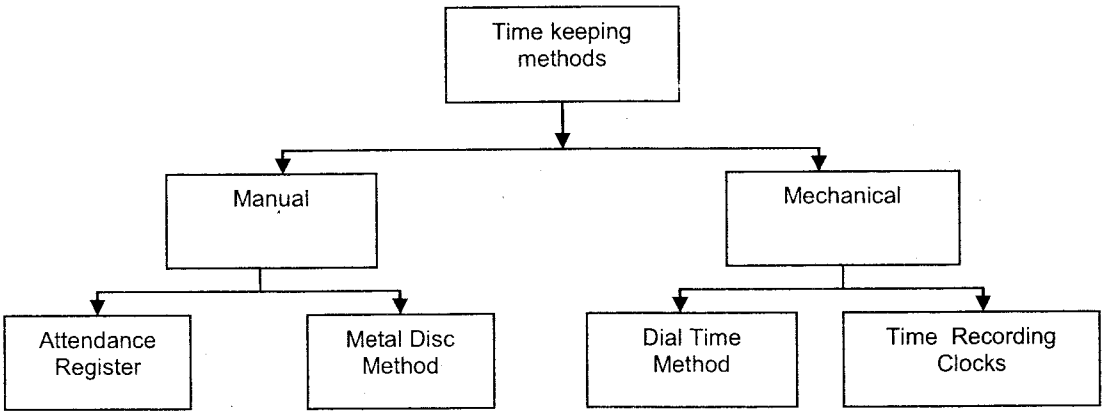
METHODS OF TIME-KEEPING :



The selection of a particular method by a company depends upon a number of factors such a company's policy, size, number of employees etc. However, any method selected and adopted by them must be appropriate so that time keeping can be made with minimum cost.

MANUAL METHOD:

The manual methods of time-keeping are as follows :

(a) Attendance Register Method, and

(b) Metal Disc Method.

(a) ***Attendance Register Method :***

- ✓ It is the oldest method of recording time.
- ✓ Under this method, an attendance register is kept in the time office adjacent to the factory gate or in each department for workers employed therein.
- ✓ The attendance register contains such columns as the name of the worker, the worker's number, the department in which he is working, the time of arrival and departure, normal time and the overtime.
- ✓ The time of a arrival and departure, may be noted down by an employee know as time-keeper.
- ✓ This method is simple and inexpensive and can be used in small firms where the number of workers is not large.
- ✓ This method may lead to dishonest practice of recording wrong time because there is possibility of collusion between some of the workers and the time-keeper.
- ✓ However, for recording the time of workers who work at customers' premises and places which are situated at a distance from the factory, this may be the only suitable method.

(b) ***Metal Disc Method :***

- ✓ Under this method, each worker is allotted a metal disc or a token with a hole bearing his identification number.
- ✓ A board is kept at the gate with pegs on it and all token are hung on this board.
- ✓ These boards can be maintained separately for each department so that the workers could remove their tokens from the board without undue delay.
- ✓ As the workers enter the factory gate, they remove their respective discs or tokens and place them in a box or tray kept near the board.
- ✓ Immediately after the scheduled time for entering the factory, the box is removed and the late comers will have to give their tokens to the time-keeper personally so that the exact time of their arrival could be recorded.
- ✓ The discs or tokens still left on the board represent the absentee workers.
- ✓ Later the time-keeper records the attendance in a register known as Daily Muster Roll which is subsequently passed on to the Pay Roll Department.

Advantages:

- ⇒ This method is simple because illiterate workers can very easily recognize their tokens and put them in the box.
- ⇒ This method is better than attendance register method and is useful when the number of employees is not large.

Disadvantages:

- ⇒ There are chances that a worker may try to remove his companion's token from the board in order to get his presence marked when he is absent.
- ⇒ There are chances of disputes regarding the exact time of arrival of a worker because the time-keeper marking the attendance can commit mistakes deliberately or through carelessness. There is no authentic proof of the presence or absence of the workers.
- ⇒ There are chances of inclusion of dummy or ghost workers by the time-keeper in the attendance register or Daily Muster Roll.

MECHANICAL METHODS:

The mechanical methods that are generally used for the recording of time of workers may be as follows :

(a) Time Recording Clocks; and

(b) Dial Time Records.

(A) ***Time Recording Clocks:***

- ✓ The time recording clock is mechanical device which automatically records the time of the workers.
- ✓ This method has been developed to obviate some of the difficulties experienced in case of manual methods
- ✓ This method is useful when the number of workers is fairly large.
- ✓ Under this method, each worker is given a Time Card usually of one week duration.

- ✓ Time cards are serially arranged in a tray near the factory gate and as the worker enters the gate, he picks up his card from the tray, puts it in the time recording clock which prints the exact time of arrival in the proper space against the particular day.
- ✓ This process is repeated for recording time of departure for lunch, return from lunch and time of leaving the factory in the evening.
- ✓ Late arrivals, early leavings and overtime are printed in red to attract the attention of the management.

COMBINED TIME AND PAY-ROLL CARD

A time card may also give such particulars as hourly rate, total gross wages, less deductions and net wages payable. If these particulars are included in the time card, it would be known as combined time and pay-roll card.

It has been divided into two parts

- o Upper part &
- o Lower part

The upper part being the record of time and

The lower one serving as the wage ticket.

Wages are calculated on the basis of time recorded in the upper portion and are entered in the lower portion by the pay-roll department.

(B) ***Dial Time Records:***

- ✓ The dial time recorder is a machine which has a dial around the clock.
- ✓ This dial has a number of holes (usually about 150) and each hole bears a number corresponding to the identification number of the worker concerned.
- ✓ There is one radial arm at the centre of the dial. As a worker enters the factory gate, he is to press the radial arm after placing it at the hole of his number and his time will automatically be recorded on roll of a paper inside the dial time recorder against the number.
- ✓ The sheet on which the time is recorded provides a running account of the worker's time.
- ✓ This machine allows greater accuracy and can itself transcribe the number of hours to the wages sheets.
- ✓ This machine can also calculate the wages of the workers and thus avoids much loss of time.

REQUISITES OF A GOOD TIME-KEEPING SYSTEM

a) It should not allow proxy for another worker under any circumstances.

b) There should also be a provision for recording of time of piece workers so that regular attendance and discipline may be maintained. This is necessary to maintain uniformity of flow of production.

c) Time of arrival as well as time of departure of workers should be recorded so that total time of workers may be recorded and wages may be calculated accordingly.

d) As far as possible, method of recording of time should be mechanical so that chances of disputes regarding time may not arise between workers and the time-keeper.

e) Late-comers should record late arrivals. Any relaxation by the time-keeper in this regard will encourage indiscipline.

f) The system should be simple, smooth and quick.

g) Unnecessary queuing at the factory gate should be avoided.

h) Sufficient clocks should be installed keeping in view the number of workers so that workers may not have to wait for a long period for recording their time of arrivals and departures.

i) A responsible officer should pay frequent visits at the factory gate to see that proper method of recording of time is being followed.

TIME-BOOKING

(May 1994, 2007)

It is a system of recording the time spent by each works on various jobs.

Methods of Time booking:

i. Daily Time Sheet

ii. Weekly Time sheet

iii. Job card

iv. Combined Time and Job card

v. Labour cost card or circulating job card

vi. Piece-work card

OBJECTIVES OF TIME-BOOKING:

1. To ensure that time paid for, according to time keeping, has been properly utilised on different jobs or work orders.
2. To ascertain the cost of each job or work order.
3. To provide a basis for the apportionment of overhead.
4. To have control over Idle time

Distinction between Time Keeping and Time Booking

Time Keeping	Time Booking
It is a system of recording the arrival and departure time of each worker.	It is a system of recording the time spent by each workers on various jobs
Its basic objectives is to maintain attendance record as par statutory requirements and to provide data for the payroll preparation	Its basic objective is to ascertain the labour cost of a job
Methods: 1. Manual Methods a. Attendance register b. Metal Disc Method 2. Mechanical methods . a. Time Recording Clocks b. Dial Time Records.	Methods: 1. Daily Time Sheet 2. Weekly Time sheet 3. Job card 4. Combined Time and Job card 5. Labour cost card or circulating job card 6. Piece-work card

IDLE TIME (May 2000)

It is a time during which no production is carried out even though they are paid wages for such unproductive time.

Idle Time = Total time – Productive time

Since we calculate total time from Time keeping Records and Productive time from Time booking records

Idle Time = Time as per Time Keeping Records – Time as per Time Booking Redords.

Idle time can be -

- normal idle time or
- abnormal idle time.

NORMAL IDLE TIME	ABNORMAL IDLE TIME
It is inherent in any work situation and cannot be eliminated.	Over and above the normal idle time, there may be factors which give rise to abnormal idle time.
Eg.i. The time lost between factory gate and the place of work, ii. Interval between one job and another, iii. Setting up time for the machine, iv. Normal fatigue etc.	Eg. i. Lack of coordination, ii. Power failure, iii. Breakdown of machines, iv. Non-availability of raw materials, v. Strikes, vi. Lockouts, vii. Poor supervision, viii. Natural calamity like fire, flood etc.
It is uncontrollable in nature	It may be controllable and uncontrollable. **1.Controllable abnormal idle time**: It refers to that time which could have been put to productive use had the management been more alert and efficient. All such time which could have been avoided is controllable idle time. 2. **Uncontrollable idle time:** Time lost due to abnormal causes, over which management does not have any control *e.g.*, breakdown of machines, flood etc. may be characterised as uncontrollable idle time.
Accounting *Treatment:* Normal idle time is treated as a part of the **cost of production**	**Accounting *Treatment:*** It should shown as a separate item in the **Costing Profit and Loss Account**

OVERTIME

- Work done beyond normal working hours is known as 'overtime work'.
- Overtime has to be paid at double the rate of wages (such amount is known as 'Overtime Premium')
- According to the Factories Act, 1948, worker is entitled to overtime when he works for more than 9 hours on any day or more than 48 hours in a week.

CIRCUMSTANCE UNDER WHICH OVERTIME MAY ARISE

i. Due to shortage of labour

ii. Due to urgency of customer

ii. To make up any shortfall in production target or to achieve the production target

iii. To meet the seasonal demand

iv. Due to abnormal reason

OVERTIME PREMIUM (May 2000)

Overtime payment is the amount of wages paid for working beyond normal working hours. The rate for overtime work is higher than the normal time rate; usually it is at double the normal rates. The **extra amount** so paid **over the normal rate** is called overtime premium.

ACCOUNTING TREATMENT OF OVERTIME PREMIUM IN COST ACCOUNTING (May 2000, Nov.2004, May 2008)

CIRCUMSTANCE	ACCOUNTING TREATMENT
Due to labour shortage	Charged to cost of production
Due to customer's desire	Charged to the particular job
Due to fault of particular department	Charged to the department in default
Due to abnormal conditions	Charged to Costing P&L a/c

Steps for controlling overtime:

⇒ Watch on the output during normal hours should be maintained to ensure that overtime is not granted when normal output is not obtained during the normal hours, without any special reasons.

⇒ Statement concerning overtime work be prepared along with justifications, at appropriate places for putting up before the competent authority.

⇒ Prior sanction about overtime should be obtained from competent authority.

⇒ Actual rate of output produced during the overtime period should be compared with normal rate of output.

⇒ Periodical reports on overtime wages should be sent to top management for taking corrective action.

⇒ If possible an upper limit may be fixed for each category of workers in respect of overtime.

LABOUR TURNOVER (May 2003, Nov.2007)

Labour turnover in an organisation is "the rate of change in the composition of labour force during a specified period measured against a suitable index".

Terms associated with Labour Turnover

a. Separation
b. Replacement
c. New Recruitment
d. Accession &
e. Average Labour Force

	Separation	Replacement	New Recuritment
Meaning	Left & Discharged	Substitution	Additional labour force
Old worker	Goes Out	Goes Out	-
New worker	-	Comes In	Comes In

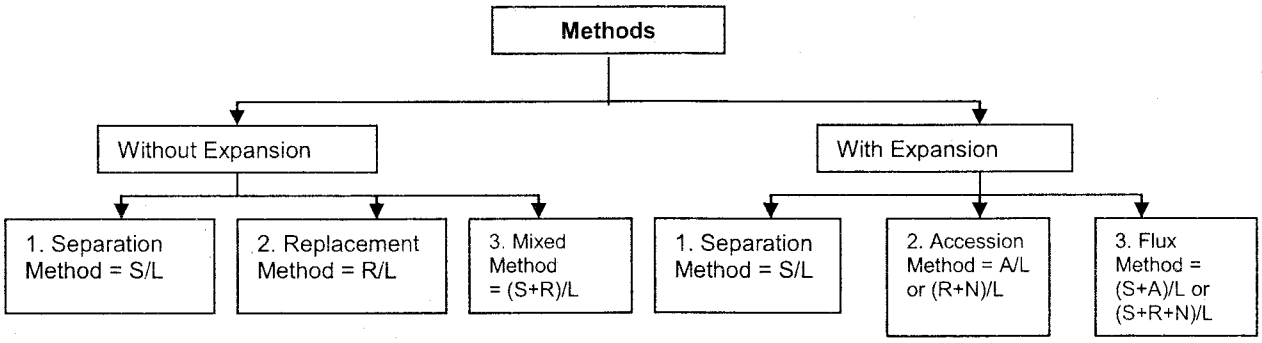
Accession:
It represent the number of new workers joining the organization, whether by way of replacement or otherwise.

Computation:

No. of workers at the end of the period	xxx
Add: No. of separations	xxx
Less: No. of workers at the beginning	(xxx)
Accession	xxx

Average Labour Force = $\frac{\text{No. of workers at the beginning + No. of workers at the end}}{2}$

METHODS OF COMPUTATION OF LABOUR TURNOVER (May 2003, Nov.2007)



Where:

S= Number of Separations

R= Number of Replacements

A= Accession

N= New Recruitments

L= Average Labour force

(Note: Labour Turnover is expressed in percentage)

Causes of labour turnover :

(a) Personal Causes;

(b) Unavoidable Causes; and

(c) Avoidable Causes.

(a) Personal Causes:

Personal causes are those which induce or compel workers to leave their jobs; such causes include the following :

(i) Change of jobs for betterment.

(ii) Premature retirement due to ill health or old age.

(iii) Domestic problems and family responsibilities.

(iv) Discontent over the jobs and working environment.

In all the above cases the employee leaves the organisation at his will and, therefore, it is difficult to suggest any possible remedy in the first three cases. But the last one can be overcome by creating conditions leading to a healthy working environment. For this, officers should play a positive role and make sure that their subordinates work under healthy working conditions.

(b) Unavoidable Causes:

Unavoidable causes are those under which it becomes obligatory on the part of management to ask one or more of their employees to leave the organisation; such causes are summed up as listed below:

(i) Seasonal nature of the business;

(ii) Shortage of raw material, power, slack market for the product etc.;

(iii) Change in the plant location;

(iv) Disability, making a worker unfit for work;

(v) Disciplinary measures;

(vi) Marriage (generally in the case of women).

(c) Avoidable Causes:

Avoidable causes are those which require the attention of management on a continuous basis so as to keep the labour turnover ratio as low as possible. The main causes under this case are indicated below :

(i) Dissatisfaction with job, remuneration, hours of work, working conditions, etc.,

(ii) Strained relationship with management, supervisors or fellow workers;

(iii) Lack of training facilities and promotional avenues;

(iv) Lack of recreational and medical facilities;

(v) Low wages and allowances.

Proper and timely management action can reduce the labour turnover appreciably so far as avoidable causes are concerned.

EFFECTS OF LABOUR TURNOVER (Nov.1998)

High labour turnover increases the cost of production in the following ways:

(i) Even flow of production is disturbed;

(ii) Efficiency of new workers is low; productivity of new but experienced workers is low in the beginning;

(iii) There is increased cost of training and induction;

(iv) New workers cause increased breakage of tools, wastage of materials, etc.

COSTS WHICH ARE ASSOCIATED WITH LABOUR TURNOVER: (Nov.'99, 2003)

(a) *Preventive costs* &

(b) *Replacement costs*

(a) *Preventive costs* : These include costs incurred to keep the labour turnover at a low level, *i.e.* cost of medical services, welfare schemes and pension schemes. If a company incurs high preventive costs, the rate of labour turnover is usually low.

(b) *Replacement costs* : These are the costs which arise due to high labour turnover. If men leave soon after they acquire the necessary training and experience of good work, additional costs will have to be incurred on new workers, *i.e.,* cost of employment, training and induction, abnormal breakage and scrap and extra wages and overheads due to the inefficiency of new workers.

It is obvious that a company will incur very high replacement costs if the rate of labour turnover is high. Similarly, only adequate preventive costs can keep labour turnover at a low level. Each company must, therefore, work out the optimum level of labour turnover keeping in view its personnel policies and the behaviour of replacement cost and preventive costs at various levels of labour turnover rates.

STEPS TO MINIMISE LABOUR TURNOVER: (May 2003, Nov.2007)

1. Exit interview
2. Job analysis and evaluation
3. Scientific system of recruitment, placement and promotion
4. Enlightened attitude of management
5. Use of committee

1. *Exit interview* :

An interview be arranged with each outgoing employee to ascertain the reasons of his leaving the organisation.

2. *Job analysis and evaluation* :

Before recruiting workers, job analysis and evaluation may be carried out to ascertain the requirements of each job.

3. *Scientific system of recruitment, placement and promotion:*

The organisation should make use of a scientific system of recruitment, selection, placement and promotion for employees.

4. *Enlightened attitude of management:*

The management should introduce the following steps for creating a healthy working atmosphere:

(i) Service rules should be framed, discussed and approved among management and workers, before their implementation.

(ii) Provide facilities for education and training of workers.

(iii) Introduce a procedure for settling worker's grievances.

5. *Use of committee* :

Issues like control over workers, handling their grievances etc., may be dealt by a committee, comprising of members from management and workers.

INCENTIVE SYSTEM

INCENTIVE:

- ✓ It's the stimulation for effort and effectiveness by offering monetary inducement or enhanced facilities.
- ✓ It may be
  - monetary (eg. Bonus) or
  - non-monetary (eg. improved working conditions)
- ✓ It may be provided individually or collectively.

ESSENTIAL CHARACTERISTICS OF A GOOD INCENTIVE SYSTEM:

(i) It should be just both to the employer and to the employee. It should be positive and not unnecessarily punitive and so operated as to promote confidence.

(ii) It should be strong both ways i.e. it should have a standard task and a generous return.

(iii) It should be unrestricted as to the amount of the earning.

(iv) It should be reasonable, apart from being simple, for employee to figure out his incentive in relation to his individual performance, as far as practicable.

(v) It should be flexible and intimately related to other management controls.

(vi) It should automatically assist supervision and, when necessary, aid team work.

(vii) It should have employee's support and in no way should it be paternalistic.

(viii) It should have managerial support in so far as production material, quality control, maintenance and non-financial incentives are concerned.

(ix) It should not be used temporarily and dropped in recession times as means of wage reduction.

SYSTEMS OF WAGE PAYMENT & INCENTIVES

I. Time Rate Systems &

II. Payment by Results

I. TIME RATE SYSTEMS

a) Time Rate System

b) High Wage Plan

c) Measured Day Work &

d) Differential Time Rate system

II. PAYMENT BY RESULTS

a) Piece work
   a. Straight piece work

   b. Differential piece work
      i. Taylor System &
      ii. Merrick System

b) Combination of Time & Piece work
   a. Gantt Task and Bonus system
   b. Emerson's Efficiency system
   c. Points system
      i. Beadaux System &
      ii. Haynes System
   d. Accelerated Premium System

c) Premium Bonus method
   a. Halsey system
   b. Rowan system &
   c. Barth system

d) Group system &

e) System of incentive schemes for indirect workers

SYSTEM	MEANING
Time rate system	Payment made on the basis of number of hours worked Formula: **Time Taken X Rate Per Hour**
High wage plan	✓ Under this plan a worker is paid a wage rate which is substantially higher than the rate prevailing in the area or in the industry. ✓ In return, he is expected to maintain a very high level of performance, both quantitative and qualitative.
Measured day work	✓ In this method the hourly rate of the time worker consists of two parts *viz,* fixed and variable. ✓ The fixed element is based on the nature of the job *i.e.* the rate for this part is fixed on the basis of job requirements. ✓ The variable portion varies for each worker depending upon his merit rating and the cost of living index.
Differential time rate	In this method, different hourly rates are fixed for different levels of efficiency. Up to a certain level of efficiency the normal time or day rate is paid. Based on efficiency level the hourly rate increases gradually.
Payment by result	Under this system the payment made has a direct relationship with the output given by a worker.

Straight piece work system	Under this system of wage payment, each operation, job or unit of production is termed a piece. The wages of the worker depend upon his output. Wages = **Number of units produced × Piece rate per unit**.
Differential piece work system	Under this several piece rates on a slab scale are fixed for a job or operation which is put on piece-work. For different levels of output below and above the standard, different piece rates are applicable
Taylor's differential piece work system	It aims at rewarding efficient workers by providing increased piece rate beyond certain level of output. Formula:

LEVEL OF EFFICIENCY	RATE OF WAGES
Less than 100%.	83% of normal piece rate
100% or more	125% of normal piece rate

Merrick differential piece rate system	Under this system three piece rates for a job are fixed. None of the fixed rates is below the normal

LEVEL OF EFFICIENCY	RATE OF WAGES
Upto 83%.	Normal piece rate
Above 83% & upto 100%	110% of normal piece rate
Above 100%	120% of normal piece rate

Gantt task and bonus system (Nov.2004, Nov.2008)	This system is a combination of time and piece work system. According to this system a high standard or task is set and payment is made at time rate to a worker for production below the set standard. If the standards are achieved or exceeded, the payment to the concerned worker is made at a higher piece rate.

LEVEL OF OUTPUT	RATE OF WAGES
below standard	Guaranteed time rate
At Standard	Time rate *plus* bonus of 20% of time rate
Above Standard	High piece rate on worker's whole output. It is so fixed, so as to include a bonus of 20% of the time rate.

Emerson's efficiency system (Nov.2008)	Under this system minimum time wages are guaranteed. But beyond a certain efficiency level, bonus in addition to minimum day wages

LEVEL OF EFFICIENCY	RATE OF WAGES
below 66.67%	time rate wages
Above 66.77 & upto 100%	Time rate *plus* Bonus of 20% of time rate
Above 100%	Time rate *plus* Bonus of 20% of time rate *plus* 1% for each 1% increase in efficiency is admissible

Points scheme or Bedeaux system	Under this scheme, firstly the quantum of work that a worker can perform is expressed in Bedaux points or B's. There points represent the standard time in terms of minutes required to perform the job. The standard number of points in terms of minutes are ascertained after a careful and detailed analysis of each operation or job. Each such minute consists of the time required to complete a fraction of the operation or the job, and also an allowance for rest due to fatigue. Workers who are not able to complete tasks allotted to them within the standard time are paid at the normal daily rate. Those who are able to improve upon the efficiency rate are paid a bonus, equal to the wages for time saved as indicated by excess of B's earned (standard minutes for work done) over actual time. Workers are paid 75% of the time saved.
Hayne's system	Under this system also the standard is set in minutes. The standard time for the job is expressed in terms of the standard man-minutes called as "MANIT". Manit stands for man-minute. In the case of repetitive work the time saved is shared between the worker and the foreman in the ratio 5 : 1. If the work is of non-repetitive nature, the worker, the employer and the foreman share the value of time saved in the ratio of 5 : 4 : 1. Each worker is paid according to hourly rate for the time spent by him on the job.
Accelerated premium system	Under this system earnings increase with output; the rate of increase of earnings itself increases progressively with output; in fact the earnings increase in greater proportion than the increase in production. This system acts as a strong incentive for skilled workers to earn high wages by increasing output and for production beyond standard
Premium bonus methods	Under these methods, standard time is established for performing a job. The worker is guaranteed his daily wages (except in Barth System), if his output is below and upto standard. In case the task is completed in less than the standard time, the saved time is shared between the employee and the employer. There are two types of time-sharing plans in use *viz.,* constant sharing plans and variable sharing plans
Halsey systems	Under this workers will get the bonus equal to 50 percent of the wages of time saved *Formula* = (Time taken × Time rate) + (50% of time saved × Time rate).
Halsey Weir System	The *Halsey Weir System* is the same as the Halsey System except that the bonus paid to workers is 30% of the time saved. *Formula:* (Time taken × Time rate) + (30% of time saved × Time rate).
Rowan system	Under Rowan System the bonus is that proportion of the time wages as time saved bears to the standard time. *Formula:* (Time taken × Rate per hour) + (Time Taken/Standard Time) × Time Saved × Rate per hour

Barth system Nov.2008)	The system is particularly suitable for trainees and beginners and also for unskilled workers. Formula: Rate per hour × √ (Standard Time X Actual Time)
Group system	Certain jobs or operations are required to be performed collectively by a number of workers. Under such cases each man's work depends on the work performed by one or more of his colleagues and as such it is not possible to measure separately the output of each worker. The workers constituting a group or a team here are considered as a composite unit and the combined output of such a unit is measured for the purpose of wage calculation.
System of incentive schemes for indirect workers	Since the setting of work standards and measurement of output in the case of indirect workers is not an easy task in respect of maintenance, internal transport, inspection, packing and cleaning, therefore the introduction of a system of payment by results for indirect workers is difficult. In spite of that it has been felt necessary to provide for incentives to indirect workers, due to Payment of incentive bonus to direct workers and time rate to indirect workers leads to dissatisfaction and labour unrest

JOB EVALUATION AND MERIT RATING (Nov.'99, 2000)

Meaning

JOB EVALUATION is the assessment of the relative worth of jobs within a company.

MERIT RATING is the assessment of the relative worth of the man behind the job

Factors influencing merit rating:

1. Quantum of work done
2. Quality of work done
3. Sense of responsibility
4. Initiativeness
5. Reliability
6. Level of knowledge and experience
7. Skill
8. Discipline
9. Sense of judgment
10. Ability to follow instructions
11. Adaptability of instructions
12. Co operation
13. Extraordinary talent

Under this method every factor is assigned with some points

Evaluator assigns points to each worker for every factor on the basis of points acquired by the employees and incentives, increment, promotion may be granted accordingly.

Difference between Job Evaluation & Merit Rating *(Nov 91, May 94, Nov 96, 99, 2001)*

JOB EVALUATION	MERIT RATING
Job evaluation is the assessment of the relative worth of jobs within a company	Merit rating is the assessment of the relative worth of the man behind the job.
Job evaluation and its accomplishment are means to set up a rational wage and salary structure	Merit rating provide a scientific basis for determining fair wages for each worker based on his ability and performance.
Job evaluation simplifies wage administration by bringing an uniformity in wage rates	Merit rating is used to determine fair rate of pay for different workers.

Difference between Casual Worker and Outworker *(May 1997, May 2002)*

Casual Worker	Outworker
i. Casual worker is appointed for a short duration to carry on normal business activities in place of a regular but temporarily absent worker.	i. A worker who does not work in the factory premises but either works in his home or at a site outside the factory is known as an outworker.
ii. He is engaged for the regular work inside the factory	ii. He is supplied with raw materials and tools necessary for carrying out the job. He is usually engaged on specialized job.
iii. He is paid on daily time basis. He is also known as daily wage.	iii. An outworker who works in his home is usually compensated on the basis of his output.

CHAPTER 4

OVERHEAD

Meaning

- ✓ Costs which are not directly attributable to produce the producing or rendering the service are called indirect cost.
- ✓ All the indirect expenses are collectively called overhead
- ✓ These are related to the cost object.
- ✓ These cannot be traced to in an economically feasible way.

Eg. Supervisor salary.

CLASSIFICATION OF OVERHEADS

- Production overhead
- Administrative overhead
- Selling & distribution overhead
- Research and Development overhead

STEPS FOR DISTRIBUTION OF OVERHEADS

1. Estimation and Collection of Manufacturing Overheads
2. Classification
3. Allocation
4. Apportionment
5. Re-apportionment &
6. Recovery / Absorption

Estimation / Collection	The estimation is usually done with reference to past data adjusted for known future changes. The overhead expenses are usually collected through a system of standing orders. The term "Standing Order" denotes sanction for indirect expenses under various heads of expenditure.
Classification (May'98)	It's a classification of overhead on the basis of behavior / Nature / Variability
Allocation (May '98, Nov '01)	The term 'allocation' implies relating overheads directly to the various departments.
Apportionment (May'98)	Expenses which cannot be directly allocated to the various departments and cost centres are apportioned. Apportionment implies "the allotment of proportions of items of cost to cost centres or departments". It implies that the unallocable expenses are to be spread over the various departments or cost centres on an equitable basis.
Re-apportionment	Expenses of service departments transferred to production departments is called Re-apportionment.
Recovery / Absorption (May '98, Nov '01)	Charging of overhead cost with every unit of output is called recovery. Overhead absorption are based on: i. % of Direct Material ii. % of Direct Labour iii. % of Prime cost iv. Labour hour rate v. Machine hour rate

DIFFERENCES BETWEEN ALLOCATION AND APPORTIONMENT

(Nov.'90, May 94, Nov.2001, May2008)

ALLOCATION	APPORTIONMENT
▪ It means identifying a cost centre and charging its expense in full.	▪ It means allotment of proportions of common cost to various cost centres.
▪ Specific costs are directly allocated to cost centre.	▪ Common expenses which cannot be directly allocated are apportioned on some suitable basis
▪ Nature of expenses is specific and identifiable	▪ Nature of expense is General and common
▪ Allocation allots whole amount of cost to cost centre or cost unit	▪ apportionment allots part of cost to cost centre or cost unit
▪ No basis required for allocation	▪ Apportionment is made on the basis of area, assets value, number of workers etc
▪ Charging of expenses to only one cost centre	▪ Charging of expenses to more than one cost centre
▪ Expenses are charged in full	▪ Expenses are charged in proportions

BASIS OF APPORTIONMENT OF COMMON COST

COMMON EXPENSES	BASIS OF APPORTIONMENT
Rent	Area in sq. meter
Depreciation	Value of asset
Supervisor salary	Number of hours spend
Electricity charges	Number of light points
Power	Horse Power rate
Insurance	Value of asset
Fire insurance of building	Floor area occupied
Canteen expenses	Number of employees
Carriage outwards	Volume of units sold
Material handling expenses	Value of materials consumed
Delivery charges	Weight
Indirect expenses	Direct wages
Sundries / misc. exp.	Direct wages

METHODS OF RE-APPORTIONMENT (Nov.'99, Nov.2004)

Expenses of service departments transferred to production departments is called Re-apportionment. Following are the method of re-apportionment of service department expenses to production department

Let A & B = Production Departments
X & Y = Service Departments

Probability	Service rendered by Service Dept.,	Method of Re-Apportionment
Service Dept., rendered services only to production dept.,	X *rendered services to* A & B; Y *Rendered services to* A & B	Direct Distribution Method
One service dept., rendered services to all production departments and another service dept., whereas the another service dept., rendered services only to production dept.,	X *rendered services to* A, B & Y; Y *Rendered services to* A & B	Step Ladder Method / Non-Reciprocal Method
Both the service dept., rendered services to production dept., & other service dept.,	X *rendered services to* A, B & Y; Y *Rendered services to* A, B & X	Reciprocal Method 1. Simultaneous Equation Technique 2. Repeated Redistribution Technique

DIFFERENCES BETWEEN BLANKET OVERHEAD RATES & DEPARTMENTAL RATES (May '99, Nov 2000)

BLANKET OVERHEAD RATES	DEPARTMENTAL RATES
• Blanket overhead rate refers to the computation of one single overhead rate for the whole factory. • The use of blanket rate may be proper if the factory produces only one major product in a continuous process (*e.g.*, chemical factories) or where the work performed in every department is fairly uniform or standardised. • Blanket rate should be applied. (1) where only one major product is being produced. (2) where several products are produced, but (a) all products pass through all departments; and (b) all products are processed for the same length of time in each department. Where these conditions do not exist, departmental rates should be used. Formula = $\frac{\text{OH for the entire factory}}{\text{No. of hours}}$	• It is also called Multiple overhead rate. • It refers to a separate rate for each individual cost centre or department. • If the product lines are varied or machinery is used to a varying degree in the different departments, that is, where conditions throughout the factory are not uniform, the use of departmental rates is to be preferred. Formula = $\frac{\text{OH allocated to each Dept.}}{\text{Corresponding base}}$

TREATMENT OF UNDER-ABSORBED AND OVER-ABSORBED OVERHEADS IN COST ACCOUNTING

(Nov.'98, May 2004, 2006)

- Overhead expenses are usually applied to production on the basis of pre-determined rates.
- The actual overhead rate will rarely coincide with the pre-determined overhead rate, due to variation in pre-determined overhead rate and actual overhead rate.
- Such a variation may arise due to any one of the following situations:

i) The number of units produced during the period is either more or less in comparison with budgeted figure.

ii) The actual overheads incurred are more or less than the estimated overheads for the period,

iii) If changes occur in different proportion both in the actual overheads and in the number of units produced during the period.

UNDER ABSORPTION	OVER ABSORPTION
It means absorbed overhead are less than the actual overhead	It means absorbed overhead are more than the actual overhead.
It may be due to i. Normal reasons or ii. abnormal reasons	It may be due to i. Error in estimation ii. Seasonal fluctuations iii. Unanticipated changes in methods of production
Accounting treatment	Accounting treatment

In case of Normal reason	In case of abnormal reason
The amount of normal increase in cost is apportioned to a. Units sold b. Cl. Sk of FG c. Cl. Sk. of WIP	Transferred to Costing P & L account.
Eg. Genuine error in planning; change in planning premises etc.	Eg. Strike period wages; write off of obsolete stocks etc.

If amount is relatively small	If amount is relatively large
Write off to costing P&L account	Use supplementary recovery rate.

IDLE CAPACITY (May '97)

It is the part of capacity of plant or machinery which cannot be effectively utilized.

Idle capacity = Practical capacity – Actual capacity

Idle capacity may arise due to;

- Lack of demand
- Shortage of raw material
- Shortage of labour
- Lack of power
- Seasonal nature etc.,

Idle capacity may be classified into;

1) Normal Idle Capacity &
2) Abnormal Idle capacity

TREATMENT OF IDLE CAPACITY COST

Idle capacity cost = (Total Overhead / Normal capacity) X Idle Capacity

Reason	Treatment
Due to unavoidable reasons *(eg; repairs & maintenance, change over of job etc,)*	Treated as regular cost & included as overhead
Due to avoidable reasons *(eg; faulty planning, power failure etc,)*	Charged to P&L A/c
Due to Seasonal Factors	Charged to cost of production

CODIFICATION OF OVERHEADS

It is a technique of intelligently describing in numbers or letters or a combination of both, the lengthy description of numerous cost accounting heads for ease of recording and controlling of the cost data generated.

It facilitates the task of allocation and apportionment of overheads over different departments or cost centres and it reduces the task of maintaining a huge number of accounts.

Methods (May '91)

(i) Straight numbering system
(ii) Number blocks system
(iii) Combination of symbols and numbers
(iv) Numerical code method
(v) Mnemonic method

CHAPTER 5

INTEGRATED & NON-INTEGRATED ACCOUNTING SYSTEM

Non-Integrated Accounting System

- It is a system of accounting under which ***separate ledgers*** are maintained for cost and financial accounts by Accountants.
- Under such a system the cost accounts restricts itself to recording only those transactions which relate to the product or service being provided.
- Hence items of expenses which have a bearing on sales or, production or for that matter any other items which are under the factory management are the ones dealt with in such accounts.
- This leads to the exclusion of certain expenses like interest and, bad debts and revenue/income from 'other than the sale of product or service'.
- A special feature of the non-integrated system of accounts is its ability to deal with notional expenses like rent or interest on capital tied up in the stock.
- The accounting of notional rent facilitates comparisons amongst factories (some owned and some rented).

IMPORTANT LEDGERS - UNDER NON-INTEGRATED ACCOUNTING SYSTEM

- ✓ Cost Ledger
- ✓ Stores Ledger
- ✓ Work-in-Progress Ledger
- ✓ Finished Goods Ledger

MAIN ACCOUNTS - WHEN A SEPARATE COST LEDGER IS MAINTAINED

- ✓ Cost Ledger Control Account/ General Ledger Adjustment Account.
- ✓ Stores Ledger Control Account
- ✓ Work-in-Progress Control Account
- ✓ Finished Goods Control Accounts
- ✓ Wage Control Account
- ✓ Production Overhead Account
- ✓ Administrative Overhead Account
- ✓ Selling and Distribution Overhead Account
- ✓ Cost of Sales Account
- ✓ Costing Profit & Loss Account
- ✓ Overhead Adjustment Account

GENERAL LEDGER ADJUSTMENT ACCOUNT

It is one of the accounts prepared under the non-integrated system of accounting. As the system does not permit the operation of personal accounts or real accounts, the General Ledger Adjustment Account is used to complete double entry. For posting of contra entries involving a personal or real account, the General Ledger Adjustment Account is used.

Journal Entries

PURCHASE

Stores Ledger Control A/c	xxx	
To Cost Ledger Control A/c		xxx

MATERIAL RETURNED TO VENDOR

Cost Ledger Control A/c Dr	xxx	
To Stores Ledger Control A/c		xxx

MATERIAL (DIRECT) ISSUED TO PRODUCTION

Work-in-Progress Control A/c Dr	xxx	
To Stores Ledger Control A/c		xxx

MATERIAL 'INDIRECT' ISSUED TO PRODUCTION

Manufacturing Overhead A/c Dr	xxx	
To Stores Ledger Control A/c		xxx

MATERIAL RETURNED FROM JOB TO STORES

Stores Ledger Control A/c Dr.	xxx	
To Work-in-Progress Control A/c		xxx

MATERIAL TRANSFERRED FROM JOB 1 TO JOB 2

Job 2 A/c Dr.	xxx	
To Job 1 A/c.		xxx

DIRECT WAGES PAID TO WORKERS

Wage Control A/c Dr	xxx	
To Cost Ledger Control A/c		xxx
WIP A/c Dr	xxx	
To Wage Control A/c		xxx

INDIRECT WAGES PAID TO WORKERS IN THE PRODUCTION, ADMINISTRATION, SELLING AND DISTRIBUTION DEPARTMENTS

Wage Control A/c Dr	xxx	
To Cost Ledger Control A/c		xxx
Production Overhead A/c Dr	xxx	
Administrative Overhead A/c Dr	xxx	
Selling & Dist. Overhead A/c Dr	xxx	
To Wage Control A/c		xxx

ADMINISTRATIVE *OVERHEAD EXPENSES INCURRED*

Administrative Overhead A/c Dr	xxx	
To Cost Ledger Control A/c		xxx

CARRIAGE INWARD

Manufacturing Overhead A/c Dr	xxx	
To Cost Ledger Control A/c		xxx

ADMINISTRATIVE OVERHEAD RECOVERED FROM FINISHED GOODS

Finished Goods Ledger Control A/c Dr	xxx	
To Administrative Overhead A/c		xxx

SELLING AND DISTRIBUTION OVERHEAD RECOVERED FROM SALES

Cost of Sales A/c Dr	xxx	
To Selling & Distribution Overhead A/c		xxx

UNDER/OVER ABSORBED OVERHEADS ARE TRANSFERRED TO COSTING PROFIT & LOSS ACCOUNT

a. For over recovery

Production Overhead A/c Dr	xxx	
To Costing Profit & Loss A/c		xxx

b. For under recovery

Costing Profit & Loss Account Dr	xxx	
To Administrative Overhead A/c		xxx

INTEGRATED ACCOUNTING SYSTEM

(May '98, '99, 2002, 2007)

- In this system, cost and financial accounts are kept in the ***same set of books***.
- It provides fully the information requirement for Costing as well as for Financial Accounts.
- Under this system there is no need for a separate cost ledger.

ADVANTAGES (May '02, '07)

- ✓ The question of reconciling costing profit and financial profit does not arise, as there is one figure of profit only.
- ✓ Due to use of one set of books, there is a significant extent of saving in efforts made.
- ✓ No delay is caused in obtaining information as it is provided from books of original entry.
- ✓ It is economical also as it is based on the concept of "Centralisation of Accounting function".

PRE-REQUISITES FOR INTEGRATED ACCOUNTS

(Nov '96, Nov 2001, 2006, 2007)

1. EXTENT OF INTEGRATION:

Decide the extent of integration of the two sets of books, whether to integrate up to the stage of primary cost or factory cost or prefer full integration of the entire accounting records.

2. CODING SYSTEM

A suitable coding system must be made available so as to serve the accounting purposes of financial and cost accounts.

3. STANDARDISATION

An agreed routine, with regard to the treatment of provision for accruals, prepaid expenses, other adjustment necessary for preparation of interim accounts.

4. COORDINATION

Perfect coordination should exist between the staff responsible for the financial and cost aspects of the accounts and an efficient processing of accounting documents should be ensured.

Journal Entries

RAW MATERIALS PURCHASED		
Stores Ledger Control A/c Dr	xxx	
To Creditors A/c		xxx
DIRECT MATERIALS ISSUED TO PRODUCTION		
Work-in-Progress Control A/c Dr.	xxx	
To Stores Ledger Control A/c		xxx
WAGES PAID (30% INDIRECT)		
Wages Control A/c Dr.	xxx	
To Bank A/c		xxx
Work-in-Progress Control A/c Dr *(Direct Wages)*.	xxx	
Factory Overhead Control A/c Dr. *(Indirect Wages)*	xxx	
To Wages Control A/c		xxx
MANUFACTURING EXPENSES INCURRED		
Factory Overhead Control A/c Dr.	xxx	
To Bank A/c		xxx
MANUFACTURING OVERHEAD CHARGED TO PRODUCTION		
Work-in-Progress Control A/c Dr.	xxx	
To Factory overhead charged A/c		xxx
SELLING & DISTRIBUTION OVERHEAD INCURRED		
Selling & Distribution Overhead Control A/c Dr.	xxx	
To Bank A/c		xxx

SALES

Sundry Debtors A/c Dr.	xxx	
To Sales A/c		xxx

AMOUNT RECEIVED FROM DEBTORS

Bank A/c Dr.	xxx	
To Sundry Debtors A/c		xxx

PAYMENTS TO CREDITORS

Sundry (Creditors) A/c Dr.	xxx	
To Bank A/c		xxx

RECONCILIATION OF COST AND FINANCIAL ACCOUNTS

It will arise if the cost and financial accounts are kept separately. The objective of cost accounting is to provide information to management for decision making and control purposes, while financial accounting conforms to external reporting requirements.

CAUSES WHICH GIVE RISE TO DIFFERENCES IN THE COST AND FINANCIAL ACCOUNTS.

(Nov.'99, May 2004, 2006, Nov.2007)

1. Items included in the financial accounts but not in cost accounts :
2. Item included in the cost accounts only
3. Difference in method of depreciation
4. Difference in basis of inventory valuation

1. ITEMS INCLUDED IN THE FINANCIAL ACCOUNTS BUT NOT IN COST ACCOUNTS

(i) Matters of pure finance

(ii) Interest received on bank deposits.

(iii) Interest, dividends, etc. received on investments.

(iv) Rents receivable.

(v) Losses on the sale of investments, building etc.

(vi) Profits made on the sale of fixed assets.

(vii) Transfer fee received.

(viii) Remuneration paid to the proprietor in excess of a fair reward for services rendered.

(ix) Damages payable at law.

(x) Penalties payable at law.

(xi) Losses due to scrapping of machinery.

2. **ITEM INCLUDED IN THE COST ACCOUNTS ONLY** (notional expenses):

   (i) Charges in lieu of rent where premises are owned.

   (ii) Interest on capital employed in production, but upon which no interest is actually paid if the firm decided to treat interest as part of cost.

   (iii) Salary for the proprietor where he works but does not charge a salary.

3. **DIFFERENCE IN METHOD OF DEPRECIATION**

   The amount of depreciation charged may be different in the two sets of books either because of the different methods of calculating depreciation or the rates adopted. In cost accounts, for instance, the straight line method may be adopted whereas in financial accounts it may be the diminishing balance method.

4. **DIFFERENCE IN BASIS OF STOCK VALUATION**

   In financial accounts stock are valued either at cost or market price, whichever is lower. But in Cost Accounts, stocks are only valued at cost.

CHAPTER 6

JOB, BATCH & CONTRACT COSTING

JOB COSTING (May 2001)

- ✓ The job costing method of costing may be regarded as the principal method of costing since the basic object and purpose of all costing is to analyse and ascertain cost of each unit of production so that it may be possible to control and regulate cost and to determine the profitability
- ✓ i.e it's the form of specific order costing which applies where work is undertaken according to customer's specifications
- ✓ It involves preparation of a separate cost sheet for each job
- ✓ In this method costs are collected and accumulated according to jobs
- ✓ Each job is treated as a separate entity for the purpose of costing.
- ✓ It is carried out for the purpose of ascertaining cost of each job and takes into account the cost of materials, labour and overhead etc.
- ✓ Job costing systems is suitable for;-
  - o Automobile service industries
  - o Interior decoration,
  - o Printing;
  - o Hardware;
  - o Ship-building;
  - o Heavy machinery;
  - o Repairs and other similar work.

Job Costing may be employed in the following cases:

- When jobs are executed for different customers according to their specifications.
- When no two orders are alike and each order/job needs special treatment.
- Where the work-in-progress differs from period to period on the basis of the number of jobs in hand.

BATCH COSTING (May 2001)

- ✓ This is a form of job costing
- ✓ Under job costing, executed job is used as a cost unit, whereas under batch costing, a lot of similar units which comprises the batch may be used as a cost unit for ascertaining cost.
- ✓ In the case of batch costing, separate cost sheets are maintained for each batch of products by assigning a batch number.
- ✓ Cost per unit in a batch = Total cost of a batch / number of items produced in that batch.
- ✓ Batch costing systems is suitable for following industries ;- Pharmaceutical industries, ready-made garments, industries manufacturing electronic parts of T.V., radio sets etc.
- ✓

Economic Batch Quantity (May 2001)

The size of the batch for which both set up and carrying costs are minimum is known as Economic Batch Quantity (EBQ). It is also called Optimum Batch Quantity.

Formula

If the unit cost of production (C) alone given,	If the rate of interest (I) & unit cost of production (C) are given,
$\sqrt{(2AS)} / C$	$\sqrt{(2AS)} / IC$
Where, A = Annual demand for the product S = Setting up cost per batch C = Carrying cost per unit of production I = Rate of Interest	

DIFFERENCE BETWEEN JOB COSTING & BATCH COSTING (Nov.2004, May 2006)

JOB COSTING	BATCH COSTING
It is undertaken in such industries where work is done as per the customers requirement	It is undertaken in such industries where production is of repetitive nature
It's a specific order costing	It's a special type of job costing
Cost is determined on job basis	Cost is determined on batch basis
Each job is unique in nature	The articles produced in a batch are alike.
Job costing systems is suitable for;- o Automobile service industries o Interior decoration, o Printing; o Hardware; o Ship-building; o Heavy machinery; o Repairs and other similar work.	Batch costing systems is suitable for;- o Pharmaceutical industries, o ready-made garments, o industries manufacturing electronic parts of T.V., radio sets etc.

CONTRACT COSTING

Contract is a bigger type of job. Contract costing is usually adopted by building contractors engaged in the task of executing Civil Contracts.

FEATURES:

- The major part of the work is carried out at the site of the contract.
- The bulk of the expenses incurred by the contractor are considered as direct.
- The indirect expenses, mostly consist of office expenses of the yards, stores and works.
- A separate account is usually maintained for each contract.
- The number of contracts undertaken by a contractor at a time is not usually very large.
- The cost unit in contract costing is the contract itself.

COST OF WORK CERTIFIED:

All building contractors receive payments periodically known as "running payment" on the basis of the architect's or surveyor's certificates. But payments are not equal to the value of the work certified, a small percentage of the amount due is retained as security for any defective work which may be discovered later within the guarantee period.

Cost of work certified = Total cost to date – (Cost of work uncertified + Material in hand + Plant at site)

WORK UNCERTIFIED:

It represents the cost of the work which has been carried out by the contractor but has not been certified by the contractee's architect. It is always shown at cost price.

Cost of work uncertified = Total cost to date – (Cost of work certified + Material in hand + Plant at site)

RETENTION MONEY: (May 2007)

A contractor does not receive full payment of the work certified by the surveyor. Contractee retains some amount (say 10% to 20%) to be paid, after sometime, when it is ensured that there is no fault in the work carried out by contractor. If any deficiency or defect is noticed in the work, it is to be rectified by the contractor before the release of the retention money. Retention money provides a safeguard against the risk of loss due to faulty workmanship.

NOTIONAL PROFIT: (May 2007)

It represents the difference between the value of work certified and cost of work certified.

Notional profit = Value of work certified – (Cost of work to date – Cost of work not yet certified)

ESTIMATED PROFIT:

It is the excess of the contract price over the estimated total cost of the contract.

PROFIT/LOSS ON INCOMPLETE CONTRACTS

To determine the profit to be taken to Profit and Loss Account, in the case of incomplete contracts, the following four situations may arise

% of *Completion of contract*	Profit to be recognized in P&L a/c
less than 25 per cent	NIL
Equal to or more than 25% but less than 50%	1/3 of Notional Profit x (Cash received / work certified)
Equal to or more than 50% but less than 90%	2/3 of Notional Profit x (Cash received / work certified)
Equal to or more than 90% but less than100% (Substantial completion)	Ref. Estimated Total Profit method

Formula for computation of % of completion

% of completion = (Value of work certified / Contract Price) x 100

Estimated Total Profit Method

Formula

1. ETP X (Work Certified / Contract Price)
2. ETP X (Work Certified / Contract Price) X (Cash Received / Work Certified)
3. ETP X (Cost Till Date / Estimated Total Cost)
4. ETP X (Cost Till Date / Estimated Total Cost) X (Cash Received / Work Certified)

Note:

Least of the above resultant profit will be taken to contract profit & loss account.

Format of Contract Account

Contract Account of .....,

For the accounting period .....

Dr. Cr.

Particulars	Amount (Rs.)	Particulars	Amount (Rs.)
To Material	Xxx	By Material at site	xxx
To Wages	Xxx	By Work Certified	xxx
To Direct Exp.	Xxx	By Work Uncertified	xxx
To Depreciation	Xxx		
To Office & Admin exp.	Xxx		
To Notional Profit c/d	Xxx		
Total	Xxx	Total	xxx
To Profit & Loss a/c	Xxx	By Notional Profit b/d	xxx
To Reserve a/c	Xxx		
Total	Xxx	Total	xxx