh and having income from business and profession, computed under Sec. 44AD, 44ADA or 44AE
ITR 5	• For firms, AOPs and BOIs or any other person (not being individual or HUF or company or to whom ITR-7 is applicable)
ITR 6	• For Companies other than companies claiming exemption under Sec. 11
ITR 7	• For persons including companies required to furnish return under Sec. 139(4A) or 139(4B) or 139(4C) or 139(4D) only

Let us discuss the ITR forms one by one.

2. ITR Forms

For an individual being a resident (other than not ordinarily resident) having total income up to Rs. 50 lakh, having Income from Salaries/one house property/other sources (Interest etc.)/agricultural income up to Rs. 5000.

Return Form ITR 1 (SAHAJ) can be used by an ordinarily resident individual whose total income includes:

- (1) Income from salary/pension; or
- (2) Income from one house property (excluding cases where loss is brought forward from previous years or loss to be carried forward); or
- (3) Income from other sources (excluding winnings from lottery, income from race horses and income chargeable to tax at special rates).

Further, in a case where the income of another person like spouse, minor child, etc., is to be clubbed with the income of the taxpayer, this return form can be used only when such income falls in any of the above categories.

Return Form ITR 1 (SAHAJ) cannot be used by an individual:

- 1) Who is a Non-resident or Not Ordinarily Resident;
- 2) Who is a Director of a company;
- 3) Whose total income exceeds Rs. 50 lakhs;
- 4) Who has income from more than 1 house property;
- 5) Who has held unlisted equity shares at any time during the previous year;
- 6) Who claims deduction under Sec. 80QQB or Sec. 80RRB in respect of royalty from patents or books;
- 7) Who claims deduction under Section 10AA or Part-C of Chapter VI-A;
- 8) Who has brought forward loss or losses to be carried forward under any head;
- 9) Person claiming deduction under Section 57 from income taxable under the head 'Other Sources' (other than deduction allowed from family pension);
- 10) Who wants to claim 'Relief under Section 90 or 91';
- 11) Who wants to claim credit of tax deducted at source in the hands of any other person;
- 12) Who has any assets (including Financial Interest in an entity) located outside India;
- 13) Who has signing authority in any account outside India;
- 14) Who has any income to be apportioned in accordance with provisions of Section 5A;
- 15) Who has any of the following income:
 - a. Income from Business or Profession
 - b. Capital Gains
 - c. Income taxable under the head 'Other sources' which is taxable at special rate
 - d. Dividend income exceeding Rs. 10 lakhs taxable under Section 115BBDA
 - e. Unexplained income (i.e., cash credit, unexplained investments, etc.) taxable at 60% under Section 115BBE
 - f. Agricultural Income exceeding Rs. 5,000
 - g. Income from any source outside India

2. ITR Forms

For Individuals and HUFs not having income from profits and gains of business or profession

This Return Form is to be used by an individual or an HUF who is not having income chargeable to income-tax under the head *Profits or gains of business or profession*. Further, in a case where the income of another person like spouse, minor child, etc., is to be clubbed with the income of the taxpayer, this Return Form can be used if income to be clubbed, falls in any of the above criteria.

Return Form ITR 2 cannot be used by an individual or an HUF, whose total income for the year includes income from Business or Profession or he wants to claim deduction under Section 10AA or Part-C of Chapter VI-A.

2. ITR Forms

For individuals and HUFs having income from profits and gains of business or profession

Form ITR 3 can be used by an individual or a Hindu Undivided Family who is having income under the head business or profession.

Form ITR 3 cannot be used by any person other than an individual or a HUF. Further, an individual or a HUF, not having income from business or profession, cannot use ITR 3.

2. ITR Forms

For Individuals, HUFs and Firms (other than LLPs, being resident having total income up to Rs. 50 lakh and having income from business and profession, which is computed under Sections 44AD, 44ADA or 44AE

Form ITR – 4 (SUGAM) can be used by an individual/HUF/Firm, whose total income for the year includes:

- a) Business income computed as per the provisions of section 44AD or 44AE; or
- b) Income from profession computed as per the provisions of section 44ADA; or
- c) Income from salary/pension; or
- d) Income from one house property (excluding cases where loss is brought forward from previous years or losses to be carried forward); or
- e) Income from other sources (excluding winnings from lottery and income from race horses).

Further, in a case where the income of another person like spouse, minor child, etc., is to be clubbed with the income of the taxpayer, this return form can be used where income to be clubbed falls in any of the above categories.

Form ITR – 4 (SUGAM) cannot be used by a person:

- 1) Who is a Non-resident or Not Ordinarily Resident;
- 2) Who is a Director of a company;
- 3) Whose total income exceeds Rs. 50 lakhs;
- 4) Who has income from more than one House Property;
- 5) Who has held unlisted equity shares at any time during the previous year;
- 6) Who claims deduction under Section 80QQB or 80RRB in respect of royalty from patent or books;
- 7) Who claims deduction under Section 10AA or Part-C of Chapter VI-A;
- 8) Who has brought forward loss or losses to be carried forward under any head;
- 9) Person claiming deduction under Section 57 from income taxable under the head 'Other Sources' (other than deduction allowed from family pension);
- 10) Who wants to claim relief under Sections 90 or 91;
- 11) Who wants to claim credit of tax deducted at source in the hands of any other person;
- 12) Who has any assets (including Financial Interest in an entity) located outside India;
- 13) Who has signing authority in any account outside India;
- 14) Who has any income to be apportioned in accordance with provisions of Section 5A;
- 15) Who has any of the following incomes:
 - a. Income from Business or Profession
 - b. Capital Gains or Losses
 - c. Income taxable under the head 'Other sources' which is taxable at special rate
 - d. Dividend income exceeding Rs. 10 lakhs taxable under Section 115BBDA
 - e. Unexplained income (i.e., cash credit, unexplained investments, etc.) taxable at 60% -Section 115BBE
 - f. Agricultural Income exceeding Rs. 5,000
 - g. Income from any source outside India
 - h. Income from speculative business and other special incomes
 - i. Income from agency business or commission or brokerage

In case, the assessee, keeps and maintains all books of accounts and other documents, referred to in Section 44AA, and also gets his accounts audited and obtains an Audit Report as per Section 44AB, filing Form ITR-4 (Sugam) is not mandatory. In such a case, other regular return forms viz. ITR-3 or ITR-5, as applicable, should be used.

2. ITR Forms

For firms, AOPs and BOIs or any other person (not being individual or HUF or company or to whom ITR-7 is applicable)

This ITR form is to be used by following entities for filing their income tax return:

- a. Firms
- b. Limited Liability Partnerships (LLPs)
- c. Body of Individuals (BOIs)
- d. Association of Persons (AOPs)
- e. Co-operative Societies
- f. Artificial Juridical Persons
- g. Local Authorities

Form ITR 5 cannot be used by a person who is required to file the return of income under section 139(4A) or 139(4B) or 139(4C) or 139(4D) (i.e., trusts, political parties, institutions, colleges, etc.).

2. ITR Forms

For Companies other than companies claiming exemption under Section 11

Form ITR 6 is applicable to companies. All the companies, except those who claim exemption as per Section 11 are required to file their returns in Form ITR 6. Companies that claim exemption under Section 11 are those companies that have income from property held for charitable or religious purposes. All the companies eligible to file ITR 6 need to file their returns electronically and sign through digital signature.

2. ITR Forms

For persons including companies required to furnish return under Sections 139(4A) or 139(4B) or 139(4C) or 139(4D) only

Form ITR – 7 can be used by persons including companies who are required to furnish return under Section 139(4A) or Section 139(4B) or Section 139(4C) or Section 139(4D) (i.e., trusts, political parties, institutions, colleges, etc.).

2. ITR Forms

It is a form received from Income Tax department acknowledging the receipt of ITR.

3. Types of Returns

Let us discuss different types of returns one by one.

INCOME TAX RETURNS

Section 139(1) { • Compulsory filing of Return of Income

Section 139(3) { • Filing Income Tax in case of Loss

Section 139(4) { • Belated Tax Return

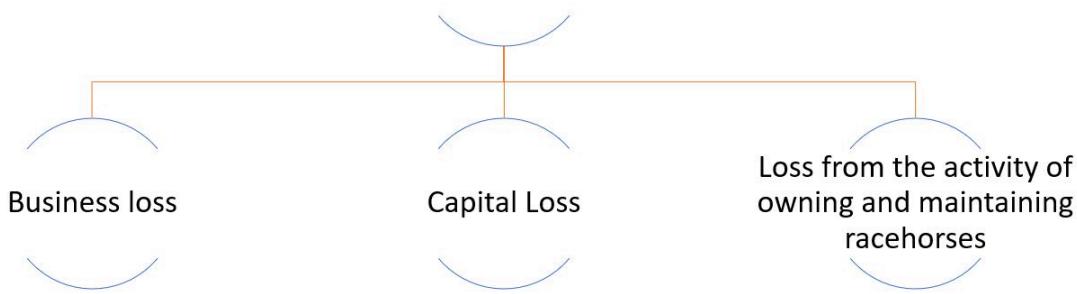
Section 139(5) { • Revised Return

Section 139(9) { • Defective Return

3. Types of Returns

When Return of Loss not submitted

Losses which cannot be carried forward



The requirements of Income-tax Act make it obligatory for the assessee to file a return of his total income even in cases where the assessee has incurred a loss under the head 'Profits and Gains from Business or Profession' or loss from 'maintenance of race horses' or under the head 'Capital gains'. Unless the assessee files a return of loss in the manner and within the same time limits as required for a return of income, the assessee would not be entitled to carry forward the loss for being set off against income in the subsequent year.

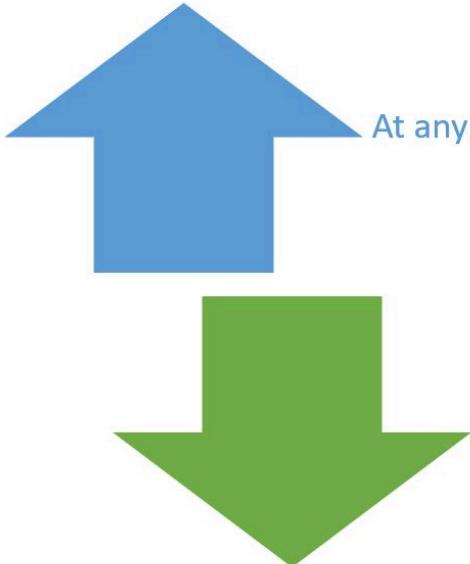
In other words, the following losses cannot be carried forward, if the return of loss is not submitted in time:

- a) Business loss (speculative or otherwise);
- b) Capital Loss; and
- c) Loss from the activity of owning and maintaining race horses.

However, the delay may be condoned, if few conditions are satisfied.

3. Types of Returns

FILE BELATED RETURN



At any time before the end of the relevant AY

OR

Before the completion of the assessment

whichever is earlier

Any person who has not filed the return within the time allowed under Section 139(1) may file a Belated Return:

- At any time before the end of the relevant assessment year, or
- Before the completion of the assessment*, whichever is earlier.

*Assessment refers to assessment made u/s 143(3) or 144. An intimation u/s 143(1) is not assessment. Consequently, if an assessee, files a revised return or belated return after the service of an intimation u/s 143(1) [but before the time given above], it will be duly considered by the Assessing Officer.

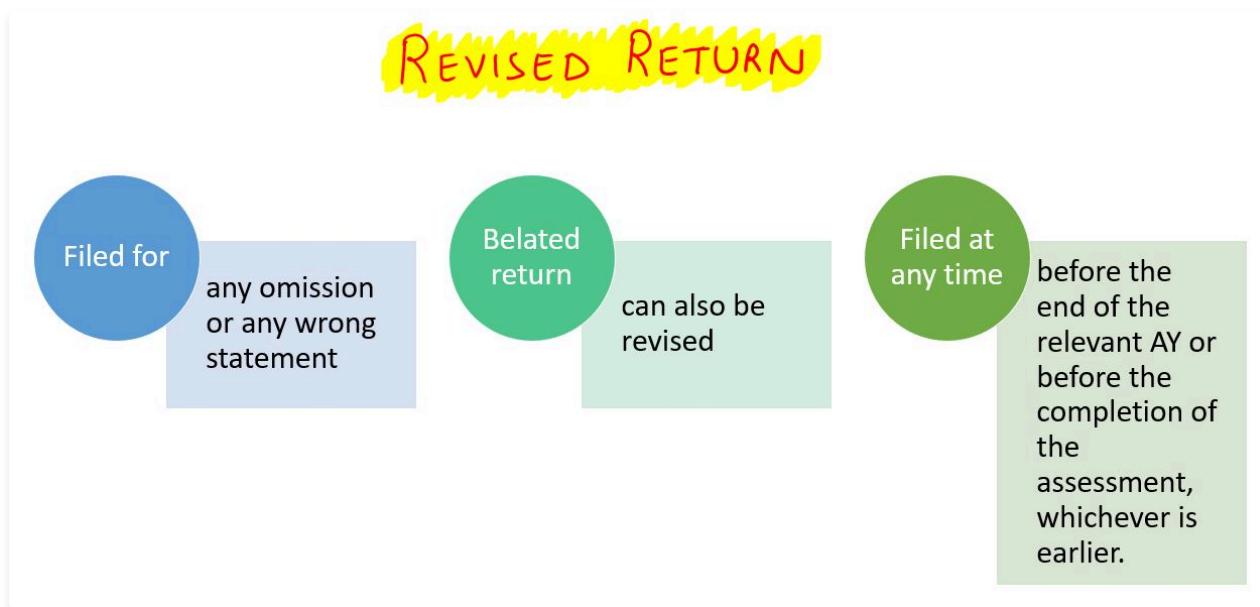
For example, an assessee is supposed to file return for the AY 2022-23 by 31st October, 2022. If it does not file return up to 31st October, 2022, then such return, if submitted after the said date, will be called a belated return. Such belated return may be submitted by the end of assessment year (i.e. up to 31st March, 2023). If, however, the assessment is completed before 31st March, 2023, then such return is to be submitted before the completion of assessment.

Further, if return is submitted after the due date of submission of return of income, the following consequences will be applicable, even if a belated return is submitted within the time-limit given above.

- The assessee will be liable for penal interest u/s 234A.
- The assessee shall be liable for late filing fee u/s 234F, i.e., Rs. 5,000 (if the return is furnished after the due date but on or before 31st December of the AY) or Rs. 10,000 (if the return is furnished after 31st December of the AY). However, the late filing fee amount shall not exceed Rs. 1,000, where the total income does not exceed Rs. 5,00,000.
- If return of loss is submitted after the due date, a few losses cannot be carried forward (as mentioned above under 'Return of Loss').
- If return is submitted after due date, deduction u/s 10A, 10B, 80-IA, 80-IAB, 80-IAC, 80-IB, 80-IBA, 80-IC, 80-ID, 80-IE, 80JJA, 80JJAA, 80LA, 80P, 80PA, 80QQB and 80RRB, will not be available.

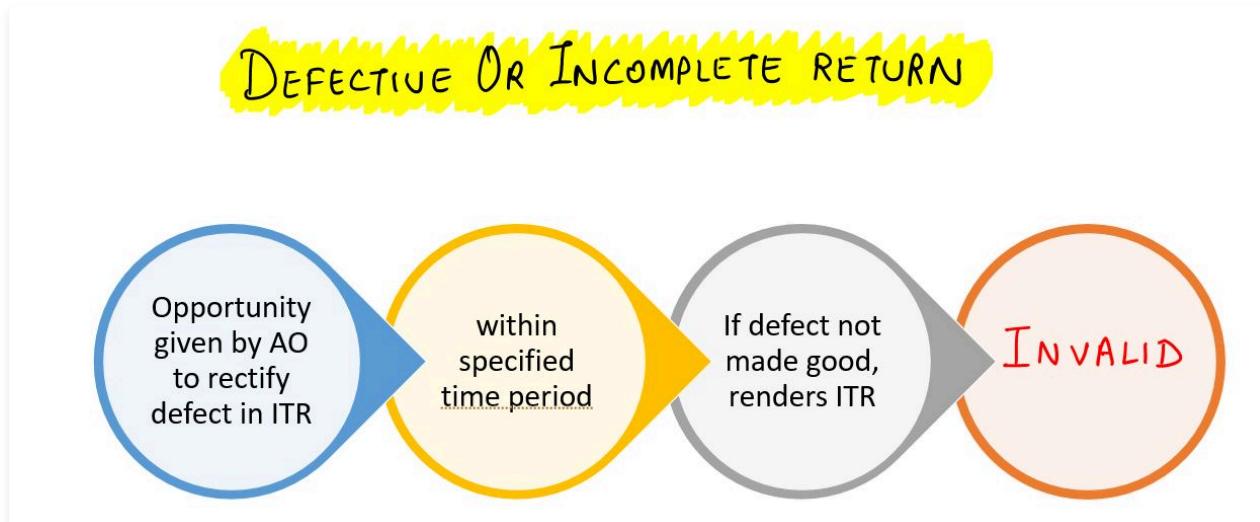
3. Types of Returns

If any person, having furnished a return u/s 139(1)/(4), discovers any omission or any wrong statement therein, he may furnish a 'Revised Return'. From AY 2017-18, even a belated return can be revised. Revised return can be filed at any time before the end of the relevant AY or before the completion of the assessment, whichever is earlier.



3. Types of Returns

If the Assessing Officer considers that the return submitted by the taxpayer is defective or incomplete, he may give the assessee, an opportunity to rectify the defect within a period of 15 days from the date of such intimation (the period can be extended by the officer on an application by the assessee). If the defect is not rectified by the assessee within the said (or extended) period, then the Assessing Officer shall treat the return as an invalid return and treat it as if the taxpayer had failed to furnish the return.

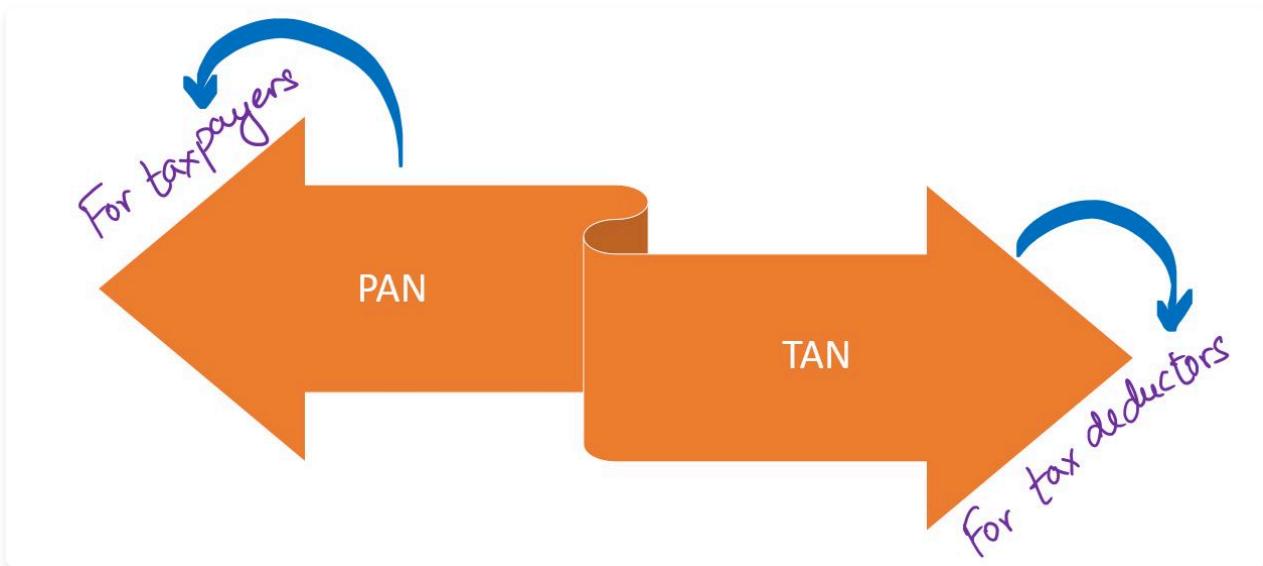


4. e-Filing

The List of documents required for 'E-filing' are listed below:

- a. PAN card
 - b. Aadhaar Card - According to Section 139AA of the Income-tax Act, an individual is required to provide his/her Aadhaar details while filing the return of his/her income.
 - c. Form 16 received from Employer - Form-16 consists of two parts: Part-A and Part-B. Part-A consists of all the details of the tax deducted by employer during the year. Apart from details of the tax deducted from the salary, it also consists of the details of your Permanent Account Number (PAN), PAN and TAN of the employer, whereas Part-B of the form consists of gross salary break-up details such as exempt allowances, perquisites, etc. Recently, the government revised the format of Form-16, which provides detailed breakup of the tax-exempt allowances paid to the employee and also tax breaks claimed by him via his employer.
 - d. Form 16A received from Banks (Form 16A is a certificate to endorse the amount of TDS for individuals whose earnings are generated from non-salary income).
 - e. Form 26AS - a consolidated annual tax statement which has information of all the taxes that have been deposited against PAN.
 - f. All Bank Statements
 - g. Property Details
 - h. Home Loan certificates
 - i. Investment proofs
 - j. Business/Profession income details
 - k. Advance tax challan
 - l. Pre-validation of bank account for ECS refund.
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5. PAN and TAN



PAN (Permanent Account Number) is a ten-digit unique alphanumeric number issued by the Income Tax Department. Section 139A of the Act covers provisions related to the PAN.

Every person, who has not been allotted any Permanent Account Number, is obliged to obtain it, if;

- 1) Total income assessable during the previous year exceeds the maximum amount which is not chargeable to tax.
- 2) Any person carrying on business or profession whose total sales turnover or gross receipts are likely to exceed Rs. 5,00,000 in any previous year.
- 3) The person is required to furnish a return of income under Section 139(4A) i.e. trust/charitable institutions.
- 4) Any resident person (not being an individual), which enters into a financial transaction of an amount aggregating to Rs. 2,50,000 or more in a financial year. In order to link the financial transaction entered by such resident entity every managing director, director, partner, trustee, author, founder, karta, chief executive officer, principal officer or office bearer of such entity, is required to obtain PAN w.e.f. 1st April, 2018.
- 5) Persons specified by the Central Government such as exporters/importers, assesseees under central excise/ service tax/ sales tax.
- 6) Besides, above cases, the Assessing officer may also allot a PAN to any other person by whom tax is payable. Thus, any other person may also apply for a PAN.

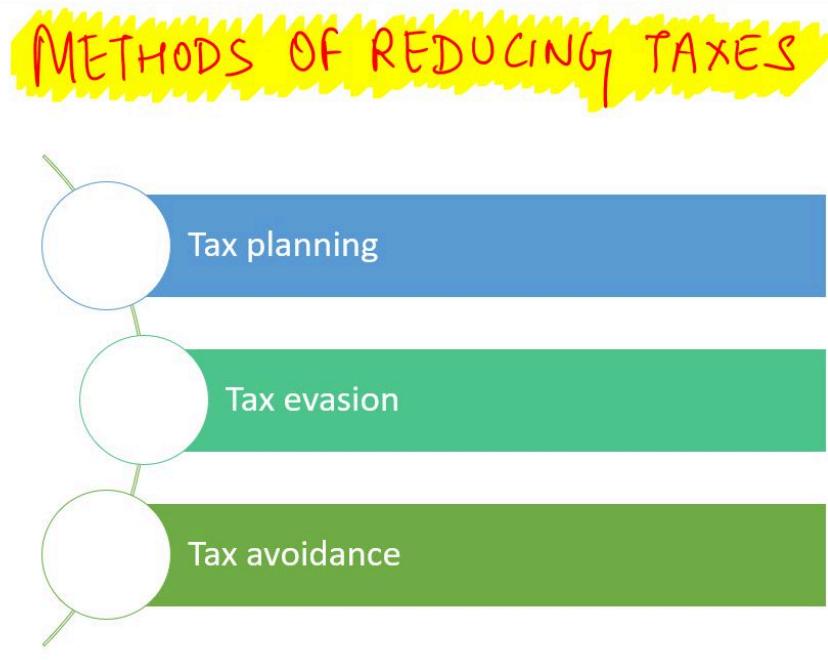
Tax Deduction and Collection Account Number (TAN)

TAN is a 10 Digit Alphanumeric Number and is used as an abbreviation for Tax Deduction and Collection Account Number. Every assessee liable to deduct TDS is required to apply for a TAN and shall quote this number in all TDS Returns, TDS Payments and any other communication regarding TDS with the Income Tax Department.

As per Section 203A of the Income Tax Act, 1961, it is mandatory for all assessees who are liable to deduct TDS, to quote TAN in all communications regarding TDS with the Income Tax Department, and failure to do so, attracts penalty.

1. Introduction

Tax planning, Tax evasion, Tax avoidance and Tax management are common concept when it comes to taxpayers' manners for tax reduction. All these terms comes under Income Tax Act, 1961.



The main goal of every taxpayer is to minimize his or her Tax Liability.

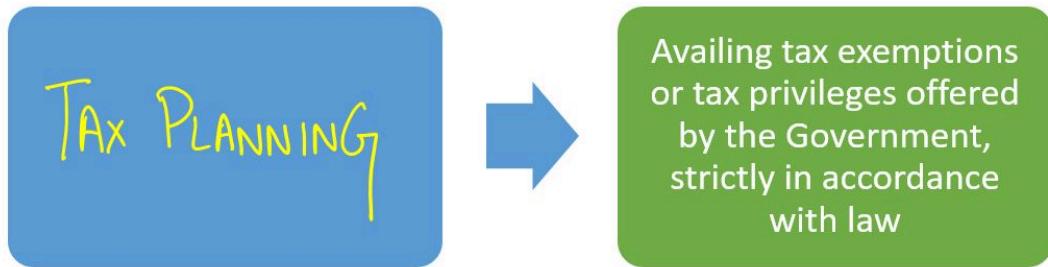
To achieve this objective taxpayer can go for these 3 Methods:

1. Tax Planning
2. Tax Avoidance
3. Tax Evasion.

These terms are discussed next one by one.

2. Tax Planning

Tax Planning can be defined as an arrangement of one's financial and economic affairs by taking complete legitimate benefit of all deductions, exemptions, allowances and rebates, so that tax liability reduces to minimum.



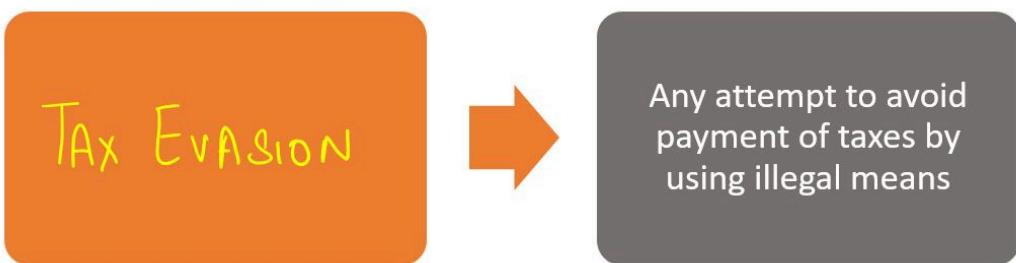
The main features of tax planning are:

- a) It comprises of arrangements by which tax laws are fully complied.
- b) All legal obligations and transactions (both individually and as a whole) are met.
- c) Transactions do not take the form of colourable devices.
- d) There is no intention to deceit the legal spirit behind the tax law.

For example, X is an individual. For the AY 2023-24, his gross total income is Rs. 12,90,000 attracting a tax liability of Rs. 2,07,480. To reduce his tax liability, he deposits Rs. 1,50,000 in Public Provident Fund Account. Consequently, his taxable income and tax liability, thereof, will be reduced to Rs. 11,40,000 and Rs. 1,60,680 respectively. Since, the tax liability is reduced within the legal framework, it is called 'Tax Planning'.

Similarly, doing business in an industrially backward State will entitle an assessee to claim deduction under Section 80-IB. This is an example of 'Tax Planning'.

3. Tax Evasion



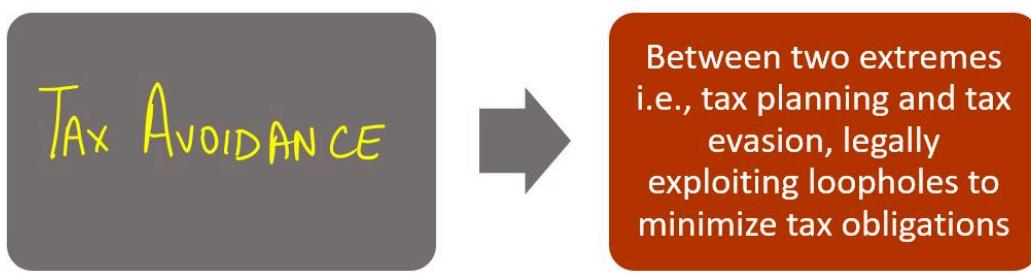
The methods by which tax liability is illegally avoided are termed as 'Tax Evasion'. An assessee guilty of tax evasion may be punished under the relevant laws. Tax evasion may involve stating an untrue statement knowingly, submitting misleading documents, suppression of facts, not maintaining proper accounts of income earned (if required under law), omission of material facts on assessment etc. All such procedures and methods are required by the statute to be abided by, but the assessee who dishonestly claims the benefit under the statute before complying with the said abidance by making false statements, would be within the ambit of tax evasion.

COMMON FORMS OF TAX EVASION

- Misrepresentation or suppression of facts
- Failure to record investments in books of account
- Claim of expenditure not substantiated by any evidence
- Recording of any false entry in books of account
- Failure to record any receipt in books of account having a bearing on total income
- Failure to report any international transaction or deemed international transaction or specified domestic transaction under transfer pricing provisions

For example, 'A' Industries Ltd. installed an air conditioner costing Rs. 63,000 at the residence of a director as per terms of his appointment; but treats it as fitted in quality control section in the factory. This is with the objective to treat it as plant for the purpose of computing depreciation. This is an example of tax evasion.

4. Tax Avoidance



Tax avoidance is reducing or negating tax liability in legally permissible ways and has legal sanctions.

The main features of tax avoidance are:

- a) Legitimate arrangement of affairs in such a way so as to minimize tax liability.
- b) Avoidance of tax is not 'tax evasion' and carries no public disgrace with it.
- c) An act valid in law cannot be treated as fictitious, merely, on the basis of some underlying motive supposedly resulting in lower payment of tax to authorities.
- d) There is no element of malafide motive involved in tax avoidance.

For example, if Rs. 50,000 is gifted by a husband to his wife, income generated, therefrom, is taxable in the hands of husband, under the clubbing provisions of Sec. 64(1). The said Section is not applicable, if gift is made by the same person out of the funds of his HUF, in capacity as karta of the family.

If gift is made by karta of the family to his wife, clubbing provisions can be avoided and ultimate tax liability will be reduced. However, the tax liability will be reduced by taking the help of a loophole in the law but within the legal framework. This is referred to as 'Tax Avoidance'.

5. Tax Management

Tax Management involves the compliance of law regularly and timely as well as the arrangement of the affairs of the business in such a manner that it reduces the tax liability. Functions under tax management includes maintenance of accounts, filing of returns, deduction and deposit of TDS on timely basis, payment of tax on time, appearing before the Appellate authority etc. Poor tax management can lead to imposition of interest, penalty and prosecution. Losses may not be carried forward and set off, if return of loss is not filed by due date.

Tax management emphasizes on compliance of legal formalities for minimization of taxes while tax planning emphasizes minimization of tax burden.

The difference between Tax Planning, Tax Evasion and Tax Avoidance is given below.

Basis	Tax Planning	Tax Avoidance	Tax Evasion
Meaning	It is to avail maximum benefit of deductions, exemptions, rebates, etc. for minimizing tax liability.	It refers to reducing the tax liability by finding out loopholes in the law.	It refers to reducing tax liability by dishonest means.
Legality	It is completely within the framework of law and it makes use of the beneficial provisions in law.	It complies with the legal language of the law but not the spirit of the law.	It is clearly violation of law and unethical in nature. It includes an element of deceit.
Acceptance	This concept is very well accepted by the Judiciary in India.	This concept can be considered heinous to tax evasion. Government brings amendments to curb such practices and to plug the loopholes.	This is clearly prohibited, as it is fully illegal.
Penalties & Prosecution	It does not result in levy of penalty and prosecution as it is within the language and spirit of law.	It may result in disregarding the transaction done to avoid tax and may/may not result in penalties and prosecution against the person engaged in it.	It results in stringent penalties and prosecution against the person engaged in it.
Time Period	It is futuristic in nature, i.e., it aims to minimize the tax liability of the future years.	It is also futuristic in nature.	It aims at evading the payment of tax after the liability to tax has arisen.
Example	An enterprise opening a three star hotel to claim deduction under Section 35AD.	An enterprise shifting its income by transfer of its assets to another person.	An enterprise inflating its expenses by showing fake invoices to claim more deductions.

6. Techniques of Tax Planning

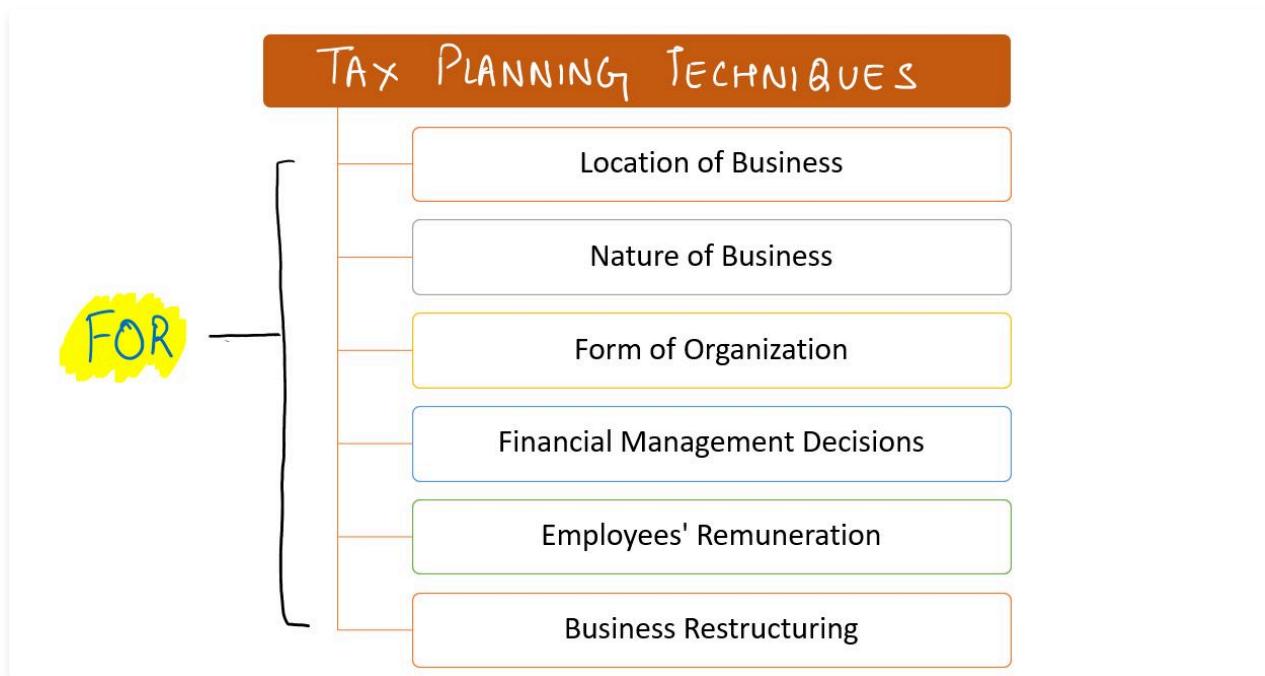
The systems and methods of tax planning, in any case, will depend upon the result sought to be achieved. Broadly, the various methods of tax planning will be either by **short-range tax planning or long-range tax planning**.

The short-range tax planning has a limited objective. An assessee, whose total income is likely to register unusual growth in a particular year on account of say, sale of capital asset like house property, as compared to the preceding year, might plan to invest the same in notified bonds, bonds of NHAI or REC Ltd. to claim exemption under Sec. 54EC. This has a lock-in period of 3 years. Such a plan does not involve any permanent or long-term commitment and yet it results in substantial tax saving. This is an example of short-range tax planning.

The long-range tax planning, on the other hand, may not even confer immediate tax benefits. However, it may pay-off in distant a future. For instance, in a case where an assessee transfers certain shares to his spouse, the income arising from the shares will, of course, be clubbed with the transferor's income. However, if the company subsequently issues bonus shares in respect of those shares, the income arising from the bonus shares will not be clubbed with the transferor's income. Similarly, the income arising out of the investment of the income from the transferred assets will also not be clubbed with transferor's income. Long range tax planning may be resorted to even for domestic or family reasons.

7. Techniques of Corporate Tax Planning

We shall now study various instances of tax planning measures in case of corporate assesses one by one.



7. Techniques of Corporate Tax Planning

Many factors affect location of a business and one can take the benefit of various tax incentives owing to location of a business, which are available under the Act, such as:

- 1) Under Sec. 10AA in the case of newly established units in SEZ (Special Economic Zone) - Deduction under this section is available to all categories of assessees, being entrepreneurs viz., individuals, firms, companies, etc. who derive any profits or gains from an undertaking being a unit engaged in the export of articles or things or providing any service on or after 01.04.2006 but before 01.04.2021 in any SEZ. The benefit under this section will not be available to units commencing activities on or after 01.04.2021. The deduction is allowed for 15 years.
 - 2) Under Sec. 80-IA, in respect of profits and gains from Industrial undertaking or enterprises engaged in infrastructure development, etc.
 - 3) Under Sec. 80-IAB, in respect of profits and gains, by an undertaking or enterprise engaged in development of SEZ.
 - 4) Under Sec. 80-IB, in respect profits and gains from certain industrial undertakings other than infrastructure development undertakings.
 - 5) Under Sec. 80-IC, in respect of profits and gains of certain undertaking in certain special category of states.
 - 6) Under Sec. 80-ID, in respect of profits and gains of hotels and convention centres in NCR.
 - 7) Under Sec. 80-IE, in respect of profits and gains of certain undertakings in North-Eastern States.
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7. Techniques of Corporate Tax Planning

Many incentives are available under the Act which are directly co-related with the nature of business. Some of these incentives are as follows:

- 1) Exemption in the case of units in SEZ (Sec. 10AA)
 - 2) Investment allowance in a notified backward area in Andhra Pradesh, Bihar, Telangana or West Bengal (Sec. 32AD)
 - 3) Tea Development Account (Sec. 33AB)
 - 4) Telecommunication services (Sec. 35ABB)
 - 5) Expenditure on specified business (Sec. 35AD)
 - 6) Weighted deduction for expenditure incurred on agricultural extension project (Sec. 35CCC)
 - 7) Weighted deduction for expenditure for skill development (Sec. 35CCD)
 - 8) Special provision for deduction in the case of business for prospecting for mineral oil (Sec. 42 & 44BB)
 - 9) Special provisions for computing profits and gains for a business (Sec. 44AD)
 - 10) Special provisions in the case of business of plying, hiring or leasing goods carriages (Sec. 44AE)
 - 11) Profits and gains from Industrial Undertaking engaged in Infrastructure, etc. (Sec. 80-IA).
 - 12) Profits and gains by an undertaking or enterprise engaged in development of SEZ (Sec. 80-IAB)
 - 13) Profits and gains in respect of an eligible start-up (Sec. 80-IAC)
 - 14) Profits and gains from certain industrial undertakings other than infrastructure development undertakings (Sec. 80-IB)
 - 15) Profits and gains in respect of housing projects (Sec. 80-IBA)
 - 16) Profits and gains of certain undertakings in certain special category of States (Sec. 80-IC)
 - 17) Deduction in respect of employment of new workmen (Sec. 80JJAA)
 - 18) Tonnage Tax Scheme (Sec. 115V to 115VZC)
-

7. Techniques of Corporate Tax Planning

Among other considerations (like requirement of finance, resources, personal liability of owner, level of operation, quantum of profit, specified requirement of technical expertise), tax incentives play an important role in selecting a suitable form of organisation for a new business. One can take a decision while comparing tax liability under different organisation forms.

Following general implications are worth noting in this regard:

- 1) Aggregate amount of tax liability on firm and partners is generally higher than that in the case when the same amount of income is generated through sole proprietorship. One should, therefore, consider the possibility of converting firms into sole proprietorships.
- 2) Tax incidence is generally lower in case of small firms as compared to private limited companies (if simple model of two partners/ directors is taken). However, tax incidence would be lower in the case of private limited company than that of a firm, if the number of directors of the company (as well as total remuneration to them) is increased.
- 3) In the case of companies, expenses on perquisites extended to directors are allowable as deduction.
- 4) An LLP is an alternative corporate business firm, that gives the benefits of limited liability of a company and the flexibility of a partnership. LLP is liable to the outsiders to the extent of its assets. However, liability of the partners is limited to their agreed contribution in the LLP. Thus, LLP contains elements of both a corporate structure as well as partnership form structure. It is taxable like traditional partnership firm at the rate of 30% (effective maximum rate is 34.944%). Moreover, it is liable for audit under the LLP Act, 2008, only if its turnover exceeds Rs. 40 Lakh or its capital contribution exceeds Rs. 25 Lakh.

The table given below compares the tax benefits available to a firm, LLP and company:

Particulars	Firm (including LLP)	Company
Tax Rates	34.944%	34.944% (except few cases where lower rates are applicable)
MAT/ AMT	AMT is applicable if normal tax liability is less than 18.5% (+SC+HEC) of adjusted total income	MAT is applicable, if normal tax liability is lower than 15% (+SC+HEC) of book profit
Dividend Tax	Not applicable	Dividend Tax u/s 115-O not applicable w.e.f. 01.04.2020
Tax treatment in the hands of shareholders or partners	Share of profit in firm is not taxable in the hands of partners	Taxable in the hands of shareholders w.e.f. AY 2021-22.
Interest on capital to partners or shareholders	Deductible, if permitted by the partnership deed and rate of interest does not exceed 12%, along with satisfaction of conditions of Sec. 184	Shareholders cannot be paid interest on share capital. Shareholders get dividend on shares, dividend payment is not a deductible expenditure.
Remuneration to partners or shareholders	Deductible, if conditions of Sec. 40(b) and 184 are satisfied. Aggregate amount deductible cannot, however, exceed 90% of first 3 Lakh of book profit and 60% of the balance	Shareholders can join the company as employees. Remuneration can be paid. There is no maximum ceiling. However, Sec. 40A(2) is applicable
Loan to partners/ shareholders	Not taxable as income	Treated as deemed dividend u/s 2(22)(e), if a few conditions are satisfied and the company is a company in which the public are not substantially interested. Such deemed dividend is taxable in the hands of recipient (w.e.f. AY 2021-22)
Applicability of Presumptive taxation Scheme u/s 44AD	Applicable in case of firm and not applicable in case of LLP	Not applicable
Whether expenditure for family planning for the benefit of employees is deductible u/s 36(1)(ix)	Cannot be claimed as deduction under Sec. 36(1)(ix). However, deduction can be claimed u/s 32 and 37	Can be claimed as deduction u/s 36(1)(ix)

7. Techniques of Corporate Tax Planning

We will study this under 2 heads; (a) Planning for capital structure and (b) Dividend distribution decisions.

These are discussed next one by one.

7. Techniques of Corporate Tax Planning

Problem of planning capital structure is of crucial importance and has long-term implications. The tax planner should properly balance risk, cost, control and tax consideration. In capital structure decisions, the cost of capital is an important consideration along with risk factor. One of the main reasons for raising finance through borrowing (as against issue of equity shares) is to increase earning on equity share capital. But excessive use of debt capital increases the financial risk of the company.

Under tax laws, dividend on shares is not deductible and distributed profit is subject to dividend tax. On the other hand, interest paid on borrowed capital is allowed as deduction u/s 36(1)(iii). Cost of raising finance through borrowing is deductible in the year in which it is incurred (if, however, it is incurred during pre-commencement period, it has to be capitalized). Cost of issue of shares is allowed as a deduction in 5 years u/s 35D. Because of the aforesaid provisions, corporate taxation plays an important role in determining the choice between different sources of financing.

7. Techniques of Corporate Tax Planning

X Ltd. is a widely held company. It is currently considering a major expansion of its production facilities and the following alternatives are available.

	(Amt. in Rs.)		
	Alternative 1	Alternative 2	Alternative 3
Share capital	5,00,00,000	2,00,00,000	1,00,00,000
11% Debentures	-	2,00,00,000	1,50,00,000
Loan from bank @ 10%	-	1,00,00,000	2,50,00,000
Total	5,00,00,000	5,00,00,000	5,00,00,000

Expected rate of return (before tax) is 25%. The rate of dividend of the company since 1990 is not less than 20% and the date of dividend declaration is June 30 every year.

Solution

	Alternative		
	1	2	3
Return on Rs 5 crore	1,25,00,000	1,25,00,000	1,25,00,000
Less: Interest on Debentures	-	22,00,000	16,50,000
Interest on Loan	-	10,00,000	25,00,000
TAXABLE PROFIT (A)	1,25,00,000	93,00,000	83,50,000
Tax @ 30%	37,50,000	27,90,000	25,05,000
Surcharge @ 7%	2,62,500	-	-
HEC @ 4%	1,60,500	1,11,600	1,09,200
TOTAL TAX (B)	41,73,000	29,01,600	26,05,200

Return on Equity	83,27,000	63,98,400	57,44,800
Rate of Return	16.65%	31.99%	57.45%

3rd alternative
to be opted

The Company should, therefore, opt for the third alternative.

7. Techniques of Corporate Tax Planning

The tax considerations to be kept in mind, with respect to dividend, are discussed below.

Meaning of Dividend

'Dividend' usually refers to the distribution of profits by a company to its shareholders.

However, in view of Sec. 2(22) of the Income-tax Act, the dividend shall include the following:

- (a) Distribution of accumulated profits to shareholders entailing release of the company's assets;
- (b) Distribution of debentures or deposit certificates to shareholders out of the accumulated profits of the company and issue of bonus shares to preference shareholders out of accumulated profits;
- (c) Distribution made to shareholders of the company on its liquidation out of accumulated profits;
- (d) Distribution to shareholders out of accumulated profits on the reduction of capital by the company; and
- (e) Loan or advance made by a closely held company to its shareholder out of accumulated profits.

Taxability provisions of Dividend Income upto AY 2020-21

Taxability provisions up to AY 2020-2021 are listed below.

- 1) Upto AY 2020-21, if a shareholder gets dividend from a domestic company, then he shall not be liable to pay any tax on such dividend, as it is exempt from tax under Section 10(34) of the Act. However, in such cases, the domestic company is liable to pay a Dividend Distribution Tax (DDT) under Section 115-O. In other words, up to AY 2020-21, dividend paid by the domestic company is subject to Dividend Distribution Tax (DDT) u/s 115-O and such tax was payable by the Company.
- 2) Further, dividend received from domestic company by all resident persons (other than domestic company and approved or registered charitable trusts) shall be chargeable to tax at the rate of 10%, if aggregate amount of dividend received during the year, exceeds Rs. 10,00,000 (by virtue of certain dividends received from domestic companies u/s 115BBDA).
- 3) Deemed dividend referred to in Section 2(22)(e) shall also be taxable in the hands of the Company @ 30%.
- 4) The dividend received from a domestic company is exempt in the hands of the shareholders.
- 5) Similarly, although income from units is exempt in the hands of shareholders, but the mutual funds or specified company shall be liable to pay additional income-tax on the amount of income distributed by it.
- 6) Dividend from a foreign company shall, however, be taxable under the head 'Income from other sources'.

Taxability provisions of Dividend Income from AY 2021-22 onwards

Taxability provisions up to AY 2021-2022 onwards are listed below.

- 1) The Finance Act, 2020 has abolished the DDT and moved to the classical system of taxation, wherein, dividends are taxed in the hands of the investors. Therefore, the provisions of Section 115-O, shall not be applicable, if the dividend is distributed on or after 01-04-2020. Thus, if the dividend is distributed on or after 01-04-2020, the domestic companies shall not be liable to pay DDT and, consequently, shareholders shall be liable to pay tax on such dividend income. As dividend would now be taxable in the hands of the shareholder, various provisions of the Act have been revived, such as allowability of expenses from dividend income, deductibility of tax from dividend income, treatment of inter-corporate dividend, etc.
- 2) However, domestic companies shall be liable to deduct tax under Section 194 @ 10%, which shall be applicable to dividend distributed, declared or paid on or after 01-04-2020, to the resident shareholders, if the aggregate amount of dividend distributed or paid during the financial year to a shareholder exceeds Rs. 5,000.
- 3) Further, no tax shall be required to be deducted from the dividend paid or payable to LIC/ GIC/ any other insurer, in respect of any shares owned by it or in which it has full beneficial interest.
- 4) Where the dividend is payable to a non-resident or a foreign company, the tax shall be deducted under Section 195 in accordance with relevant DTAA (Double Taxation Avoidance Agreement).
- 5) Section 10(34), which provides an exemption to the shareholders in respect of dividend income, is withdrawn from AY 2020-21. Thus, dividend received during the financial year 2020-21 and onwards, shall now be taxable, in the hands of the shareholders.
- 6) Consequently, Section 115BBDA, which provides for taxability of dividend in excess of Rs. 10 lakhs, has no relevance as the entire amount of dividend shall be taxable in the hands of the shareholder.
- 7) The taxability of dividend and tax rate, thereon, shall depend upon many factors like residential status of the shareholders, relevant head of income, etc.

Inter-corporate dividend

As the taxability of dividend is proposed to be shifted from companies to shareholders, the Government has introduced a new Section 80M, under the Act, to remove the cascading effect, where a domestic company receives dividend from another

domestic company. However, nothing has been prescribed, where a domestic company receives dividend from a foreign company and further distribute the same to its shareholders. The taxability in such cases shall be as under:

Domestic company receives dividend from another domestic company

The provisions of Section 80M removes the cascading effect by providing that intercorporate dividend shall be reduced from total income of company receiving the dividend, if same is further distributed to shareholders, one month prior to the due date of filing of return.

Domestic company receives dividend from a foreign company

Dividend received by a domestic company from a foreign company, in which such domestic company has 26% or more equity shareholding, is taxable at a rate of 15% plus Surcharge and Health and Education Cess u/s 115BBD. Such tax shall be computed on a gross basis without allowing deduction for any expenditure.

Dividend received by a domestic company from a foreign company, in which equity shareholding of such domestic company is less than 26%, is taxable at normal tax rate. The domestic company can claim deduction for any expense incurred by it, for the purposes of earning such dividend income.

7. Techniques of Corporate Tax Planning

Remuneration planning requires consideration of two factors. First, one has to ensure that while calculating business income of the employer, remuneration paid to employees is fully deductible. If such expenditure is not allowed as deduction (or disallowed under any of the provisions), then tax liability of the employer increases. On the other hand, one has to see that remuneration received by the employees is taxable in their hands at concessional rates to minimise their tax liability and to maximise their take home pay.

Payment of salary/ allowance and perquisites to employees is allowable as deduction u/s 37(1). In addition, the employer has to ensure that proper tax is deducted at source u/s 192. To find out the tax incidence in respect of salary received by an employee, one has to study the provisions of Sections 5, 6, 9, 10, 15, 16, 17, 89 and 80C and 80U. It is also to be noted that fringe benefit tax has been abolished from AY 2010-11.

7. Techniques of Corporate Tax Planning

Business Restructuring refers to the process by which the business enterprises rearrange their affairs because of several reasons such as to acquire competitive strength, to avail tax related benefits, to keep pace with changing technology, to grow in size, etc. This happens through amalgamation, demerger, conversion of one business form to another, slump sale (means the transfer of one or more undertakings as a result of the sale for a lump sum consideration without values being assigned to the individual assets and liabilities in such sales) and many other modes.

There are certain tax benefits to the business entity while implementing decisions relating to business, restricting through any such mode. Few of them are discussed below. Please note that in case of demerger, the company whose undertaking is transferred pursuant to demerger is known as 'demerged' company and the company to which the undertaking is transferred is known as 'resulting company'.

Under Income Tax Act, demerger is possible between companies only.

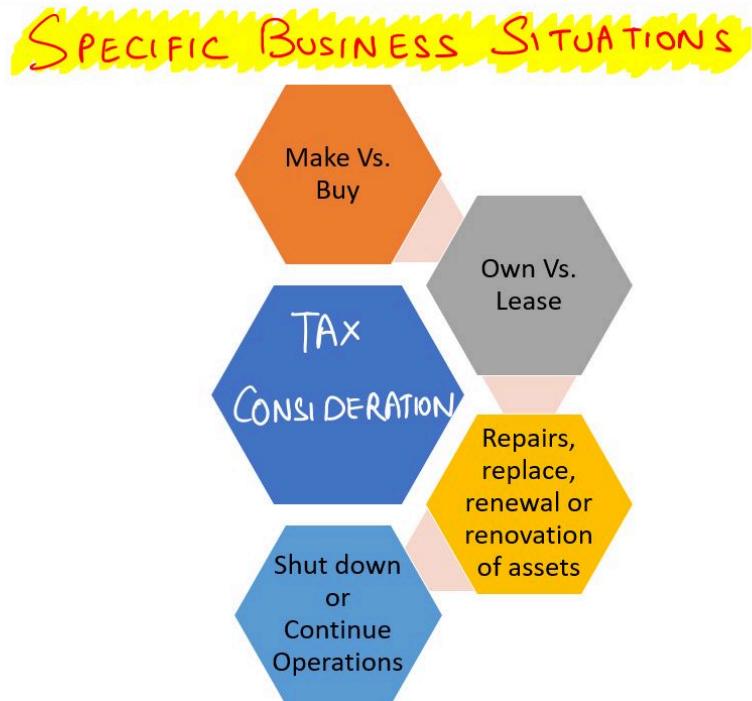
1) In case of Amalgamation/ Demerger

- a. The accumulated loss and the unabsorbed depreciation of the amalgamating company (or demerged company) shall be deemed to be loss/depreciation of the amalgamated company (or resulting company) for the previous year in which the amalgamation/demerger is effected, if prescribed conditions under the Act are fulfilled.
- b. Expenditure on Amalgamation/ Demerger (Sec. 35DD): Where an assessee, being an Indian Company, incurs expenditure (on or after April 1, 1999), wholly and exclusively for the purpose of amalgamation or demerger, the assessee shall be allowed a deduction equal to 1/5th of such expenditure for 5 successive previous years beginning with the previous year in which amalgamation or demerger takes place. Further, no deduction shall be allowed in respect of the above expenditure under any other provisions of the Act. The expenditure is allowed as deduction, even if such expenditure is of capital nature.
- c. Pursuant to amalgamation (or demerger), the amalgamated company (or the resulting company), in case, it is an Indian Company shall be entitled to benefits available under Sections 35, 35AB, 35ABB, 35D, 35DDA, 35E, 41, 80-IA and 80-IB, as they would have applied to the amalgamating company (or demerged company), if no amalgamation had taken place.
- d. Moreover, the deduction in respect of the previous year in which the amalgamation (or demerger) takes place shall be available only to the amalgamated company (or resulting company) and not to the amalgamating company (or demerged company). However, the rule regarding depreciation is different.
- e. Under Section 2(1B) of the Act, it is provided that, for availing the benefits of amalgamation, at least 75% of the shareholders of the amalgamating company should become shareholders of the amalgamated company. In case, more than 25% of the shareholders, are not willing to become shareholders of the amalgamated company, it is proposed that the amalgamating company may persuade the other shareholders who may be willing, to purchase the shares in the amalgamated company to acquire the shares of the remaining shareholders so that the percentage of dissenting shareholders does not exceed 25%. Alternatively, the amalgamated company, prior to, amalgamation, may purchase shares from such dissenting shareholders so as to make such dissenting shareholders to go below the specified percentage of 25%.
- f. The Act has made special provisions, regulating tax incidence on capital gains, in the case of demerger.

2) In case of conversion of Sole proprietary business or Firm into company

- a. The transfer of capital assets, in case of conversion of sole proprietary business into company, is not chargeable to tax by virtue of Sec. 47(xiv), subject to fulfilment of certain conditions.
 - b. In case of succession of a firm by a company, fulfilling all stipulated conditions, the accumulated loss and the unabsorbed depreciation of the predecessor firm, shall be deemed to be the loss or allowance for depreciation of the successor company for the previous year in which business reorganisation was effected and the other provisions of the Act relating to set-off and carry forward of loss and allowance for depreciation shall apply accordingly.
 - c. If, however, any of such conditions is not satisfied after conversion, then capital gain (which was not taxed earlier) will become chargeable to tax in the hands of company.
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8. Tax considerations in Specific Business Situations



In business, the decisions are taken with a view to optimize returns to the stakeholders. The effect of tax imposition on the bottom line, is an important aspect to be considered. It is significant that tax consequences, alone, need not bind the management to take a decision and it is not the only factor, which influences the management decisions. Moreover, in case of taxes, there are both direct as well as indirect taxes and for planning, implications of both category of taxes are required to be considered. Management decisions, which have a bearing on the bottom line are analysed below, from the point of view of income-tax implications.

Following are the important managerial decisions where tax becomes a major determinant.

8. Tax considerations in Specific Business Situations

Many costing or non-costing considerations guide the decision relating to 'make or buy'.

Some of these considerations are –

- (a) utilisation of capacity,
- (b) inadequacy of funds,
- (c) latest technology,
- (d) variable cost of manufacturing vis-à-vis purchase price,
- (e) dependence upon supplier,
- (f) labour problem in the factory, etc.

The following are the tax considerations, one has to keep in mind, while taking 'Make or Buy' decision:

- 1) **Establishing a new unit** – If the decision to manufacture a part or component involves setting up a separate industrial unit, then tax incentives available under Sections 10A, 10B, 32, 80-IA, 80-IB and 80-IC, have to be kept in mind.
- 2) **Sale of plant and machinery** – If buying is cheaper than manufacturing and the assessee decides to 'buy' parts or components for a long period of time, he may like to sell all the existing plant and machinery. For taking such decision, one has to consider the tax implications, as specified by Sec. 50 (i.e., Special provision for computation of capital gains in case of depreciable assets).

8. Tax considerations in Specific Business Situations

Leasing is an arrangement that provides a person with the use and control over an asset, for a price payable periodically, without having title of ownership. With the concept of leasing, gaining immense popularity in recent times, any business management is faced with the choice to purchase assets (by paying the cash in full) or to go in for leasing the asset (by paying periodical instalments). One must resolve this issue on economic considerations, taking into account, the different tax shield effects. The assessee should follow such a method for obtaining an asset which reduces his tax liability, and the profits after tax are higher.

If an asset is purchased, the assessee can claim depreciation. Besides, interest on capital borrowed, to finance investment in plant and machinery, can also be claimed as deduction. If, however, asset is obtained on lease, deduction can be claimed in respect of lease rentals and lease management fees.

8. Tax considerations in Specific Business Situations

The main tax consideration which one has to keep in mind is whether expenditure on repair, replace or renewal is deductible as revenue expenditure under Section 30, 31, or 37(1). If the expenditure is deductible as revenue expenditure under these sections, then cost of financing such expenditure is reduced to the extent of tax saved.

For instance, if tax rate is 34.608% and a renewal expenditure of Rs 1,00,000 is allowed as deduction under Section 30, 31 or 37(1), then effective out of pocket expenditure is Rs 65,392 (i.e., Rs. 1,00,000 minus 34.608% of Rs 1,00,000). On the other hand, if such expenditure is not allowed as deduction under the said sections, then it may be capitalised and, on the amount, so capitalised, depreciation is available, if certain conditions are satisfied.

8. Tax considerations in Specific Business Situations

A business may suffer loss due to fall in demand, financial problems, change in technology, high rate of taxes, mismanagement, etc. When a business suffers losses continuously, whatever the reason of loss may be, the management has to decide whether the business should be shut down or continued. While taking this decision, the impact of income tax provisions should not be overlooked.

Treatment of losses and unabsorbed depreciation in some specific cases

- 1) *Business loss* – The business or profession by which the loss was originally suffered, may or may not continue to be carried on by the assessee, during the year in which brought forward loss is sought to be set off.
- 2) *Unabsorbed depreciation* - If the business or profession has been discontinued, unabsorbed depreciation can be set off against income from business or profession or income under any other head and can be carried forward and set off for indefinite period, whether business is carried on or discontinued.

Where a part of business (unit, department, or activity) is discontinued or the business is continued with the reduced level of activity, it is not a discontinuation of business. Where the business of an industrial undertaking carried on in India is discontinued in the previous year by reason of extensive damage to, or destruction of any building, plant, machinery or furniture owned by the assessee and used for the purpose of such business is re-established, reconstructed or revived by the assessee within 3 years from the end of previous year in which the business was discontinued, the losses of such a business shall be carried forward or set off against the profits and gains of business or any other business carried on by him.

9. Minimum Alternate Tax

MAT stands for Minimum Alternate Tax and AMT stands for Alternate Minimum Tax. Initially, the concept of MAT was introduced for companies and progressively it has been made applicable to all other taxpayers in the form of AMT.

MAT was introduced by the Finance Act, 1987 with effect from assessment year 1988-89. Later on, it was withdrawn by the Finance Act, 1990 and then reintroduced by Finance Act, 1996, w.e.f. 01.04.1997.

9. Minimum Alternate Tax

The objective of introduction of MAT, is to bring within the ambit of taxation, net "zero tax companies", which in spite of having earned substantial book profits and having paid handsome dividends, do not pay any tax due to various tax concessions and incentives provided under the Income-tax Law.

Since the introduction of MAT, several changes have been introduced in the provisions of MAT and, today, it is levied on companies as per the provisions of Section 115JB.

9. Minimum Alternate Tax

As per the concept of MAT, the tax liability of a company will be **higher of the following**:

(a) Tax liability of the company computed as per the normal provisions of the Income-tax Law, i.e., tax computed on the taxable income of the company by applying the tax rate applicable to the company. Tax computed in above manner can be termed as 'normal tax liability'.

(b) Tax computed @ 15% (plus surcharge and cess as applicable) on 'book profit'. The tax computed by applying 15% (plus surcharge and cess as applicable) on book profit is called MAT.

Note: MAT is levied at the rate of 9% (plus surcharge and cess as applicable) in case of a company, being a unit of 'International Financial Services Centre' and deriving its income solely in convertible foreign exchange.

9. Minimum Alternate Tax

"Book profit" for the purposes of Section 115JB, means net profit as shown in the 'Statement of Profit and Loss' prepared in accordance with Schedule III to the Companies Act, 2013, as increased and decreased by certain items prescribed in this regard.

9. Minimum Alternate Tax

As per Section 115JB, every taxpayer being a company is liable to pay MAT, if the Income tax (including surcharge and cess) payable on the total income, computed as per the provisions of the Income-tax Act in respect of any year is less than 15% of its (Book-profit + Surcharge + Health & education cess).

However, the provisions of MAT are not applicable on:

- (a) The domestic companies which have opted for tax regimes under Section 115BAA or Section 115BAB;
 - (b) Any income accruing or arising to a company from the life insurance business referred to in Section 115B;
 - (c) Shipping company, the income of which is subject to tonnage taxation.
 - (d) An assessee, being a foreign company, if (i) the assessee is a resident of a country or a specified territory with which India has an agreement u/s 90 and 90A and the assessee does not have a permanent establishment in India in accordance with the provisions of such agreement; or (ii) the assessee is a resident of a country with which India does not have an agreement u/s 90 and 90A and the assessee is not required to seek registration under any law for the time being in force relating to companies.
 - (e) A foreign company, whose total income comprises of profits and gains arising from business referred to in Sections 44AB, 44BB, 44BBA, or 44BBB, and such income has been offered to tax at the rates specified in those sections.
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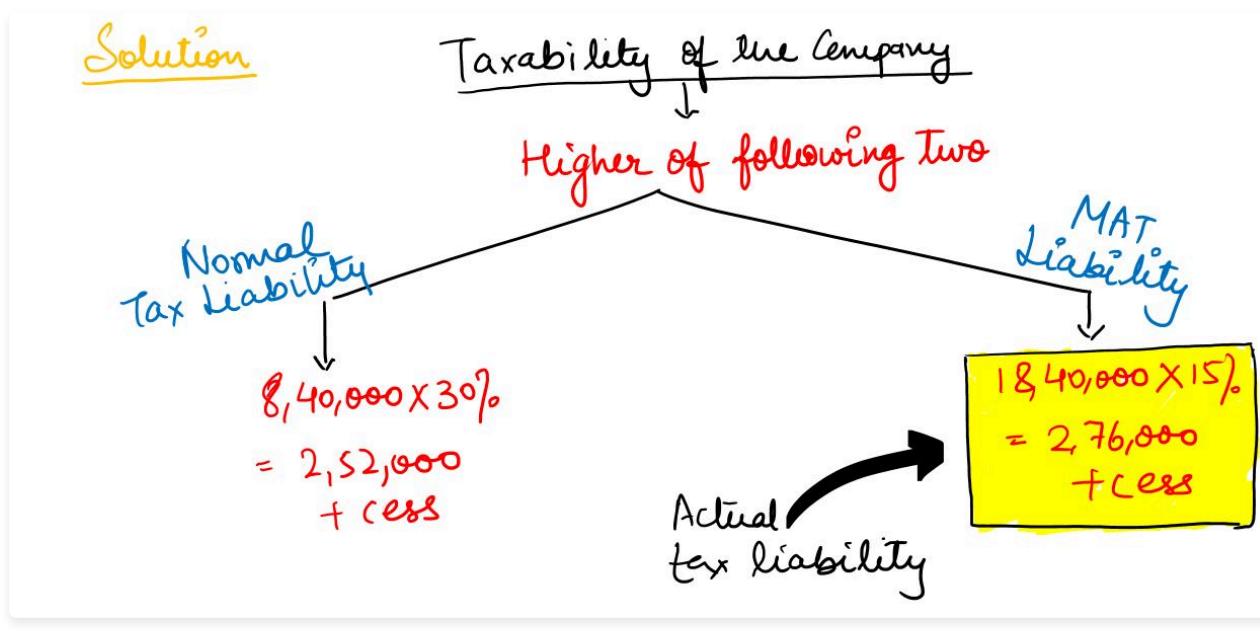
9. Minimum Alternate Tax

Significantly, MAT can be carried forward or set-off against regular tax payable, subject to certain conditions. If in any year, the company pays liability as per MAT, then it is entitled to claim credit of the excess amount paid over and above the normal tax liability in the subsequent year(s).

However, if MAT credit cannot be utilised by the company within a period of 15 years (immediately succeeding the assessment year in which such credit was generated), then it will lapse. No interest is paid to the taxpayer in respect of such credit.

9. Minimum Alternate Tax

The taxable income of ABC Private Ltd. computed as per the provisions of Income-tax Act is Rs. 8,40,000. Book profit of the company computed as per the provisions of section 115JB is Rs. 18,40,000. What will be the tax liability of ABC Private Ltd., assuming that it attracts tax at the rate of 30% (ignoring cess and surcharge)?



10. System of Advance Ruling

Advance Ruling means written opinion or authoritative decision by an Authority, empowered to render it with regard to the tax consequences of a transaction or proposed transaction or an assessment, in regard thereto. The rulings have been defined under Sec. 245N(a) of the Income Tax Act, 1961. As the rulings are given in advance of the concerned transactions, they are called advance rulings. The advance rulings given, are binding on the tax authorities, and the applicant who had sought such ruling, with reference to the particular cases in respect of which they are given.

From the tax payer's point of view, these rulings are most desirable because they give more assurance of certainty prior to entering into a transaction and guarantee more uniformity in the application of the tax legislation. They are desirable for the administration also, as they minimise the scope for controversy and litigation, reduce the time spent in answering question from tax payers and help to achieve a fair and co-ordinated tax administration.

Corporate Tax Rates and Returns

The Corporate Tax is paid, by the companies registered under Company law in India, on the net profit that it makes from businesses. It is taxed at a specific rate as prescribed by the Income Tax Act, subject to the changes in the rates every year by the IT department.

Following are the corporate income tax returns:

- 1) *ITR 6*: All the companies except companies claiming deduction u/s 11 need to file their return using Form ITR 6.
- 2) *ITR 7*: All the companies registered under Section 8 of Companies Act, 2013 are required to file their return using Form ITR 7.

Tax Audit

Income Tax Act requires a class of companies to get their accounts audited, and submit Audit report to the IT department along with the Income tax return. This audit is known as 'Tax Audit'. This tax audit report is also required to be mandatorily submitted by eligible companies by September 30.

1. Double Taxation & its Avoidance Mechanism

DOUBLE TAXATION

Taxation of income that crosses boundaries

Means taxing the same income twice, home country as well as host country

Discourages persons to engage in economic activities

Double taxation is an issue related with taxation of income that crosses boundaries. Here, an individual or a company may be earning his/ its income in a foreign country. But, that income is transferred to the home country. The issue is that, who has the right to tax such an income. Definitely, the source country (the country where income has generated, the country where the company or individual worked) would like to tax the income generated there. Similarly, the resident country (where the individual is residing or the company is incorporated) to which he/it belongs also tries to tax the income. This is because the income is generated by its resident. Now, if both countries try to tax the person/company, it is double taxation. Thus, 'Double taxation' means taxing the same income twice, once in the home country and again in the host country.

TYPES OF DTAAs

Comprehensive Agreements

Cover all sources of Income

Limited Agreements

Limited to certain types of income only

Such double taxation discourages the individual/company to engage in economic activities overseas. Hence, there should be mechanisms to avoid double taxation. But there is no international law to avoid double taxation. So, it is for the countries in the international arena, to solve double taxation problems by preparing bilateral agreements. Hence, negotiations are taking place between different countries and, as a result, large number of **Double Taxation Avoidance Agreements (DTAAs)** are reached to facilitate cross national economic activities by avoiding double taxation.

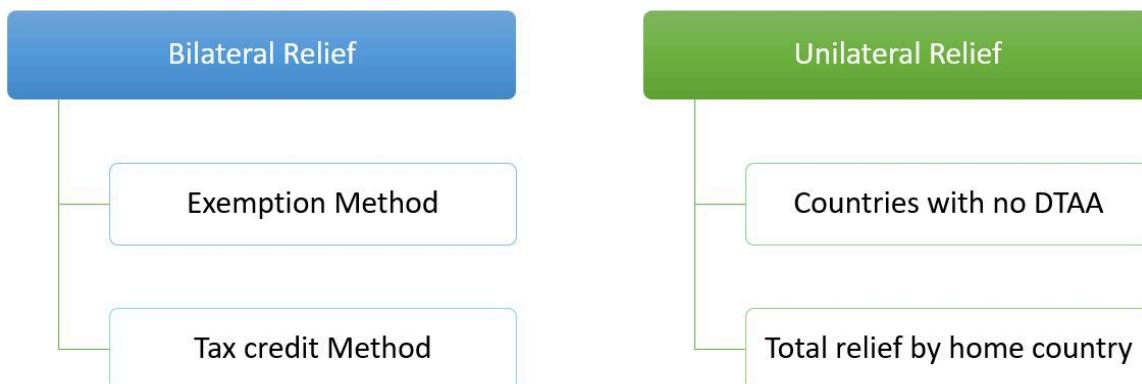
Double taxation avoidance treaties comprise of agreements between two countries, which, by eliminating international double taxation, promote exchange of goods, persons, services and investment of capital. These are bilateral economic agreements, where the countries concerned, evaluate the sacrifices and advantages, which the treaty brings for each contracting state, including tax forgone and compensating economic advantages. The right to tax a particular income, rate of taxes etc. are reached after bilateral discussion with the other country under the DTAA process. This is needed because each country has its own unique tax laws.

The 'Foreign Tax and Tax Research (FT&TR) Division' under 'Department of Revenue' negotiates and finalizes the Double Taxation Avoidance Agreements (DTAAs) which are entered into for twin purpose of (a) allocation of taxation rights between the

Contracting States with a view to avoid double taxation and (b) prevention of fiscal evasion through exchange of information, assistance in collection of taxes.

1. Double Taxation & its Avoidance Mechanism

TYPES OF DOUBLE TAXATION RELIEF



'Base Erosion and Profit Shifting' (BEPS) refers to strategies adopted by taxpayers having cross-border operations to exploit gaps and mismatches in tax rules of different jurisdictions, which enable them to shift profits outside the jurisdiction, where the economic activities giving rise to profits are undertaken, and where value is created. BEPS has been a cause of concern for developing and emerging economies for long, as it erodes their tax base, depriving them of much needed resources for developmental activities.

The 'Income Tax Act, 1961' resolves such issues by providing relief against double taxation under Section 90 and Section 91. There are 2 ways by which relief can be provided:

Bilateral relief

Under this method, the Governments of two countries enter into an agreement to provide relief against double taxation by jointly working out the system to grant it. In India, bilateral relief is provided under Section 90 and 90A of the Income-tax Act, 1961.

It may be granted by either of the following methods:

- (i) *Exemption Method*: A particular income is taxed in only one of the two countries.
- (ii) *Tax Credit Method*: Income is taxable in both countries in accordance with their respective tax laws read with DTAA. The country of resident taxpayer, however, allows him credit, for the tax charged, thereon, in the country of source.

Unilateral relief

Under this method, relief is provided by home country, irrespective of any agreement with the country concerned. This kind of relief exists because bilateral agreements might not be sufficient to meet all the cases. In India, Section 91 of the Income Tax Act, 1961 provides such relief. In other words, where Section 90 does not apply, relief under Section 91 will be available. Unilateral relief is only available in respect of doubly taxed income, that is part of income which is included in assessee's total income.

1. Double Taxation & its Avoidance Mechanism

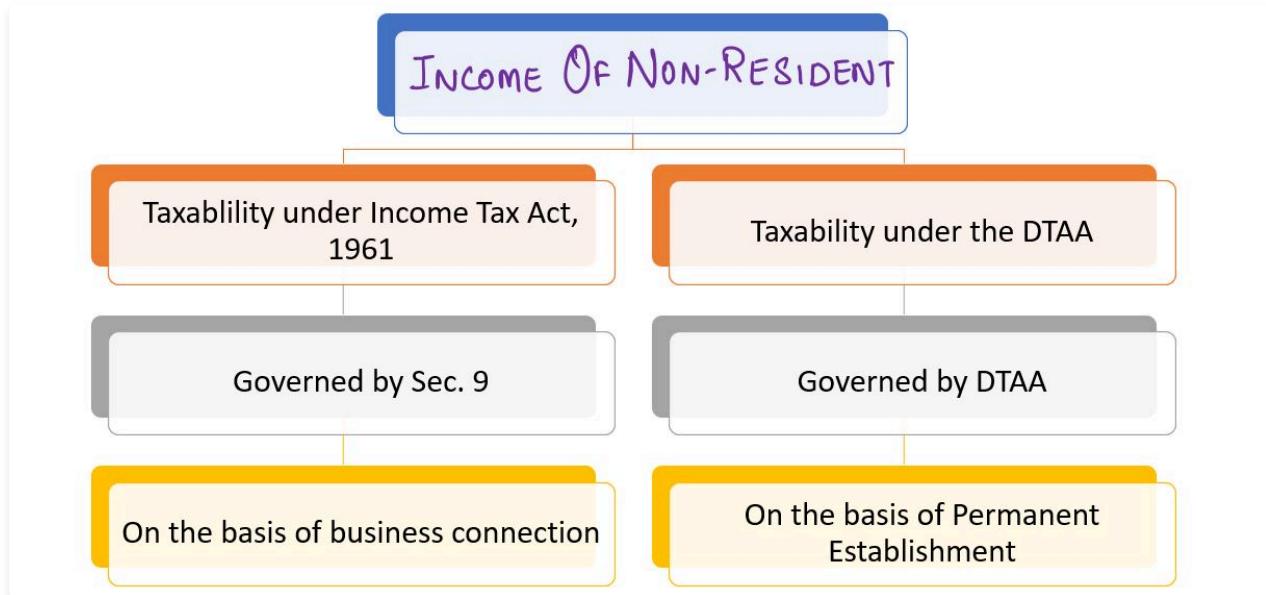
The Government of India had issued a Notification dated 24-3-1953 called the Income-tax (Double Taxation Relief) (Aden) Rules, 1953 providing for grant of relief in respect of income on which tax has been paid both in India and in Aden. These Rules being consistent with the corresponding provisions of the 1961 Act, continued to be operative.

1. Double Taxation & its Avoidance Mechanism

The Government of India had issued a Notification dated 23-6-1956 called the Income-tax (Double Taxation Relief) (Dominions) Rules, 1956, providing for grant of relief in respect of income on which tax has been paid both in India and in any of the following Dominions – (1) Kenya (2) Tanganyika (3) Uganda (4) Zanzibar (5) Gold Coast (6) Nigeria (7) Sierra Leone (8) Gambia (9) Mauritius. These rules being consistent with the corresponding provisions of the 1961 Act continued to be operative.

1. Double Taxation & its Avoidance Mechanism

In order to determine the taxability of business income of foreign enterprises operating in India, it is important to determine the existence of Permanent Establishment, which means a fixed place of business through which the business of an enterprise is wholly or partly carried on. It includes, a place of management, a branch, an office, a factory, a workshop, a sales outlet, a warehouse, a mine, an oil or gas well, a quarry, or any other place of extraction of natural resources.



DTAAs generally contain an Article providing that business income is taxable in the country of residence, unless the enterprise has a permanent establishment in the country of source, and such income can be attributed to the permanent establishment.

Section 9(1) (i) of the Income Tax Act, 1961 requires existence of business connection for deeming business incomes to accrue or arise in India.

DTAAs, however, provide that business income is taxable only if there is a permanent establishment in India.

Therefore, in cases covered by DTAAs, where there is no permanent establishment in India, business income cannot be brought to tax due to existence of business connection as per Sec. 9(1) (i).

However, in cases not covered by DTAAs, business income attributable to business connection is taxable.

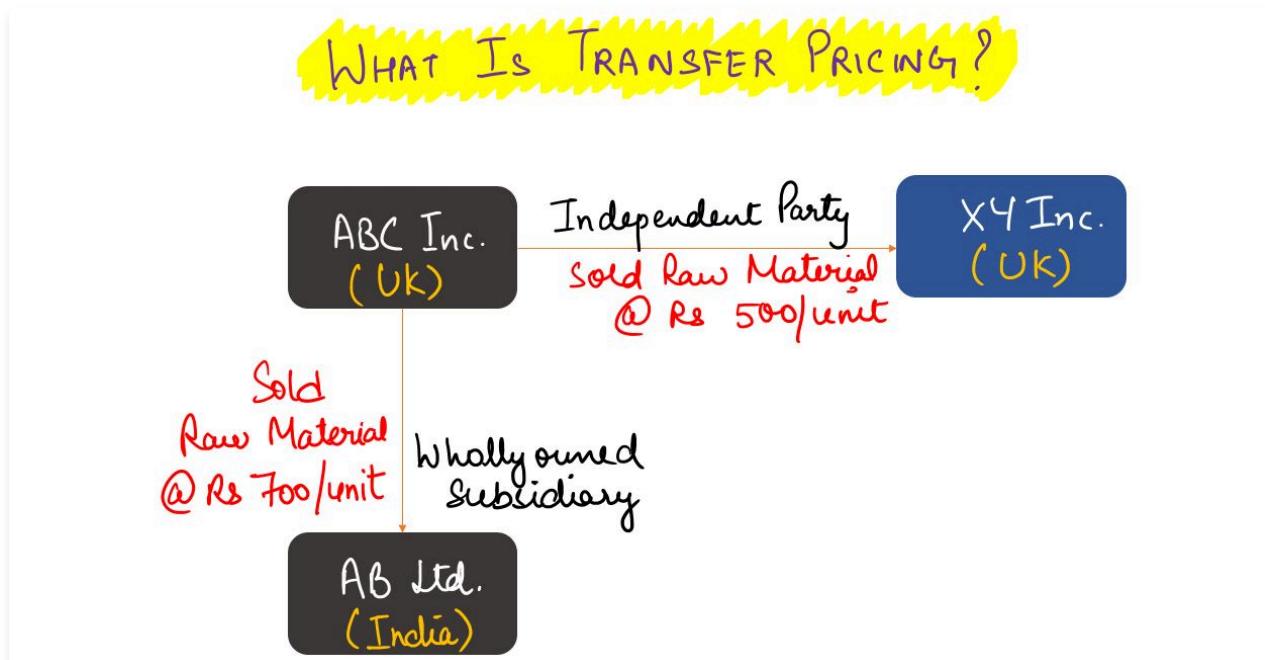
2. Transfer Pricing

With the advent of globalization, MNCs have established presence in all parts of the world and are conducting business seamlessly. They can enjoy the privileges of doing business with related parties such as price concessions, extended credit period, reduced interest rates, lower logistics expenses, etc. These privileges or advantages cannot be availed by other companies, which deal with unrelated parties in an open market. Therefore, to ensure safe and fair dealing among all companies and markets, the need to introduce regulations for transfer pricing was felt.

In addition to price related benefits, MNCs may also bear in mind two goals, i.e., minimizing tax burden and maximizing profits. At the same time, it is important for two tax jurisdictions (i.e., the countries in which an MNC is operating) to ensure that they are not losing their fair share of tax revenue in such cases. All this has given rise to an internationally accepted practice, that such 'transfer pricing' should be governed by the Arm's Length Principle (ALP) and the transfer price should be the price applicable in case of a transaction of arm's length. In other words, the transaction between associates should be priced in the same way as a transaction between independent enterprises.

The tax authorities implement transfer pricing regulations and strengthen the enforcement, in order to prevent a loss of revenue for each regime, where these companies are incorporated.

Let us understand the concept of transfer pricing with the help of an example.



In the given example, ABC Inc is trying to sell to AB Ltd. at a price higher than what it is charging to an independent party. Accordingly, it can claim deduction of higher expense in India, where tax rate is high (30%) and shift the profits to UK, where tax rate is low (15%). This is known as base erosion and profit shifting (BEPS). In this case, India will not allow deduction of Rs. 700 & restrict deduction to Rs. 500 (as Rs. 500 will be the Arm's Length Price).

2. Transfer Pricing

Why Arm's LENGTH PRICE?

Income from international transaction

to be computed having regard to

Arm's Length Price (ALP)

A price which is applied in a transaction between persons

other than associated enterprises, in uncontrolled conditions

The principles governing the taxation of MNC's are embodied in the OECD Model Tax Convention of Income and Capital, which serves as the basis for the bilateral income-tax treaties between Organization of Economic Cooperation and Development (OECD) member countries and between OECD member and non-OECD member countries.

According to these guidelines, 'Transfer Prices' are the prices at which an enterprise transfers physical goods and intangible property or provides services to associated enterprises. Two enterprises are "associated enterprises" if one of the enterprises participates directly or indirectly in the management, control or capital of the other, or if both enterprises are under common control. Over the period of time, with evolution of MNC concept, the term 'Transfer pricing' has evolved. Thus, 'Transfer Pricing' refers to the price which is charged between two or more entities of a MNC (Associated Enterprises or AEs) operating in different countries. By structuring transactions in a way, which is most beneficial to the MNC from a tax perspective, the MNC is basically able to steer and manage, where it books its profits and, therefore, also can influence actively the tax burden.

For example, X Limited, a trader of goods, purchases and sells goods as below:

Particulars	Related Parties	Unrelated Parties
Purchases	8,00,000	5,00,000
Sales	10,00,000	10,00,000
Profits	2,00,000	5,00,000

By increasing the cost of purchases from related parties, X Ltd. has reduced its taxable profits in the said jurisdiction. This, the tax administrators believe is unjust. Thus, to protect each country's fair share in an MNC's total profit, the tax authorities have established principles under which it can be assumed that related parties deal with each other as if they were independent and this principle is called the **Arm's Length Principle (ALP)**.

In the context of taxation, ALP is explained in the OECD Model Tax Convention as under:

"Where conditions are made or imposed between two associated enterprises in their commercial or financial relations which differ from those which would be made between independent enterprises, then any profits which would, but for those conditions, have accrued to one of the enterprises, but, by reason of those conditions, have not so accrued, may be included in the profits of that enterprise and taxed accordingly".

Thus, the Arm's Length Price (ALP) of a transaction between two associated enterprises, is the price, that would be paid if the transaction had taken place between two comparable independent and unrelated parties, where the consideration is only

commercial. The arm's length principle seeks to adjust the profits between two associated enterprises by comparing the same as if the transaction is carried out between two independent enterprises. It treats each enterprise as a separate independent entity rather than as inseparable parts of a single unified business.

2. Transfer Pricing

There are several reasons as to why the OECD member countries and other countries have adopted the arm's length principle.

- 1) ALP provides broad parity between MNCs and independent enterprises by avoiding creation of tax advantages and disadvantages that would otherwise distort the relative competitive position of these entities.
- 2) ALP permits the taxing authorities to rectify the accounts of the enterprise so as to reflect correctly, the income, that the establishment would have earned, if it were an independent enterprise. Thus, it helps in determining real taxable profits.
- 3) ALP leads to reduction of artificial price distortion. If the ALP is not followed, an MNC will sell goods or provide services to a controlled entity in a high tax regime at a high price (which exceeds the market price) and to an entity in a low-tax regime or a tax haven at a low price (which is lower than the market price). This would result in extreme price distortion of goods and services in the international market.
- 4) Since in an international transfer pricing, adjustment to the transfer price in one tax jurisdiction requires a corresponding adjustment in the other tax jurisdiction, the potential for double taxation is minimized.
- 5) The focus of the ALP is to ensure that the proper amount of income is attributed to where it is earned, resulting in each unit of the MNC earning a return commensurate with its economic contribution and risk assumed.

However, there are *certain practical difficulties* in applying the ALP, which includes difficulty in true comparison, in certain cases. These include difficulty in true comparison due to dissimilar condition between independent and associated enterprises; non-availability of reliable data; absence of market price; absence of comparable market for 'intangible' transactions; time lag between the verification process by the tax authorities and conditions prevailing at the time when the transaction was entered into.

2. Transfer Pricing

In India, the Finance Act, 2001 introduced 'Transfer Pricing Regulations' for curbing tax avoidance and manipulation of intra-group transactions by abusing transfer pricing. Accordingly, Section 92 to 92F had been included in Chapter X of the 'Income Tax Act, 1961', through the Finance Act, 2001, providing for a transfer pricing mechanism based on computation of income from cross-border transactions.

The following conditions must be satisfied in order to attract the special provision of Chapter X relating to avoidance of tax:

- (a) There must be an international transaction.
- (b) Such international transaction should be between two or more associated enterprises either or both of whom are non-residents.
- (c) Such an international transaction should be in the nature of:
 - 1. Purchase, sale or lease of tangible or intangible property; or
 - 2. Provision of service; or
 - 3. Lending or borrowing money; or
 - 4. Any other transaction having a bearing on the profits, income, losses or assets of such enterprise.
- (d) Further, such transaction may also involve allocation or apportionment of, or any contribution to any cost or expenses incurred or to be incurred in connection with a benefit, service or facility provided or to be provided to any one or more of the associated enterprises based on mutual agreement or arrangement between such associated enterprises.
- (e) Such international transaction must be done at arm's length price and if such international transaction has been done at less than the arm's length price, it shall require determination of income or apportionment of cost or expense based on arm's length price.
- (f) The above adjustment should either result in an increase of income or decrease of loss. In other words, the adjustment should not have the effect of reducing the income chargeable to tax or increasing the loss.

Thus, pursuant to the provisions of Chapter X of the Income Tax Act and Rule 10A to 10E of the Income Tax Rules, 1962, price paid for import of goods, properties or services and price received for export of goods, properties or services, will be subject to scrutiny by the Assessing Officer. Therefore, all assessees who have such dealings with non-residents will have to keep detailed records as prescribed under the Rules and will have to furnish audit report every year with the return of income about their international transactions.

It is also important to note that the objective of transfer pricing provisions is to protect the tax base of India and to ensure that due to inter-company transactions, there is no reduction in the taxable profits or the taxes paid by the Indian tax-payer. The reverse, however, does not hold true. In other words, the transfer pricing provisions shall not apply if the same has the effect of reducing the income chargeable to tax or increasing the loss of the assessee for the year under consideration.

2. Transfer Pricing

'Associated enterprises' are those which are owned or controlled by the same or common entity/ person. Section 92A of the Act defines the term 'Associated Enterprises' for the purpose of provisions relating to Transfer Pricing.

As per Sec. 92A(1) of the Act, an 'Associated Enterprise' refers to:

- 1) an enterprise which participates, directly or indirectly, or through one or more intermediaries in management/ control / capital of the enterprise. *For example*, where A Ltd. directly participates in management of B Ltd., both A Ltd. and B Ltd. are associated enterprises. Now, consider a situation where A Ltd. directly participates in management of B Ltd. and B Ltd. directly participates in management of C Ltd. In this case, A Ltd. has direct participation in management of B Ltd. but has an indirect participation in management of C Ltd. Therefore, in such situation, C Ltd. is also an associated enterprise of A Ltd.
- 2) If one or more person(s) participates, directly or indirectly, through one or more intermediaries in management/ control/ capital of two different enterprises, then, those two enterprises are 'associated enterprises'. *For example*, Mr. A directly has control in A Ltd. and B Ltd. In such case, both A Ltd. and B Ltd. are associated enterprises since they have a common person, i.e., Mrs. A, who controls both entities A Ltd. and B Ltd.

2. Transfer Pricing

DEEMED ASSOCIATED ENTERPRISES

Voting Power • 26% Control	Loan Threshold • 51% Assets	Guarantees • 10% Borrowings	Board Control • Majority Directors	Director Overlap • Same Appointments
IP Dependence • 100% Reliance	Supply Dependency • 90% Inputs	Price Influence • Supply Conditions	Sales Relationship • Price Influence	Individual Control • Joint Ownership
HUF Control • Family Affiliation	Firm Interest • 10% Ownership	Mutual Interest • Prescribed Relationship		

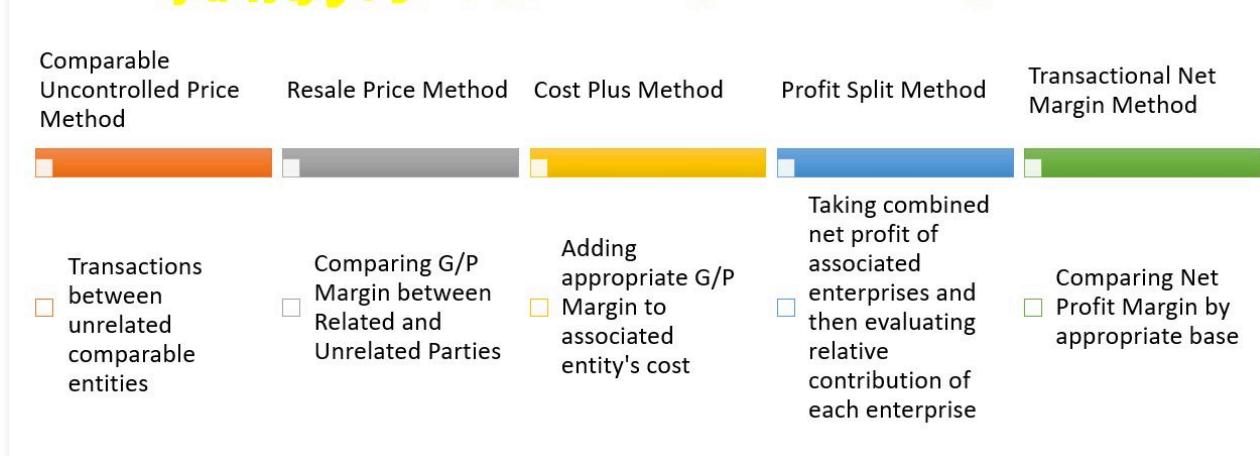
Two enterprises are deemed to be associated enterprises, if they fall under any one or more of the situations contained in Sec. 92A(2). This Section provides 13 such situations during which associated enterprise relationship is deemed to be established. Two enterprises are deemed to be 'associated enterprises' if:

- (i) One enterprise holds 26% or more of the voting power, directly or indirectly, in the other enterprise.
- (ii) Any person or enterprise holds 26% or more of the voting power, directly or indirectly, in each of two different enterprises.
- (iii) One enterprise advances loan to the other enterprise of an amount of 51% or more of the book value of the total assets of such other enterprise.
- (iv) One enterprise guarantees 10% or more of the total borrowings of the other enterprise.
- (v) One enterprise appoints more than half of the board of directors, or one or more executive directors of another enterprise.
- (vi) More than half of the directors or members of the governing board, or one or more of the executive directors or members of the governing board, of each of the two enterprises are appointed by the same person or persons.
- (vii) The manufacture or processing of goods or articles or business carried out by one enterprise is wholly dependent (i.e. 100%) on the know-how, patents, copyrights, trade-marks, licences, franchises or any other business or commercial rights of similar nature, or any data, documentation, drawing or specification relating to any patent, invention, model, design, secret formula or process, of which the other enterprise is the owner or in respect of which the other enterprise has exclusive rights.
- (viii) 90% or more of the raw materials and consumables required for the manufacture or processing of goods or articles or business carried out by one enterprise, are supplied by the other enterprise, or by persons specified by the other enterprise, where the prices and other conditions relating to the supply are influenced by such other enterprise.
- (ix) The goods or articles manufactured or processed by one enterprise, are sold to the other enterprise or to persons specified by the other enterprise, and the prices and other conditions relating thereto, are influenced by such other enterprise.
- (x) Where one enterprise is controlled by an individual, the other enterprise is also controlled by such individual or his relative or jointly by such individual and his relatives.
- (xi) Where one enterprise is controlled by a HUF and the other enterprise is controlled by a member of such HUF or by a relative of any such member or jointly by such member and his relative.
- (xii) Where one enterprise is a firm, association of persons or body of individuals, the other enterprise holds not less than 10% interest in such firm/AOP/ BOI.
- (xiii) There exists between the two enterprises, any relationship of mutual interest as prescribed.

3. Computation of Arm's Length Price

Section 92C deals with the method for determining arm's length price and the factors which are to be considered for applicability or non-applicability of a particular method to a given situation.

METHODS OF ARM'S LENGTH PRICING



The most appropriate method, from the methods given below, has to be applied for determination of arm's length price, in the prescribed manner.

Comparable Uncontrolled Price Method

A 'Comparable Uncontrolled Price' is the price agreed between unconnected parties for the transaction of goods or services under similar circumstances. After identification of price charged/ paid for property transferred or services provided under any comparable uncontrolled transaction(s), such price is adjusted to account for differences, if any, between the international transaction and comparable uncontrolled transactions, which could materially affect the price in the open market. Such adjusted price arrived, is taken as arm's length price, in respect of the property transferred or services provided in an international transaction. Here, uncontrolled transaction means a transaction between enterprises other than associated enterprises, whether resident or non-resident.

Resale Price Method (RPM)

It is a method which compares the gross margins (i.e. gross profit over sales) earned in transactions between related and unrelated parties for the determination of ALP. This method is generally used to test transactions involving distribution function, i.e., when the tested party purchases products/ acquires services from related party and resells the same to independent parties.

Cost Plus Method

It determines ALP by adding an appropriate gross profit margin to an associated entity's costs of producing goods or services. This method is most useful where semi-finished goods are sold between related parties, where related parties have concluded joint facility agreements or long-term buy-and-supply arrangements, or where the controlled transaction is the provision of services.

Profit Split Method

This is a method, which may be applicable, mainly in international transactions involving transfer of unique intangibles or in multiple international transactions which are so inter-related that they cannot be evaluated separately for the purpose of determining the ALP of any one transaction. In this method, combined net profit of the associated enterprises, arising out of international transaction in which they are engaged is determined. Then, there is an evaluation of relative contributions by each enterprise to the earning of such combined net profit on the basis of functions performed, risks assumed and assets employed by each enterprise. Such combined net profit is split amongst the enterprises in proportion to their relative contributions. Profit, thus, apportioned to the assessee, is taken into account to arrive at the arm's length price in relation to the international transaction.

Transactional Net Margin Method (TNMM)

Under this method, an arm's length price is determined by comparing the net profit margin in relation to an appropriate base

(for example costs, sales, assets) of the tested party with the net profit margin in relation to the same bases, of an uncontrolled party engaged in comparable transactions.

Other method as prescribed by CBDT

The other method allows the use of 'any method' which takes into account (a) the price which has been charged or paid, or (b) would have been charged or paid for the same or similar uncontrolled transactions with or between non-associated enterprises, under similar circumstances. The various data which may possibly be used for comparability purposes under this method could be third party quotations, valuation reports, tender/bid documents, documents relating to the negotiations, standard rate cards, commercial & economic business models, etc.

3. Computation of Arm's Length Price

The primary objective of the transfer pricing documentation is to review the arm's length (fair price) nature of the transactions taking place between different entities of an MNC. Where the aggregate value of international transactions does not exceed Rs. 1 crore, it will not be obligatory for the assessee to maintain the above information and documents. However, even if the aggregate value of the international transactions, is less than Rs. 1 crore, the assessee will have to maintain adequate records and evidence to show that the international transactions with associated enterprises, are on the basis of arm's length principle.

Time period

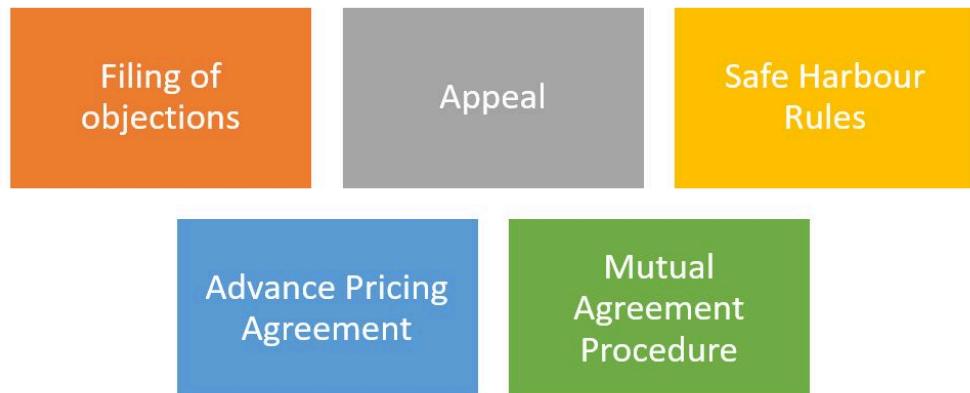
The above information and documents are required to be maintained for a period of 8 years from the end of the relevant assessment year.

Audit Report

Under Sec. 92E, every person who enters into an international transaction during a previous year, is required to obtain a report from a Chartered Accountant and furnish such report on or before the specified date in the prescribed form (Form No. 3CEB). Failure to furnish such report will attract a penalty of Rs. 1 Lakh to the person, who is required to submit such report.

3. Computation of Arm's Length Price

Modes Of Dispute Resolution



The evolving tax dispute resolution mechanism in India consists of the following forums:

- 1) Filing of objections before the Dispute Resolution Panel (DRP) or an appeal before the Commissioner of Income Tax (Appeals).
- 2) Appeal before the Income Tax Appellate Tribunal.
- 3) Appeal before the High Court/ Supreme Court.
- 4) Safe Harbour Rules (*Safe Harbour* means circumstances in which the income-tax authorities shall accept the transfer price declared by the assessee; in order to reduce the increasing number of transfer pricing audits and prolonged disputes).
- 5) Advance Pricing Agreement (to reduce litigation and to gain certainty to entering into an international transaction with an Associated Enterprise, the taxpayers have an option of applying for an Advance Pricing Agreement (APA) and obtaining results before the transaction is actually undertaken).
- 6) Mutual Agreement Procedure (through which tax administrations consult to resolve disputes regarding the application of double tax conventions).

4. Equalisation Levy

EQUALISATION LEVY			
Direct Tax	Conditions	Rate	Extension in 2020
<ul style="list-style-type: none"> •taxing digital transactions i.e. income accruing to foreign e-commerce Cos. in India •Withheld at the time of payment by the service recipient •Also called Google Tax 	<ul style="list-style-type: none"> •Payment should be made to Non-Resident Service Provider •Exceeds Rs 1,00,000 in one FY to one Service Provider 	<ul style="list-style-type: none"> •@ 6% of the amount of consideration received/ receivable by NR 	<ul style="list-style-type: none"> •To all e-commerce operators and ecommerce supply/services •@ 2% on consideration received/receivable from e-commerce supply/service •Not applicable if sales/ turnover/gross receipts is less than Rs. 2 crore during PY

NOTE: Equalisation Levy has been totally scrapped in India from 01 April 2025.

A new tax by the name of 'Equalisation Levy' was introduced in the Finance Act, 2016. The introduction of the levy was based on the recommendations of a Committee comprising of officers of the Income-tax Department and member of the general public, constituted by the Government to deliberate on the issue of taxation of the digital economy in the light of the report on Action Plan 1 of the OECD Base Erosion and Profit Shifting (BEPS) project and suggest possible measures.

Currently, not all services, are covered under the ambit of equalisation levy. The following services are covered:

- a) Online advertisement;
- b) Any provision for digital advertising space or facilities/ service for the purpose of online advertisement;
- c) Any other service, as may be notified by the Central Government.

It is also called **Google Tax**.

Presently, the levy is charged @ 6% of the amount of consideration for specified services received or receivable by a non-resident, not having 'Permanent Establishment' (PE) in India, from a resident in India, who carries out business or profession, or from a non-resident having permanent establishment in India, where the aggregate amount of such consideration exceeds Rs 1 lakh in a previous year.

The imposition of Equalization Levy has led to an increase in tax collection. Further, the introduction of taxation based on significant economic presence is also expected to increase tax collection as it seeks to widen the tax base in India by establishing business connection and charging to tax income earned by digital businesses which operate out of jurisdictions with which India has not entered into a Double Taxation Avoidance Agreement (DTAA). However, in respect of digital businesses operating out of jurisdictions with which India has already entered into a DTAA, significant economic presence will only be effective after renegotiation of such DTAA, which will be based on international consensus.

The Finance Act, 2020, to expand the scope of the "equalisation levy", included consideration received by e-commerce operators from e-commerce supply or services and taxed it at a rate of 2%. This levy has an effective date of 1st April 2020. However, in the **Budget 2024**, the government has decided to withdraw the 2% equalisation levy on e-commerce supply of goods and services from August 1, 2024.

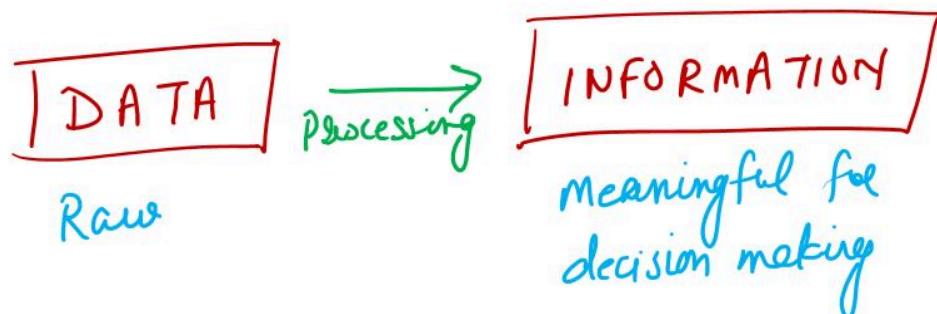
1. Background



In the digital age, computers have become an integral part of our daily lives, shaping the way we work, communicate, and access information. Understanding how computers work, from the intricate interplay of software and hardware to the critical aspects of networking and security, is not just a valuable skill; it's essential.

2. Data and Information

In today's world, information is one of the most important commodities for any business organization or government. The vast amount of data generated from various transactions is processed to create useful information for decision-making purposes. For instance, when a business sells a product to a customer, it generates a record of the sale. However, this data is not useful until it is processed and communicated for a specific purpose.



Data refers to the raw record of an event or fact, and it becomes useful only after some processing. For example, the record of the sale amount can be aggregated with other sales amounts and transferred to a debtor's control account. This processed information then becomes part of a trial balance sheet, which is presented to shareholders. In this way, the data is transformed into meaningful *information* that can be used for decision-making.

This highlights the importance of data processing and communication in creating useful information. Businesses deal with a wide variety of data through various transactions, and the ability to process this data and extract meaningful information is crucial for the success of the organization. Information derived from data can be used to make informed decisions and can provide valuable insights into the operations and development of an organization.

1. Amar's college uses a form to collect data from new students. The data is used to create information that can benefit the college. Which of the following statements are true about information?

- A. Information is raw facts and figures that have not been given a meaning.
- B. Information can be produced by processing raw data.
- C. Information is automatically encrypted when it is produced.
- D. Information is raw facts and figures that have been given a context.

- A and C Only
- A and B Only
- B and D Only
- C and D Only

Check

Question: 1 of 2 questions

3. Evolution of Computers

Mechanical Era

In 1823, Charles Babbage tried to build a mechanical computing machine capable of performing automatic multistep calculations. He named his machine a *difference engine*. This was designed to compute tables of functions such as logarithms and trigonometric functions.

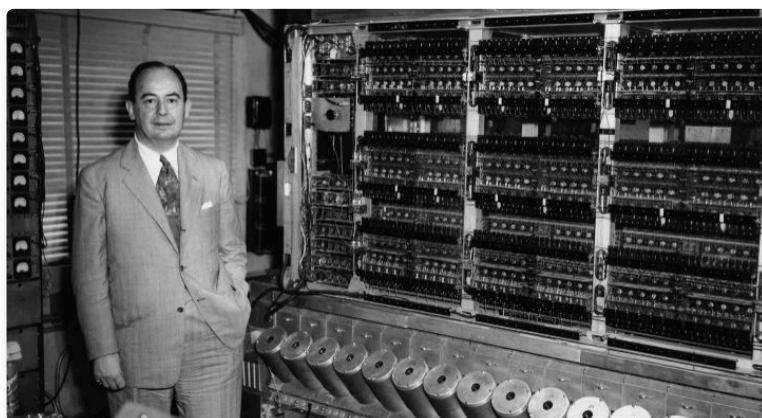


In 1830s, Charles Babbage conceived of a much more powerful mechanical computer. He called this machine an *analytical engine*. This machine was designed to perform any mathematical calculation automatically. It contained all the essential components of a modern digital computer, namely:

1. A *processor* capable of performing addition, subtraction, multiplication, and division. He called it a 'mill'.
2. A *memory unit* constructed from decimal counting wheels.
3. Several *I/O devices* such as a card punch, a punch-card reader, and a printer.

Electronic Era

The first electronic computer was developed by John V. Atanasoff in the late 1930s with a memory unit consisting of capacitors mounted on a rotating drum. The first general-purpose electronic digital computer was the *ENIAC* (*Electronic Numerical Integrator and Calculator*). Like Analytical Engine, in ENIAC, programs and data were stored in separate memories.



John von Neumann (1903-1957) was a Hungarian-American mathematician, who played a crucial role in the development of modern computer architecture. The von Neumann architecture, which separates the program instructions and data in a computer's memory, is the basis for nearly all modern computers. The concept of a stored-program computer, where instructions and data are stored in the same memory, is often attributed to him.

1. In 1945, who among the following developed the idea of a stored program computer?

John Von Neumann

Tim Berners Lee

Blaise Pascal

N.R. Narayananamurthy

 Check

Question: 1 of 2 questions

3. Evolution of Computers

Computers have come a long way since their inception in the mid-20th century. The development of computers can be divided into five distinct generations, each marked by significant technological advancements. We will explore each generation of computers, their defining features, and some examples.

	First generation	Second generation	Third generation	Fourth generation	Fifth generation
Period	1940-1956	1956-1963	1964-1971	1971-Present	Present-future
Circuitry	Vacuum tube	Transistor	Integrated chip	Microprocessor	Ultra large scale integration technology
Programming language	Machine language	FORTRAN, COBOL, ANGOL	C, C++	C, C++, JAVA	Higher level languages and neural networks
Example	UNIVAC, EDVAC	IBM 1820, PDP 1, CDC 1604	IBM 370 series, CDC 7600, PDP 11	Altair 8800, IBM 3090, VAX 9000	Robots

Now let us look at each generation one by one.

- > **First Generation (Vacuum Tubes), 1940-56**
- > **Second Generation (Transistors), 1956-1963**
- > **Third Generation (Integrated Circuits), 1964-71**
- > **Fourth Generation (Microprocessors), 1971-present**
- > **Fifth Generation**

Grosch's Law

The explosion of desktop computers reflects the breakdown in *Grosch's law*. This states that the computing power of a computer is proportional to the square of its cost. In other words, it was always more cost-efficient for an organization requiring computing power to purchase a large (and, therefore, centralized machine) than several smaller microcomputers or minicomputers.

1. Computers have evolved from the early mainframes to the relatively small smart devices with high computing power today. Which of the following inventions contributed to reduce the physical size of computers?

- Vacuum tubes
- Integrated circuits
- Registers
- Solid state memory

Check

Question: 1 of 6 questions

4. Types of Computers based on Size

According to the size of the computer, the computers can be classified as follows:

- > **Supercomputers**
- > **Servers**
- > **Mainframe Computers**
- > **Microcomputers**
- > **Thin Client Systems and Thick Client Systems**
- > **Personal Digital Assistants (PDAs)**
- > **Wearable Computers**

1. Which of the following is not a mobile device?

- Tablet
 - Smartphone
 - Desktop PC
 - e-reader
- Check

Question: 1 of 5 questions

5. Types of Computers based on Operation

Computers can be divided into 3 types based on the principle of operations.

Analog Computers

Analog computers represent and process continuous data. They use physical quantities, such as voltage or rotation, to perform calculations. Analog computers are well-suited for tasks involving scientific and engineering simulations, where continuous data is essential.

Digital Computers

Digital computers process discrete data represented in binary code (0s and 1s). They perform arithmetic and logical operations using electronic circuits. Digital computers are the most common type and are used for a wide range of applications, including general-purpose computing, data processing, and complex calculations.

Hybrid Computers

Hybrid computers combine elements of both analog and digital computers. They use analog methods for input and output and digital methods for processing. Hybrid computers are often used in applications that require both continuous and discrete data processing, such as scientific simulations and real-time control systems.

1. Identify the correct computer type based upon the description given in the statements below.

a. : Process continuous data with physical quantities, Suited for scientific and engineering simulations.

Analog Computer
 Digital Computer
 Hybrid Computer

b. : Work with discrete data in binary code, Perform arithmetic/logical operations using circuits. Widely used for general computing, data processing.

c. : Combine analog (input/output) and digital (processing), Ideal for tasks needing continuous and discrete data.

Check

Question: 1 of 2 questions

1. Overview

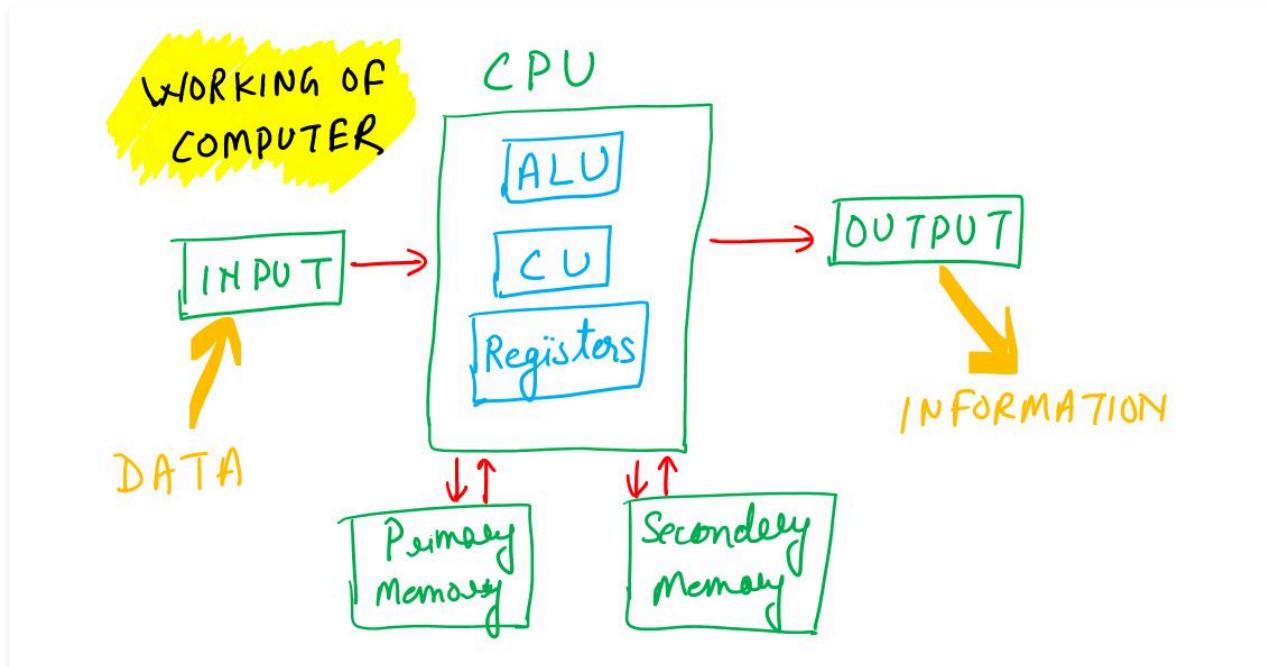
A computer system is a complex machine that processes and stores data.

Hardware refers to the physical components of a computer system, including the central processing unit (CPU), memory, storage devices, input/output devices, and peripherals. These tangible elements work together to execute instructions and perform computing tasks.

A *peripheral device* is an external or internal device that connects to a computer and is used to input, output, or store data and information, allowing users to interact with and make the most of a computer's capabilities. There are different types of peripheral devices, including input devices (e.g., keyboards, mice), output devices (e.g., monitors, printers), and storage devices (e.g., hard drives, flash drives).

Software comprises the intangible programs and instructions that enable a computer's functionality. It includes operating systems, applications, and utility programs that govern how hardware components operate, allowing users to perform tasks, run applications, and manage the computer's resources.

Let us first discuss the hardware components of a computer. Computer systems consist of four main components that work together to transform input into output. These components are input, central processing unit (CPU), primary and secondary memory, and output.



- > **Input**
- > **Central Processing Unit**
- > **Primary and Secondary Memory**
- > **Output**

In summary, the four components of a computer system work together to accept input, process data, store data, and present output.

Let us understand them one by one.

2. Input Devices

Input devices are hardware components used to provide data and control signals to a computer. These devices allow users to input information, commands, and raw data into the computer system.

The purposes of input devices are:

1. to accept data in the required form;
2. to convert this data to a machine-understandable form; and
3. to transmit this data to the central processing unit

Various types of input devices are discussed below.

- > **Keyboard**
- > **Pointing devices**
- > **Scanning devices**
- > **Optical recognition devices**
- > **Digital camera**
- > **Voice recognition devices**
- > **Media input devices**

1. Identify the correct input technology based upon the description.

- a. : Use of fingerprint scans, retina scans, face identification etc. as a way of identifying a person uniquely
- b. : Reading data directly from hard copy and converting into computer - readable form
- c. : System that reads pencil or pen marks on a piece of paper in pre-determined positions
- d. : Use of minute electronic devices (containing microchip and antenna) that can be read from distances up to five meters

Check

Question: 1 of 7 questions

3. Central Processing Unit

The CPU, acting as the computer's core, operates through a sequence known as the "4 phase CPU Cycle." It's akin to the brain of the system, managing all data processing tasks. This cycle involves several key stages.

Firstly, the CPU retrieves instructions from the computer's memory, much like getting a set of instructions from a recipe book.

Then, it decodes these instructions to understand what needs to be done, similar to comprehending the steps in the recipe.

Next, the CPU executes these instructions, performing calculations or tasks as directed, which is like following the recipe to cook a meal.

Finally, the results or outcomes of these instructions are stored back into the computer's memory, comparable to putting away the cooked meal for later use.

This cycle repeats continuously as the CPU processes different sets of instructions, fetching, decoding, executing, and storing information. It's a fundamental process that allows the CPU to manage and execute a wide range of tasks within a computer system, ensuring smooth operation and functionality.

Components of CPU

The CPU comprises the Arithmetic Logic Unit (ALU) for calculations, the Control Unit (CU) for instruction management, and Registers for temporary data storage.

> Arithmetic Logic Unit (ALU)

> Control Unit (CU)

> Registers

Some types of registers are given in the table.

Type of Registers	Function
Program register (PR)	They keep track of the next instruction to be executed
Instruction register (IR)	They hold the instructions to be decoded by the Control unit
Memory address register (MAR)	They hold the address of the next location in the memory to be accessed
Memory buffer register (MBR)	They store the data, received from/sent to the CPU
Memory data register (MDR)	They store data and operand
Accumulator (ACC)	They store the results produced by ALU

1. Choose the correct words to complete the following paragraph which explains the role carried out by different parts of the CPU.

Part of the CPU that (i) holds programs and data currently in use is called

; (ii)

ALL

performs calculation and logical operations is called

; and (iii) tells input and output

Control

devices how to carry out instructions is called

Immediate Ac

Check

Question: 1 of 4 questions

4. Primary Memory

Primary Memory, also known as *Random Access Memory (RAM)*, serves as temporary storage that loses its contents upon power disconnection, making it volatile. Due to its limited space, Secondary Storage supplements it, with files transferred from Secondary Storage to RAM via *Swapping* before execution. Main Memory handles data exchange between the CPU and Input Output (I/O) devices.

Primary memory, synonymous with fast memory, immediate-access memory, and primary storage, has the primary function of storing executing programs, current program data, and the operating system.

Main memory exists in chips on the *motherboard*, placed as close as possible to the CPU.

Computers also feature *Read-Only Memory (ROM)*, where stored data remains unchanged even without power. ROM holds initial startup instructions and microprograms for commonly used routines.

Let us discuss RAM and ROM one by one.

Which of the following is/are main memory of a computer?

- A. RAM
- B. Hard disk
- C. CDROM
- D. Pen Drive

A only

B only

A, C and D only

A and B only

Check

4. Primary Memory

Random Access Memory or RAM, is a type of volatile computer memory that provides high-speed data access to a processor and stores temporarily needed information for running applications. It allows for quick read and write operations, facilitating the efficient execution of tasks and the temporary storage of data that the CPU is actively using.

Synonyms for primary memory include fast memory, main memory, immediate-access memory, RAM, direct-access memory, and primary storage.

- > **Objectives of Main Memory**
- > **Characteristics of Main Memory**
- > **Types of RAM**
- > **Advantages of DRAMs over SRAMs**
- > **Memory Segmentation**
- > **Virtual Memory**

1. Which of the following statement is true in respect of computers?

- Software is loaded into secondary storage from RAM and is then executed by CPU.
- Software is loaded into RAM from secondary storage and is then executed by CPU.
- Software is loaded into RAM from secondary storage and is then executed by motherboard.
- Software is loaded into secondary storage from RAM and is then executed by motherboard.

Check

Question: 1 of 7 questions

4. Primary Memory

The Read-only memory (ROM) is the place where certain critical instructions are safeguarded. ROM is non-volatile, so it retains these instructions when the power to the computer is turned off. The read-only designation means that these instructions can only be read by the computer and cannot be changed by the user. An example of ROM is the instructions needed to start or 'boot' the computer after it has been shut off.

Some further sub-types of ROM are listed below:

- > **PROM or Programmable Read Only Memory**
- > **EPROM or Erasable Programmable Read Only Memory**
- > **EAPROM or Electrically Alterable Programmable Read Only Memory**

BIOS

The ROM stores the BIOS or Basic Input Output System. It is software stored on a small memory chip on the motherboard. BIOS is responsible for the very first software to run when a computer is started. It is the firmware used to perform hardware initialization during the booting process ('power-on startup') and to provide runtime services for operating systems and programs. The BIOS firmware is non-volatile, meaning that, its settings are saved and recoverable even after power has been removed from the device. Unlike an operating system like Windows, which is often downloaded or obtained on a disc and needs to be installed by the user or manufacturer, BIOS comes installed from the moment the machine is manufactured. BIOS access and configuration on PC systems is independent of any operating system because the BIOS is part of the motherboard hardware.

CMOS

Complementary Metal Oxide Semiconductor Memory (CMOS) is used to store the system configuration, date, time, and other important data. When the computer is switched on, BIOS matches the information of CMOS with the peripheral devices and displays an error in case of a mismatch.

1. In the light of the given statements, choose the correct answer from the options below:

Statement I: EEPROM stands for Electronically Extendable Programmable Read Only Memory.

Statement II: RAM is much faster to write or to read from than other types of memory; but its main drawback is its volatility.

- Statement I is true but Statement II is false
- Both Statement I and Statement II are true.
- Statement I is False but Statement II is true
- Both Statement I and Statement II are false

Check

Question: 1 of 4 questions

5. Other Components

Let us discuss other components of computer like Cache Memory, Buses and Clock, one by one.

5. Other Components

Cache Memory is a type of high-speed memory that enables the computer to temporarily store blocks of data that are used more often and, a processor can access more rapidly than main memory (RAM). Cache memory is physically located closer to the CPU than RAM. Blocks used less often remain in RAM until they are transferred to the cache; blocks used infrequently remain in secondary storage. Cache memory is faster than RAM because the instructions travel a shorter distance to the CPU.

There are two types of Cache; Primary Cache (called internal cache or L1 cache) and Secondary Cache (called external cache or L2 cache).

1. *L1 cache*, situated closest to the CPU cores, is a small, high-speed memory storing frequently used instructions and data for rapid access.
2. *L2 cache*, larger and located either on the CPU chip or nearby, serves as a secondary storage layer, bridging the gap between the L1 cache and the main memory, enhancing overall system performance. The Secondary cache is usually larger and slower than the primary cache.

1. With respect to Information Technology, which statement best describes 'Cache Memory'?

- USB memory connected to a computer to increase its storage space
- An area of memory that contains settings for operating the computer
- An area of the hard disk that is used when there is insufficient RAM
- High speed memory that is included in devices to improve response time

Check

Question: 1 of 3 questions

5. Other Components

The buses act as pathways or channels through which data, instructions, and control signals are transmitted. They serve as highways along which information travels between the CPU, memory, input/output devices, and other hardware components.

Data is stored as a unit of 8 bits (Bit stands for *Binary Digit*, i.e. 0 or 1) in a register. Each bit is transferred from one register to another using a separate wire. This group of 8 wires, which is used as a common way to transfer data between registers is known as a *bus*. In general terms, bus is a connection between two components to transmit signal between them.

Bus can be of 3 major types; Data Bus, Control Bus, and Address Bus.

1. The *data bus* is responsible for transferring data between the CPU, memory, and peripherals. The data bus is bi-directional, allowing data to be transferred between the processor and memory in both directions.
2. The *address bus* carries signals that specify the memory locations for data transfer. It is also known as a memory bus. The address bus is unidirectional, which means it conveys signals in only one direction, from the processor to the memory. The processor employs the address bus to dispatch memory address signals to indicate the intended memory location.
3. The *control bus* manages the coordination and control signals between different components of a computer system, facilitating the timing and synchronization of data transfers.

In light of the given statements, choose the correct answer from the options given below.

Statement I: Address bus carries signals relating to addresses between the processor and memory

Statement II: It is bi-directional

- Both Statement I and Statement II are false
- Statement I is true but Statement II is false
- Both Statement I and Statement II are true
- Statement I is false but Statement II is true

 Check

5. Other Components

A clock refers to an electronic oscillator that generates regular pulses or signals, known as clock cycles or clock ticks. These pulses act as a metronome, coordinating and synchronizing the operations of various components within a computer system.

The clock signal sets the pace at which the CPU and other parts of the computer perform operations and execute instructions. It determines the speed at which instructions are processed, measured in Hertz (Hz), where one hertz represents one cycle per second.

The clock speed influences the overall performance of the system, with higher clock speeds generally resulting in faster processing and execution of instructions. Modern computers operate at clock speeds ranging from a few gigahertz (GHz) to several gigahertz, enabling rapid computations and data processing.

Innovations in chip designs are coming at an increasingly faster rate, as described by *Moore's law*. In 1965, Gordon Moore, a cofounder of Intel Corporation, predicted that microprocessor complexity would double approximately every 2 years.

The computer performs its operations at fractions of seconds. Some of SI units to measure fractions and multiples of seconds are tabled.

Value	SI Symbol	Name	Value	SI Symbol	Name
10^{-1}	ds	decisecond	10^1	das	decasecond
10^{-2}	cs	centisecond	10^2	hs	hectosecond
10^{-3}	ms	millisecond	10^3	ks	kilosecond
10^{-6}	μs	microsecond	10^6	Ms	megasecond
10^{-9}	ns	nanosecond	10^9	Gs	gigasecond
10^{-12}	ps	picosecond	10^{12}	Ts	terasecond
10^{-15}	fs	femtosecond	10^{15}	Ps	petasecond
10^{-18}	as	attosecond	10^{18}	Es	exasecond
10^{-21}	zs	zeptosecond	10^{21}	Zs	zettasecond
10^{-24}	ys	yoctosecond	10^{24}	Ys	yottasecond

1. In the light of the given statements, choose the correct option from the choices given below:

Assertion A: The clock speed of CPUs has not increased significantly in recent years

Reasons R: Software now being used is faster and therefore processors do not have to be faster

- Both A and R are true and R is the correct explanation of A
- Both A and R are true and R is not the correct explanation of A
- A is true, but R is false
- A is false, but R is true

Check

Question: 1 of 2 questions

6. Output Devices

Output devices in computers are hardware components that display or present processed data, information, or results to users in various forms. These devices take the electronic information processed by the computer and convert it into a human-readable or usable format.

The purpose of the output component of a computer system is:

1. to accept information/data from the CPU;
2. to convert this information/data into the required output form.

Various types of Output devices are discussed below.

> **Display Monitors**

> **Printers**

> **Plotters**

> **Voice output devices**

> **Projectors**

Floppy Drive, Hard Disk, and DVD-ROM can be used as both an Input Device as well as an Output Device.

1. Identify the correct printer based upon the given description.

- a. : Droplets of ink are propelled onto paper.
- b. : Flat panel display that uses the light modulating properties of liquid crystals.
- c. : Flat panel display that uses an array of light-emitting diodes as pixels.
- d. : Electrically charged powdered ink is transferred onto paper

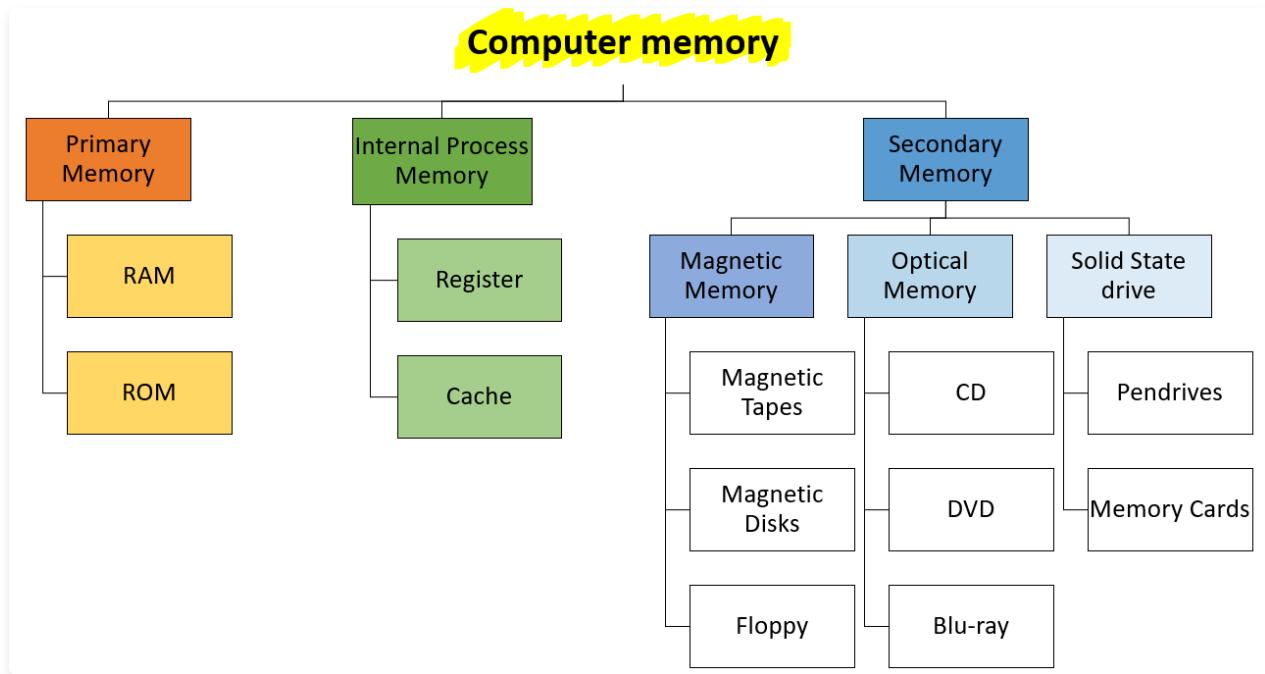
Li
In
Lo
La

Check

Question: 1 of 4 questions

7. Types of Memory

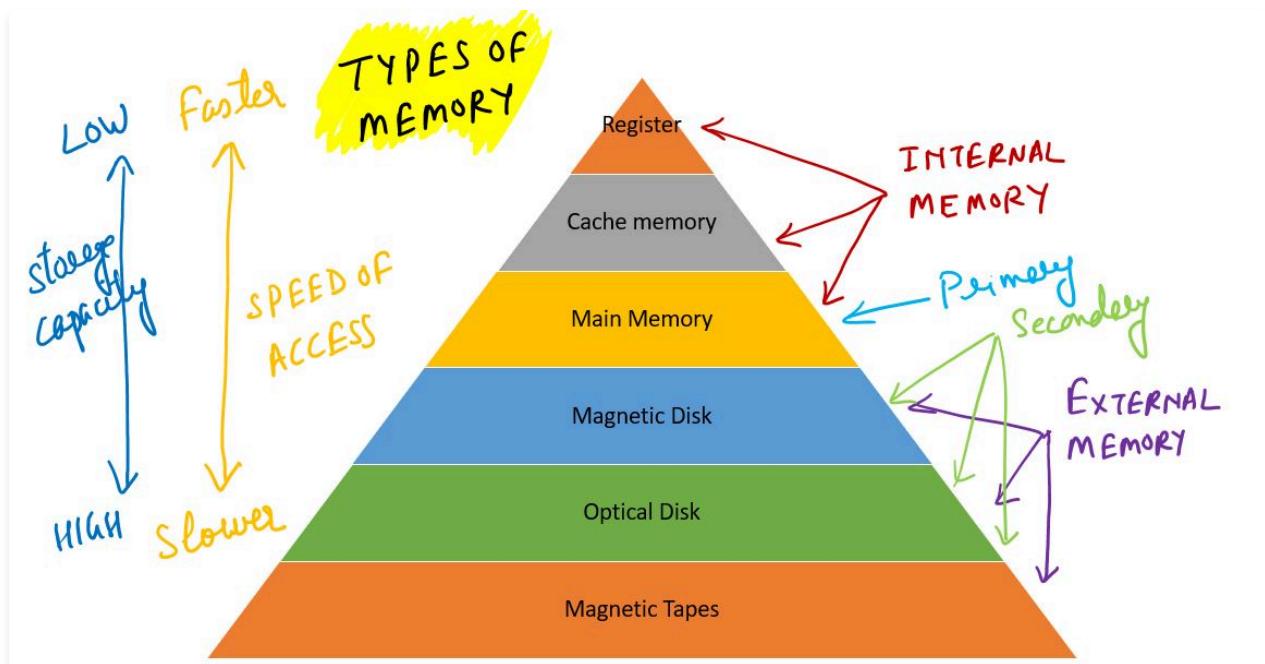
We can divide the computer memory into 3 categories:



The first is **Primary Storage**. It is called 'primary' because it stores small amounts of data and information that will be used immediately by the CPU. The Primary Memory is also called Main Memory. It is of 2 further subtypes; *Random Access Memory* (RAM) and *Read-Only Memory* (ROM). RAM is volatile and thus, the data is lost, when the power is switched off. On the other hand, the ROM is non-volatile, so data is stored permanently.

The second category is **Secondary Storage**, which stores much larger amounts of data and information (e.g. an entire software program) for extended periods. It is also called *Auxiliary Memory*. It includes magnetic disks and tapes. The data remains permanently.

The third category is called **Internal Process Memory**. It includes caches and registers. This memory is placed inside or near the CPU for faster access.



Computer memory types in terms of fastest to slowest access speed are register, cache, RAM, and hard disks. The slowest memory types are secondary memory which includes magnetic tapes, CDs, and DVDs.

1. In the light of the given statements, choose the correct answer from the options given below:

Statement I: Cache memory is volatile memory and is much slower than Random Access Memory (RAM)

Statement II: CDs, DVDs and Magnetic Tapes are all optical media devices

- Both Statement I and II are false
- Statement I is false but II is true
- Both Statement I and II are true
- Statement I is true but II is false

Check

Question: 1 of 5 questions

8. Secondary Storage

All computers need permanent secondary storage facilities, because the main memory stored, within the CPU, is limited in size. In the event of a power failure or the machine being switched off, the contents of this main memory disappear.

- > **Purposes of Secondary storage**
- > **Characteristic of Secondary storage**
- > **Data Access Modes**

Let us discuss some of the types of secondary storage.

1. With respect to computers. which of the following are random access storage devices?

- A. Magnetic Tape
- B. Hard Disk
- C. Pen Drive
- D. CDROM

- A, C and D only
- A, B and C only
- A, B and D only
- B, C and D only

Check

Question: 1 of 2 questions

8. Secondary Storage

Magnetic storage refers to a method of storing digital information by using magnetic fields to write and read data on magnetic media such as hard disk drives, magnetic tapes, and floppy disks. It encodes information as magnetic patterns, where the orientation of magnetic particles represents binary data. This technology enables non-volatile, high-capacity storage commonly utilized in computers and various digital devices.

A few examples of magnetic storage are discussed below.

- > **Tape drives**
- > **Magnetic Tape**
- > **Magnetic Disk**
- > **Hard Disk Drive (HDD)**
- > **Floppy disk**

Advantages of Magnetic Storage

Magnetic storage offers several advantages in the context of data storage.

1. Magnetic storage systems, such as hard drives, can store a large amount of data in a relatively small physical space. The magnetic platters used in these storage devices can hold vast amounts of information, making them suitable for various data-intensive applications.
2. Magnetic storage provides non-volatile storage, meaning data remains intact even when the power is turned off. This persistence is essential for retaining data in the long term, making magnetic storage an ideal choice for archiving and preserving information.
3. Magnetic storage, such as hard disk drives, is cost-effective when compared to other storage technologies. It offers a significant storage capacity for a reasonable price, making it an economical choice for both personal and enterprise use.
4. Magnetic storage can be easily scaled to meet increasing storage needs. Users can opt for higher-capacity drives as their data storage requirements grow, providing scalability and flexibility.
5. The data can be transferred from one device to another easily.

1. With respect to computer storage devices, which of the following is/are magnetic storage device(s)?

- A. CD-R
- B. DVD-RW
- C. Flash memory stick
- D. External Hard Drive

- C and D only
- A and B only
- C only
- D only

Check

Question: 1 of 2 questions

8. Secondary Storage

Optical disks are storage media that use a transparent plastic-coated disk to encode data, which is read using precise laser light focused on the spinning disk. Unlike magnetic storage, optical storage devices are less susceptible to damage. However, optical devices typically support either read-only (like CDs, DVDs) or write-only (like CD-R, DVD-R) functionalities, unlike magnetic devices that support both read and write capabilities.

Let us discuss a few examples.

Compact disc (CD)

A Compact Disc (CD) is an optical disc storage medium that stores digital data in a standardized format. It typically holds up to 700 MB of data or 80 minutes of audio, and it is commonly used for music albums, software distribution, and other digital content. Let us discuss a few types of CDs.

- > **CD-ROM (Compact Disk- Read Only Memory)**
- > **CD-R (Compact Disk- Recordable)**
- > **CD-RW (Compact Disk- Rewritable)**

DVD (Digital Video Disc)

DVDs are optical discs that store larger amounts of data than CDs, making them suitable for video content. They are used for movies, software distribution, and data storage. DVDs utilize a single continuous spiral track that starts from the center of the disc and moves outward. Data is recorded along this spiral track, and the DVD drive's laser reads the data by following this track. DVDs can hold around 4.7 GB (single-layer) or 8.5 GB (dual-layer) of data. Let us discuss various formats of DVDs.

- > **DVD ROM (Digital Versatile Disc Read-Only Memory)**
- > **DVD-RAM (Digital Versatile Disc Random Access Memory)**
- > **DVD-R (Digital Video Disc - Recordable)**
- > **DVD-WR (Digital Video Disc - Rewritable)**

Blu-ray Disc

Blu-ray Disc (BD) is another example of an optical disc data storage format. It was designed to supersede the DVD format and is capable of storing several hours of HD video. A Blu-ray disc is an optical disc storage medium designed to supersede DVDs. It is named for its blue laser, which has a shorter wavelength than the red laser used in DVDs, allowing it to store more data in the same physical space. Blu-ray discs store approximately 25 GB (single-layer) or 50 GB (dual-layer) of data.

Optical devices have large storage capacity and longer life in comparison to Magnetic devices, but they have low data access speed.

Magneto-optical storage devices

A hybrid of Magnetic and Optical, known as *Magneto-Optical Storage Devices*, is also used. Magneto-optical storage devices use a combination of magnetic and optical technologies for data storage. They employ a laser to write and read data on a specially coated disk, where magnetic properties are altered by the laser, allowing for rewritable and reliable storage with capacities ranging from megabytes to gigabytes.

1. Arrange the following optical storage devices in decreasing order of their storage capacity.

- A. DVD
- B. CD-ROM
- C. Blu-Ray

C, B, A

C, A, B

B, C, A

A, C, B

Check

Question: 1 of 4 questions

8. Secondary Storage

RAID, which stands for Redundant Array of Independent Disks, is a technology used in data storage that combines multiple physical disk drives into a single logical unit. Its primary purpose is to improve data reliability, increase performance, or both, depending on the RAID level used.

There are several RAID levels, each offering different benefits:

1. **RAID 0:** Data is striped across multiple disks for increased performance but offers no redundancy. If one drive fails, data is lost.
2. **RAID 1:** Mirroring technique, where data is duplicated across drives for redundancy. If one drive fails, data remains intact on the mirrored drive.
3. **RAID 5:** Data striping with distributed parity, providing both performance improvement and fault tolerance. If one drive fails, data can be reconstructed from parity information spread across the remaining drives.
4. **RAID 10 (or RAID 1+0):** Combines mirroring and striping, providing both redundancy and performance improvement. Data is mirrored and then striped across multiple drives.

RAID arrays can offer increased storage capacity, improved read/write speeds, and fault tolerance, depending on the specific RAID configuration used. They are commonly used in servers and storage systems to enhance data integrity, availability, and performance.

8. Secondary Storage

Solid State Devices (SSDs) are storage devices akin to hard drives but utilize memory chips for data storage instead of moving parts. Unlike hard drives, SSDs lack mechanical components. They share the same interface with the computer's CPU, making them a straightforward substitute for hard drives. SSDs provide numerous benefits: lower power consumption, silent operation, faster speeds, and reduced heat production compared to hard drives. However, their primary drawback lies in their higher cost when compared to traditional hard drives.

Examples of SSDs include Flash Memory Cards and USB flash drives.

- > **Flash Memory Cards**
- > **USB Flash Drives (USB Sticks or Thumb Drives)**

1. What are the main benefits of using an SSD rather than an HDD?

- A. SSD uses spinning disks and is thus more reliable.
- B. SSD is considerably lighter and has a lower power consumption.
- C. SSD accesses data considerably faster.

- A and B only
- A and C only
- B and C only
- A, B and C

Check

Question: 1 of 2 questions

9. Memory Storage

In the world of computers, information is stored using binary digits, called *bits*. These bits are arranged in sequences of 0s and 1s, forming the basic language of computer memory. At the core of this system is the *byte*, the smallest storage unit.

$$1 \text{ Byte} = 8 \text{ Bits} = 2^3 \text{ Bits}$$

Think of a byte like a digital building block made up of 8 smaller parts called bits. These bits can be 0 or 1.

The terms used to describe memory capacity follow a hierarchical structure, which are given below:

$$1 \text{ Kilobyte} = 2^{10} \text{ bytes, which is approximately } 10^3 \text{ bytes}$$

$$1 \text{ Megabyte} = 2^{20} \text{ bytes, which is approximately } 10^6 \text{ bytes}$$

$$1 \text{ Gigabyte} = 2^{30} \text{ bytes, which is approximately } 10^9 \text{ bytes}$$

$$1 \text{ Terabyte} = 2^{40} \text{ bytes, which is approximately } 10^{12} \text{ bytes}$$

$$1 \text{ Petabyte} = 2^{50} \text{ bytes, which is approximately } 10^{15} \text{ bytes}$$

$$1 \text{ Exabyte} = 2^{60} \text{ bytes, which is approximately } 10^{18} \text{ bytes}$$

$$1 \text{ Zettabyte} = 2^{70} \text{ bytes, which is approximately } 10^{21} \text{ bytes}$$

$$1 \text{ Yottabyte} = 2^{80} \text{ bytes, which is approximately } 10^{24} \text{ bytes}$$

1. A photograph occupies 10 MB of storage. A memory stick with 4GB capacity can store approximately ____ such photographs.

300

400

500

450

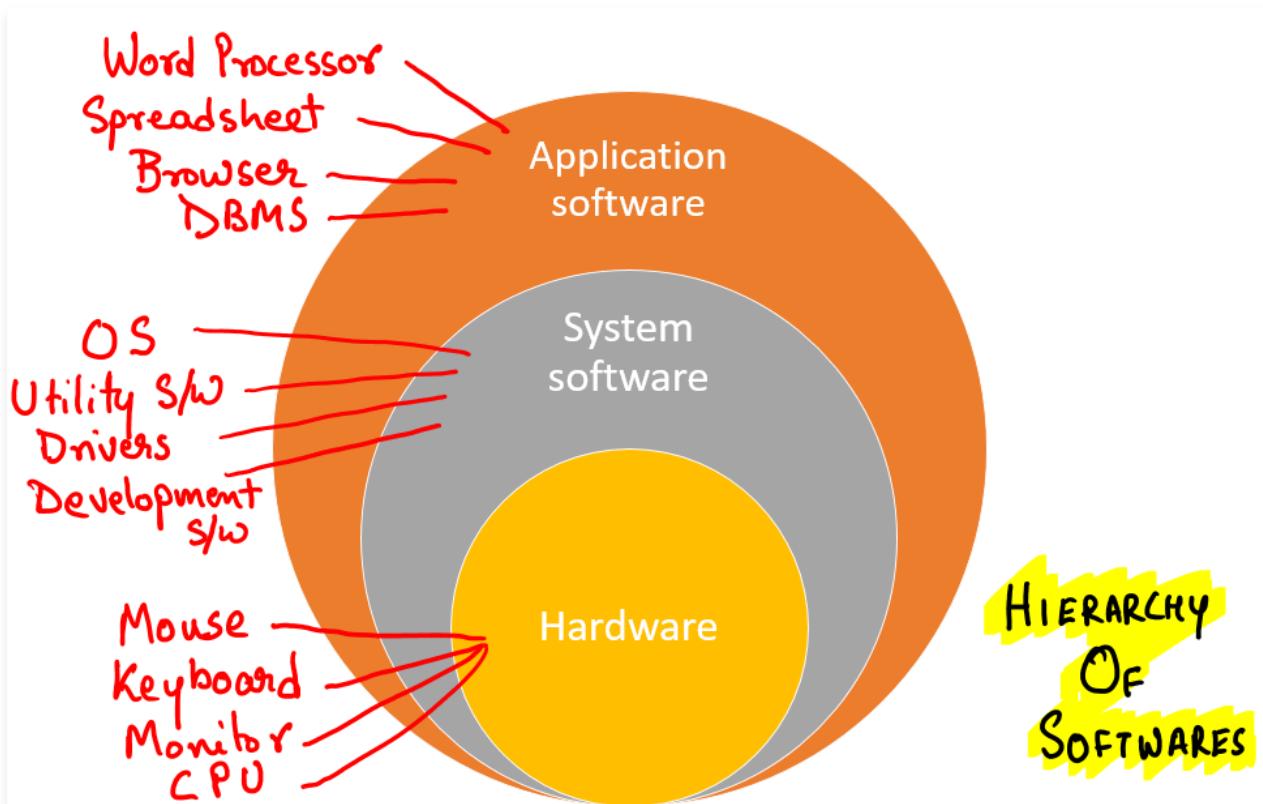
Check

Question: 1 of 6 questions

1. Software

Now we understand that the *Hardware* constitutes the tangible components of a computer system. Examples include the Processor, Memory Devices, Monitor, Printer, Keyboard, Mouse, and the CPU.

On the other hand, *Software* encompasses a set of instructions responsible for executing various tasks within a computer system. It consists of programming code that operates on a computer's processor. Software examples encompass applications like Word, Power Point, Firefox Mozilla, Notepad, MySQL, among others.



There are two types of software: system software and application software.

- > **System software**
- > **Application software**

Let us discuss them one by one.

In the light of the given statements. choose the correct answer from the options given below:

Statement I: Operating system is a set of program necessary to carry out operation for a specified application.

Statement II: Hardware represents the physical and tangible parts of the computer.

- Both Statement I and Statement II are true
- Both Statement I and Statement II are false
- Statement I is true but Statement II is false
- Statement I is false but Statement II is true

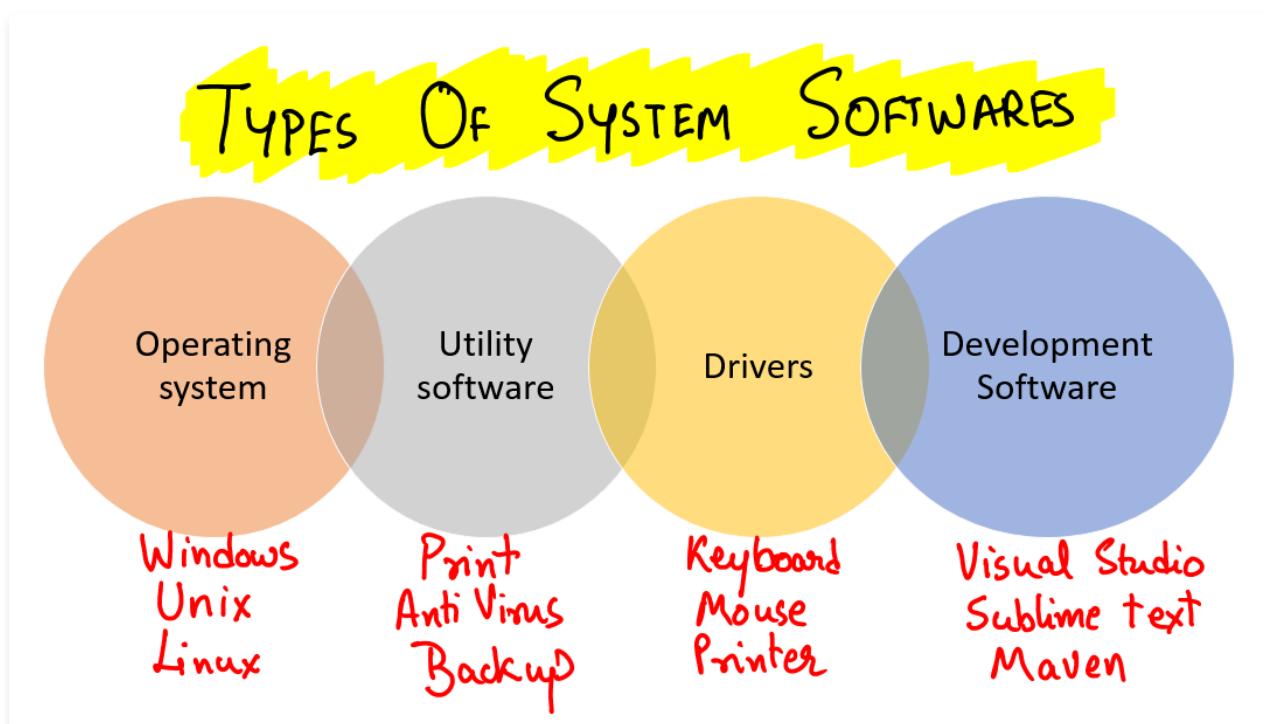
Check

2. System Software

Systems software is a set of instructions that serves primarily as an intermediary between computer hardware and application programs. Systems software provides important self-regulatory functions for computer systems, such as loading itself when the computer is first turned on and providing commonly used sets of instructions for all applications.

Types of System Software

The System Software can be broadly divided into 4 categories; Operating System, Utility Software, Drivers, and Development Software.



Let us discuss each of these 4 types one by one.

2. System Software

The Operating System serves as an intermediary between user applications and the hardware of a computer system. It executes vital functions such as memory management, process scheduling, device management, file handling, and ensuring protection and security. The operating system is responsible for the computer's overall operations, monitoring of the system's status, operation scheduling, and managing input and output processes. This user interface effectively conceals the intricacies of the hardware from the user, eliminating the need for an in-depth understanding of hardware operations.

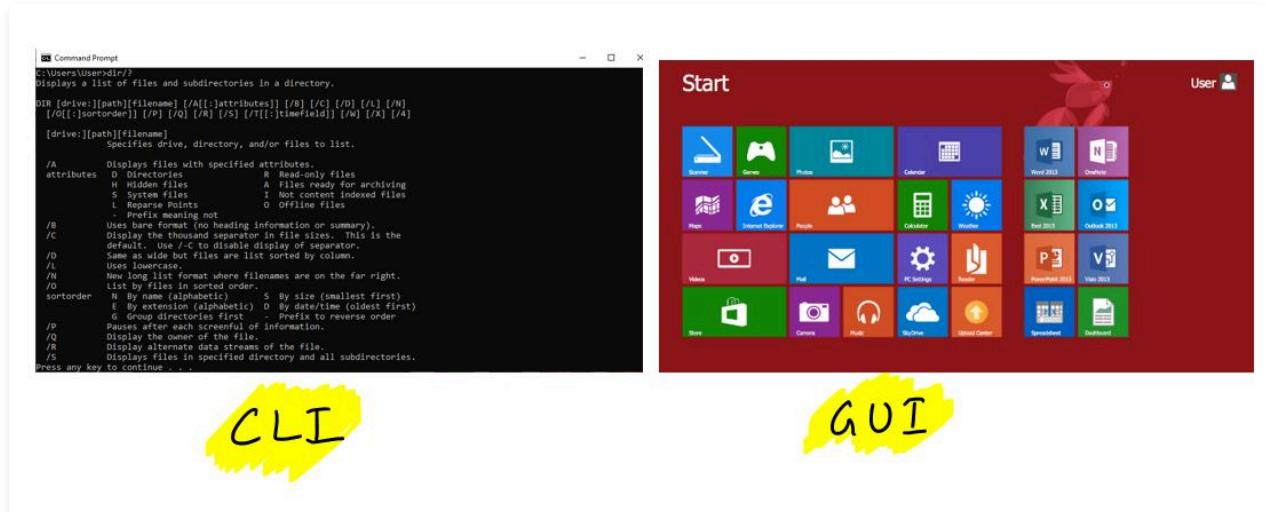
A few important examples of operating systems for computers include Microsoft Windows (e.g., Windows 10, Windows 8, Windows Vista, Windows XP), Unix, Linux, Apple's Mac OS (previously OS X), Google Chrome OS, BlackBerry, and Solaris.

Important examples of operating systems used in mobile phones include Android, apple iOS, Symbian, blackberry OS, windows mobile, sailfish OS, Taizen, KaiOS and MeeGo.

Types of User Interface

End users interact with an operating system through a user interface, which is of two types: Graphical User Interface (GUI) and Command Line Interface (CLI).

Graphical User Interface is a type of user interface that employs graphical elements such as icons, buttons, menus, and windows to allow users to interact with a computer system. Users can perform operations by pointing and clicking with a mouse or similar input device. GUIs are known for their intuitive and visually appealing design, making them accessible to a wide range of users. Operating systems like Windows, macOS, and many applications use GUIs to enhance user experience and simplify complex tasks.



A **Command Line Interface** is a text-based interface that allows users to interact with a computer system by typing commands into a terminal or command prompt. Users input commands using a keyboard, and the system responds with text-based feedback. CLI is often preferred by power users and system administrators for its efficiency and the ability to automate tasks through scripts. While it may have a steeper learning curve compared to GUIs, CLI provides precise control over system functions and is commonly used in programming, system maintenance, and server management. A few examples of CLI include the Command Prompt in Windows, Terminal in macOS/Linux, and shells like Bash.

Let us briefly discuss two widely used operating systems.

> 1. UNIX

> 2. Windows

In the light of the given statements. choose the correct answer from the options given below:

Statement I: Operating system is a set of program necessary to carry out operation for a specified application.

Statement II: Hardware represents the physical and tangible parts of the computer.

- Both Statement I and Statement II are true
- Both Statement I and Statement II are false
- Statement I is true but Statement II is false
- Statement I is false but Statement II is true

Check

2. System Software

Utility programs are compact software applications that offer supplementary support to operating systems. These programs perform specific tasks to enhance the functionality and efficiency of a computer system. Let us discuss a few utility programs.

- > **1. Search and Replace**
- > **2. Print Utilities**
- > **3. Anti-Virus Programs**
- > **4. Backup Tools**
- > **5. Disk Defragmenter**

These utility programs contribute to the overall functionality and maintenance of a computer system, ensuring smoother operations and safeguarding against potential threats or data loss.

What is a Utility program?

- It translates data into a format understood by the device
- It permits the sharing and exchange of data
- It makes copies of files on another storage device
- It is a part of the operating system which carries out defragmentation or disk formatting

Check

2. System Software

Drivers serve as intermediaries between Input/Output (I/O) devices and the computer, playing a crucial role in facilitating communication and coordination. Specifically, the device driver of an input device, such as a keyboard, interprets user inputs into a format understandable by the computer. It then directs this interpreted data to the operating system, ensuring seamless interaction between the user and the computer.

Similarly, the device driver for output devices, like monitors or printers, translates the computer's instructions into a language comprehensible to the respective device. This translation ensures that the output device can effectively display information on a monitor or produce a printed document.

In essence, drivers act as translators, enabling the computer and its peripherals to communicate effectively. They play a vital role in ensuring the compatibility and proper functioning of input and output devices, contributing to the overall functionality of the computer system. Examples of devices that rely on drivers include keyboards, monitors, printers, and various other hardware components.

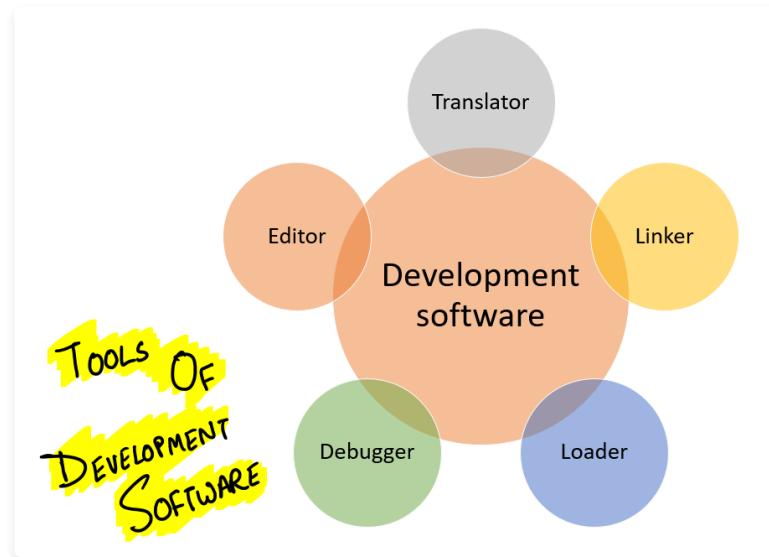
A device driver is:

- A port that connects a device and a system
- A software that performs disk compression
- A software that performs disk defragmentation
- A software that communicates with the operating system and translates data into a format understood by the device

Check

2. System Software

System development software, often referred to as programming software, empowers users to create programs using various programming languages. These tools are integral to the software development lifecycle, aiding developers in the creation, testing, and optimization of computer programs. Some of the tools required during the process of development are Translator, Linker, Loader, Debugger, Editor etc.



- > **Translator**
- > **Linker**
- > **Loader**
- > **Debugger**
- > **Editor**

1. In light of the given statements, choose the most appropriate answer from the options given below.

Statement I: Compilers are software

Statement II: Touch screen monitors are input/output devices

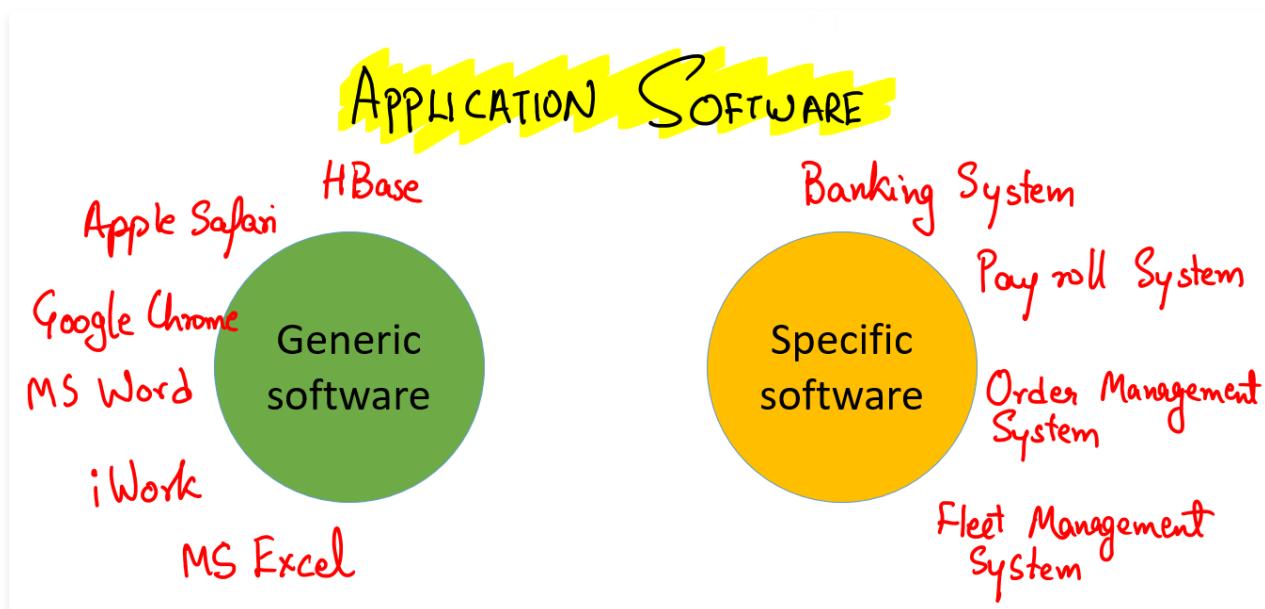
- Both Statement I and Statement II are true
- Both Statement I and Statement II are false
- Statement I is correct but Statement II is false
- Statement I is incorrect but Statement II is true

Check

Question: 1 of 3 questions

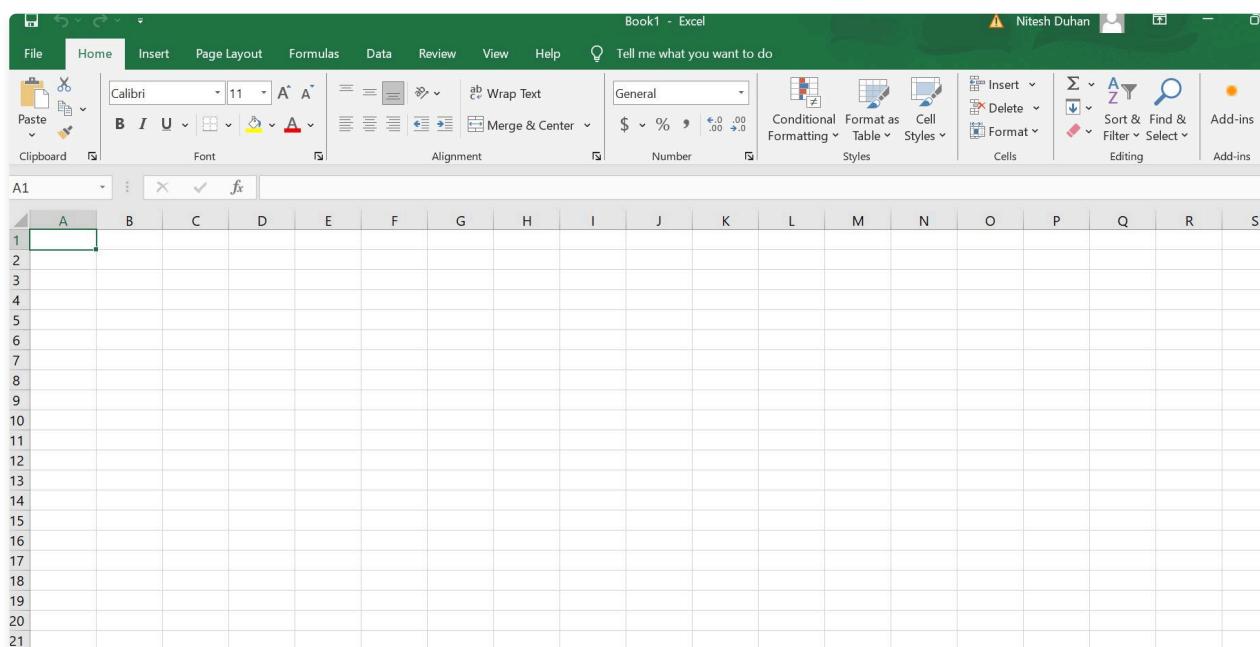
3. Applications Software

Application software refers to a collection of computer instructions designed to deliver specific functionalities to users. This can range from broad applications (generic) like general word processing to more specialized applications (specific) such as organizational payroll systems.



Let us discuss a few examples of generic application software one by one. Then we will discuss specific application software.

3. Applications Software



A spreadsheet is application software designed for organizing, analyzing, and storing data in a tabular form. In addition to basic arithmetic and mathematical functions, modern spreadsheets offer built-in functions for common financial and statistical operations. These include calculations like net present value and standard deviation, which can be applied to tabular data using pre-programmed functions within formulas.

Spreadsheet programs, such as Google Sheets, iWork (Apple), LibreOffice, and Microsoft Excel, go beyond basic calculations. They provide conditional expressions, functions for converting between text and numbers, and operations on strings of text.

Spreadsheets have become versatile tools for businesses, individuals, and organizations, allowing them to efficiently manage and analyze data. Their ability to handle complex calculations and automate various operations enhances productivity and decision-making processes.

VisiCalc was the first electronic spreadsheet software developed by Apple and it led to pioneering of using spreadsheets in businesses.

1. In light of the given statements, choose the most appropriate answer from the options given below.

Assertion A: VisiCalc, the first spreadsheet software application, is a commonly cited example of one of the first killer applications.

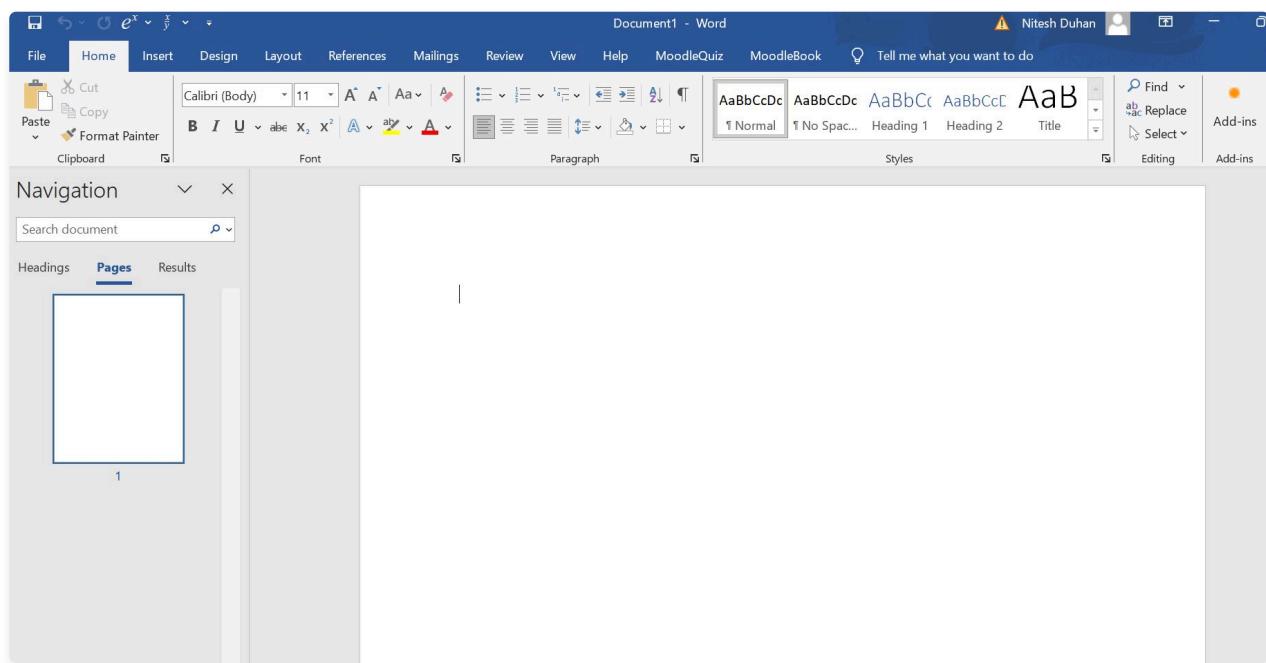
Reason R: VisiCalc helped in bringing PCs into the business realm.

- Both A and R are true and R is the correct explanation of A
- Both A and R are true but R is NOT the correct explanation of A
- A is true but R is false
- A is false but R is true

Check

Question: 1 of 2 questions

3. Applications Software



A word processor is application software crafted for the creation, editing, and printing of documents. It empowers users to electronically write, store, display, modify, and print text. Providing a versatile platform, word processors allow users to manipulate text on a screen by entering commands and characters from the keyboard.

Widely utilized for tasks ranging from simple note-taking to intricate document creation, word processing, also known as *document processing*, has become an essential tool for individuals, businesses, and organizations. A few important examples include MS Word and Apple Pages, which offer user-friendly interfaces and a plethora of features, streamlining the document creation and editing process. These applications play a pivotal role in enhancing productivity and efficiency in various domains.

Features of Word processing softwares

Word processing allows for several features in determining how the document will appear on paper. Let us see some key features related to page layout and orientation in word processing.

- > **1. Page Size**
- > **2. Margins**
- > **3. Orientation**
- > **4. Columns**
- > **5. Headers and Footers**
- > **6. Page Numbers**
- > **7. Page Breaks**
- > **8. Columns and Rows**
- > **9. Section Breaks**
- > **10. Watermarks**
- > **11. Page Borders**

1. In light of the given statements, choose the most appropriate answer from the options given below.

Statement I: Mainframe computers have smaller internal memories than desktop computers.

Statement II: Spreadsheets and word processors are examples of application software.

- Both Statement I and Statement II are true
- Both Statement I and Statement II are false
- Statement I is true but Statement II is false
- Statement I is false but Statement II is true

Check

Question: 1 of 2 questions

3. Applications Software

Desktop Publishing (DTP) involves creating documents through page layout software. Initially used mainly for print publications, DTP has evolved to support various forms of content creation, including magazines, online content, and commercial printing.

Prominent examples of desktop publishing software include Adobe InDesign, Microsoft Publisher, Quark Xpress, and Apple Pages.

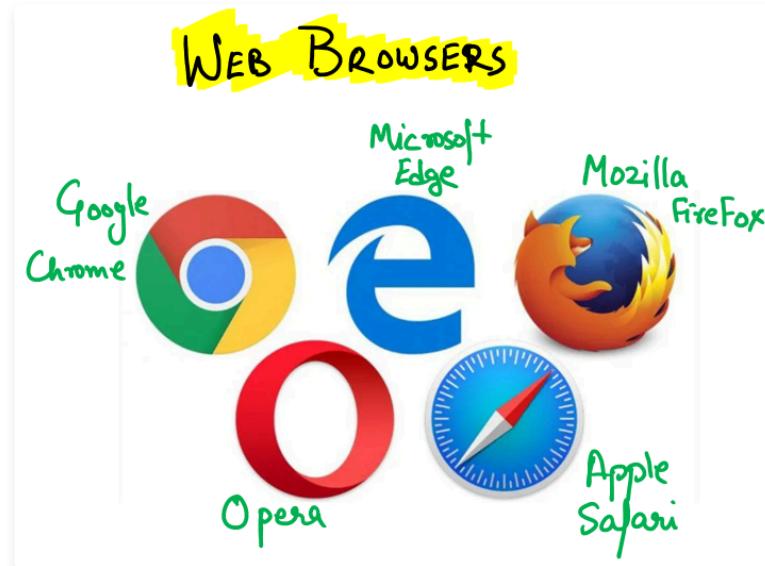
The design process in DTP utilizes the *WYSIWYG (What You See Is What You Get)* technique.

WYSIWYG indicates that the content, including text and graphics, can be edited in a form closely resembling its appearance when printed or displayed as a finished product. This approach is prevalent in WYSIWYG editors, allowing users to work on content with a visual representation that closely mirrors the final output, whether it's a printed document, a web page, or a slide presentation. This visual editing method enhances precision and efficiency in the document creation process

3. Applications Software

A web browser is a software application that operates on a user's computer, enabling the display of content from web pages hosted on remote servers written in languages like HTML. To achieve this, the browser must retrieve the web page's contents over the Internet, facilitated by a standard data transfer protocol known as the *Hypertext Transfer Protocol (HTTP)*.

Commonly used web browsers include Microsoft Edge, Google Chrome, Mozilla Firefox, Opera, and Apple Safari. One of the most famous web browsers was Internet Explorer from Microsoft. Its 11th version was finally discontinued on 15th June 2022 and has been succeeded by Microsoft Edge.



The primary function of a web browser is to fetch information resources from the Web and present them on a user's device. Through the user interface, browsers allow users to interact with web pages, navigate the internet, and access a wide range of content, making them essential tools for online activities.

Most web browsers come with a default homepage, the initial webpage displayed upon launching the browser. Users have the flexibility to personalize this page according to their preferred starting point.

Features of Web browser

Let's discuss some important features of Web browsers.

- > **1. User Interface (UI)**
- > **2. Address Bar or URL bar**
- > **3. Tabs**
- > **4. Bookmarks**
- > **5. History**
- > **6. Download Manager**
- > **7. Extensions/Add-ons**
- > **8. Security Features**
- > **9. Private Browsing/Incognito Mode**
- > **10. Search Engine Integration**
- > **11. Responsive Design**

Cookies

Cookies are small text files generated by websites and preserved on a user's device, like a computer or mobile device, through a web browser. These files serve the purpose of storing information pertaining to the user's browsing activities and preferences.

Upon visiting a website, a cookie is transmitted to the user's browser, where it is subsequently stored on the device. During subsequent visits to the same website, the browser dispatches the saved cookie back to the site. This mechanism facilitates the website in recognizing the user, retaining their preferences, and delivering a more tailored and personalized browsing experience. Essentially, cookies enable websites to enhance user interactions by remembering and utilizing past preferences and activities.

1. Choose the most appropriate answer from the options given below.

Most web browsers:

- A. have a HOME page.
- B. have the ability to store user's favourite websites/pages.
- C. keep a history of the websites visited by the users.
- D. give the ability to go backward and forward to websites opened.
- E. provide the user with access to Internet

D and E only

A, C and D only

A, C and E only

A, B, C and D only

Check

Question: 1 of 5 questions

3. Applications Software

A database is a structured collection of interrelated data that facilitates efficient retrieval, insertion, and deletion of information. It organizes data in various forms such as tables, views, schemas, and reports. For instance, a university database may manage data about students, faculty, and administrative staff, ensuring effective data operations.

The software employed to manage databases is known as a *Database Management System (DBMS)*. The Examples of DBMS are MySQL, Oracle, Ingress, PostgreSQL, Microsoft Access, SQL Server, FileMaker, dBASE, Clipper, FoxPro, Mongo, IBM, HBase, Cassandra etc.

DBMS utilizes different data models, with the **relational model** arranging data in tables, the **hierarchical model** forming a tree structure, and the **network model** organizing data in a network.

Data within a database is organized hierarchically, using fields, records, and files. A *field* represents a single piece of information, a *record* encompasses a complete set of fields, and a *file* is a collection of records. This structure is akin to a telephone book where each entry (record) consists of fields like name, address, and telephone number, collectively forming the file.

> **Atomicity, Consistency, Isolation, and Durability (ACID)**

1. Microsoft Access, Oracle and SQL are example of

- File Data Base
- Relational Data Base
- Template
- Attribute

Check

Question: 1 of 2 questions

3. Applications Software

Unlike generic software, the specific software is tailored to address unique requirements and functionalities characteristic of a particular field, business process, or specialized task. It serves targeted purposes, streamlining operations, enhancing productivity, and providing solutions tailored to the specific demands of a particular industry or function.

A few examples of specific application software include:

1. *HR System of a Company* that manages human resources-related tasks such as employee records, payroll, and performance evaluations.
2. *Order Management System* that facilitates the efficient processing and tracking of customer orders, managing the entire order fulfillment process.
3. *Banking System* that provides a platform for managing financial transactions, customer accounts, and other banking operations.
4. *Payroll System* that automates the calculation of employee wages, taxes, and deductions, ensuring accurate and timely payroll processing.
5. *Inventory Management System* that tracks and organizes inventory levels, orders, and sales, optimizing the management of goods and supplies.
6. *Fleet Management System* that manages a fleet of vehicles, overseeing maintenance schedules, fuel consumption, and tracking the location of vehicles in real-time.

Chapters 3801-3900 of 6035