

**MAIN MATERIAL / CA INTER / GR. 1 / BOOK 15 / COSTING – PART 3 / 42.5(2<sup>nd</sup> Version)**

CHAPTERS INCLUDED - EMPLOYEE COST

(APPLICABLE TO MAY 2020 ATTEMPT OF CA INTER. SYNCHRONISED WITH JULY 2019 EDITION OF ICAI SM. ISSUED ON 3/12/19)

**3. EMPLOYEE COST AND DIRECT EXPENSES**

NO. OF PROBLEMS IN 41.5E OF CA INTER: CLASS ROOM - 21, ASSIGNMENT – 24

NO. OF PROBLEMS IN 42E OF CA INTER: CLASS ROOM - 23, ASSIGNMENT – 22

NO. OF PROBLEMS IN 42.5(2<sup>nd</sup> Version) OF CA INTER: CLASS ROOM - 19, ASSIGNMENT - 17**MODEL - WISE ANALYSIS OF PREVIOUS EXAMINATIONS**

No.	MODEL NAME	N - 09	M - 10 TO N - 10	M - 11	N - 11	M - 12	N - 12	M - 13	N - 13 TO M - 15	N - 15	M - 16	N - 16	M - 17	N - 17	M - 18 (O)	M - 18 (N)	N - 18 (O)	N - 18 (N)	N - 19 (N)	N - 19 (O)	N - 19 (N)
1.	CALCULATION OF REMUNERATION	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.	STANDARD PLANS	3	3	5	5	8	6	-	-	-	-	-	-	-	-	-	5	5	-	5	10
3.	NON -STANDARD PLANS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-
4.	TREATMENT OF OVERTIME WAGES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.	IDLE TIME TREATMENT	-	-	-	-	-	-	5	-	8	5	-	-	-	-	-	-	5	-	-	-
6.	LABOUR TURNOVER RATES	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	10	-	-	-	-
7.	LABOUR TURNOVER EFFECT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-
8.	BONUS TO DIRECT & INDIRECT LABOUR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.	LABOUR COST ANALYSIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**SIGNIFICANCE OF EACH PROBLEM COVERED IN THIS MATERIAL**

Problem No. in this material	Problem No. in NEW SM (JUL 19)	Problem No. in NEW SM (JUL 17)	Problem No. in OLD SM	Problem No. in OLD PM	RTP	MTP	Previous Exams	Remarks
CR 1	ILL-1	ILL-1	ILL-1(95%)	-	-	-	-	-
CR 2	ILL-3	ILL-3	ILL-2(95%)	24(95%)	-	-	-	-
CR 3	-	-	-	16	-	-	-	-
CR 4	ILL-10	ILL-17	ILL-16	-	-	-	-	-
CR 5	ILL-9	ILL-16	ILL-17	-	-	-	-	-
CR 6	PQ-1	PQ-1	ILL-20(95%)	-	-	-	-	-
CR 7	-	-	-	10(95%)	-	-	-	-
CR 8	ILL-9	ILL-16	ILL-17	-	-	-	-	-
CR 9	-	-	-	-	-	-	M 19(N)	-
CR 10	PQ-2	PQ-2	-	-	-	-	-	-
CR 11	-	-	-	-	N19	-	-	-
CR 12							N19(N)	-
CR 13	-	-	-	-	-	-	M 19(N)	-
CR 14	-	-	-	-	-	-	N18 (N)	-
CR 15	ILL-14	-	-	-	-	-	-	N15
CR 16	-	ILL-23	ILL-6	-	-	Nov18-ii	M17	-
CR 17	ILL-15	-	-	-	-	-	M18 (N)	-

CR 18	-	ILL-24	ILL-5	-	-	-	-	
CR 19	-	-	-	-	-	-	N19(N)	
CR 20	-	-	-	5	-	-	-	
ASG 1	-	-	-	-	-	-	-	
ASG 2	ILL-3(80%)	ILL-3(80%)	ILL-2(95%)	-	-	-	-	
ASG 3	-	-	-	-	-	-	-	
ASG 4	-	-	-	20	-	-	M13	
ASG 5	-	-	-	-	-	-	N17	
ASG 6	-	-	-	15	-	-	-	
ASG 7	-	-	-	-	-	-	N17	
ASG 8	-	-	-	-	-	-	M18 (N)	
ASG 9	-	-	-	6	-	M15	-	
ASG 10	-	-	-	9(95%)	-	-	-	
ASG 11	-	-	-	-	N18 (N&O)	-	-	
ASG 12	-	-	-	-	-	-	-	
ASG 13	-	-	-	-	-	-	N18 (N)	
ASG 14	-	-	-	1	-	M 18-2	-	
ASG 15	-	-	-	-	-	N 18-2	-	
ASG 16	-	-	-	-	-	-	-	
ASG 17	-	-	-	-	-	M 19-ii	-	

#### TOPICS TO BE COVERED:

1. Calculation of remuneration.
2. Calculation of efficiency, capacity and activity ratio's.
3. Calculation of bonus - Standard plans.
4. Calculation of bonus - Nonstandard plans.
5. Missing figures.
6. Labour cost per good unit.
7. Over time treatment.
8. Labour cost analysis.
9. Bonus to Direct & Indirect labour.
10. Labour Turnover Rates.
11. Decision making.
12. Recruitment
13. Policy.

#### EMPLOYEE (LABOUR) COST

**Employee (Labour) cost:** Benefits paid or payable to the employees of an entity, whether permanent or temporary for the services rendered by them. Employee cost includes payments made in cash or kind. Employee cost includes the following:

- i) Wages and salary;
- ii) Allowances and incentives;
- iii) Payment for overtimes;
- iv) Employer's contribution to Provident fund and other welfare funds;
- v) Other benefits (leave with pay, free or subsidised food, leave travel concession etc.) etc.

**Classification of Employee (Labour) cost:** Employee costs are broadly classified as direct and indirect employee cost.

- i) **Direct Employee (Labour) Cost:** Benefits paid or payable to the employees which can be attributed to a cost object in an economically feasible manner. This can be easily identified and allocated to an activity, contract, cost centre, customer, process, product etc.
- ii) **Indirect Employee (Labour) Cost:** Benefits paid or payable to the employees, which cannot be directly attributable to a particular cost object in an economically feasible manner.

### Distinction between Direct and Indirect Employee Cost:

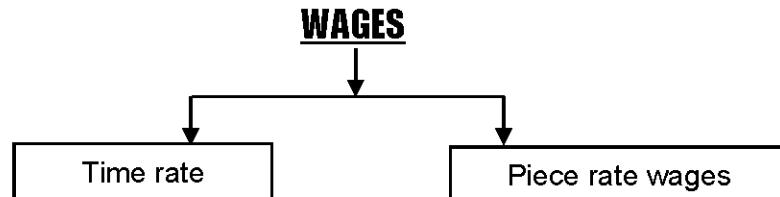
Direct employee cost	Indirect employee cost
1. It is the cost incurred in payment of employees who are directly engaged in the production process.	1. Cost incurred for payment of employee who are not directly engaged in the production process.
2. Direct employee cost can be easily identified and allocated to cost unit.	2. Indirect employee cost is apportioned on some appropriate basis.
3. Direct employee cost varies with the volume of production and has positive relationship with the volume.	3. Indirect employee cost may not vary with the volume of production.

## REMUNERATION/WAGE COST

Remuneration = Wages + Bonus + Payments under Welfare Schemes

The followings are generally deducted from the payroll:

Type of deductions	Description
<b>Statutory Deductions</b>	
1. Provident fund	Employee's contribution to the Provident fund is deducted from the salary/ wages of the concerned employee.
2. Employee State Insurance Scheme (ESI)	Employee's contribution to the ESI is deducted from the salary/ wages.
3. Tax Deduction at Source (TDS)	Employer is obliged to deduct tax at source if it will be paying to the employee net salary exceeding maximum exemption limit, in equal monthly installments to the income tax department.
4. Professional Tax	Professional tax is a state level tax imposed for carrying on business, profession or service.
<b>Other Deductions</b>	
1. Voluntary contribution to Provident fund	If any employee so desires may contribute over and above the contribution payable by the employer.
2. Contribution to any benevolent fund.	An employee may contribute to any benevolent fund voluntarily by putting a request to the payroll department.
3. Loan deductions	Installments of any loan taken by the employee.
4. Other advances and dues	Other advances like festival advance and unadjusted advances taken.



**Time rate wages:** Under this method wages are paid on the basis of no. of hours worked.

$$\text{Wages} = \text{Rate per hour} \times \text{No. of hours worked}$$

**Advantages:** Easy to calculate, Guaranteed wages.

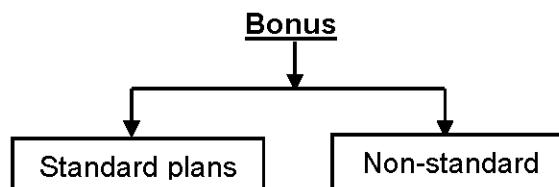
**Disadvantages:** Efficiency may be on low side, No respect for hard work.

**Piece rate wages/ Straight work basis / Payment by results:** Under this method, wages are paid on the basis of units produced by the workers.

$$\text{Wages} = \text{Production in Units} \times \text{Piece rate}$$

**Advantages:** Respect for efficiency, Less wages for less efficient workers.

**Disadvantages:** Quality may suffer, No guaranteed wages.



### STANDARD PLANS:

Halsey System: Under this system remuneration = Wages + Bonus.

$$\text{Remuneration} = T \times R + \frac{1}{2} [T.S. \times R]$$

Where T = Time taken, R = Rate per hour, T.S. = Time saved (Standard time - Actual time)

Standard Time (S.T.) = Standard Time for Actual Production & Actual Time (A.T.) = Actual Time for Actual Production.

*E.g.: Time given for each unit - 2 hours. Actual production is 700 units. Standard time for 700 units = 2 hours  $\times$  700 = 1,400 hours. Actual time for 700 units = 1,200 hours. Time saved = 200 hours.*

Rowan System: Under this system remuneration = Wages + Bonus.

$$\text{Remuneration} = T \times R + \frac{T.S.}{S.T.} \times (T \times R)$$

**NON STANDARD PLANS:** Under these cases the formula for bonus payment will be designed keeping in mind the specific conditions of each organization. The formula may differ from one organization to another organization.

### IDLE TIME

The time during which no production is carried-out because the worker remains idle but are paid. In other words, it is the difference between the time paid and the time booked. Idle time can be normal or abnormal. The time for which employees are paid includes holidays, paid leaves, allowable rest or off time etc.

Normal Idle time: It is the time which cannot be avoided or reduced in the normal course of business.

Causes	Treatment
1. The time lost between factory gate and the place of work,	It is treated as a part of cost of production. Thus, in the case of direct workers an allowance for normal idle time is considered setting of standard hours or standard rate.
2. The interval between one job and another,	
3. The setting up time for the machine,	
4. Normal rest time, break for lunch etc.	In case of indirect workers, normal idle time is considered for the computation of overhead rate.

Abnormal idle time: Apart from normal idle time, there may be factors which give rise to abnormal idle time.

Causes	Treatment
1. Idle time may also arise due to abnormal factors like lack of coordination	Abnormal idle time cost is not included as a part of production cost and is shown as a separate item in the Costing Profit and Loss Account.
2. Power failure, Breakdown of machines	
3. Non-availability of raw materials, strikes, lockouts, poor supervision, fire, flood etc.	
4. The causes for abnormal idle time should be further analysed into controllable and uncontrollable.	
i) Controllable abnormal idle time 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.	

ii) Uncontrollable abnormal idle time refers to 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

### Overtime:

Work done beyond normal working hours is known as 'overtime work'. Overtime payment is the amount of wages paid for working beyond normal working hours.

Overtime payment consist of two elements-

- i) Normal wages for overtime work and
- ii) Premium payment for overtime work.

**Over time payment = Wages paid for over time at normal rate + premium (extra) payment for overtime work.**

**Overtime premium:** 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.

Rate and conditions for overtime premium may either be fixed by an entity itself or it may be required by any statute in force. The overtime premium should not be less than the premium calculated as per the statute.

As per the Factories Act 1948 "Where a worker works in a factory for more than nine hours in any day or for more than forty eight hours in any week, he shall, in respect of overtime work, be entitled to wages at the rate of twice his ordinary rate of wages."

## **LABOUR TURNOVER RATIO (V.IMP - FOR THEORY)**

Labour turnover refers to the rapidity with which workforce in an organisation changes. If in a year large number of employees join and leave the organisation, labour turnover is high. High labour turnover indicates instability of workforce while low labour turnover is indicative of stability.

### Formulae:

a) **Separations Method** = 
$$\frac{\text{No. of Separations}}{\text{Average no. of workers}}$$

Separations mean the worker leaving the organisation by way of discharge & left.

b) **Replacement Method** = 
$$\frac{\text{No. of Replacements}}{\text{Average no. of workers}}$$

Replacements means the no. of workers appointed in the place of workers leaving the organisation.

c) **Recruitment Method:** Labour Turnover due to new recruitments (other than replacements)

$$= \frac{\text{Recruitments other than replacements}}{\text{Average no. of workers}}$$

d) **Accessions Method:** 
$$\frac{\text{Total Recruitments}}{\text{Average no. of workers}}$$

Total recruitments (also called Accessions) = Replacements & Newly appointed workers.

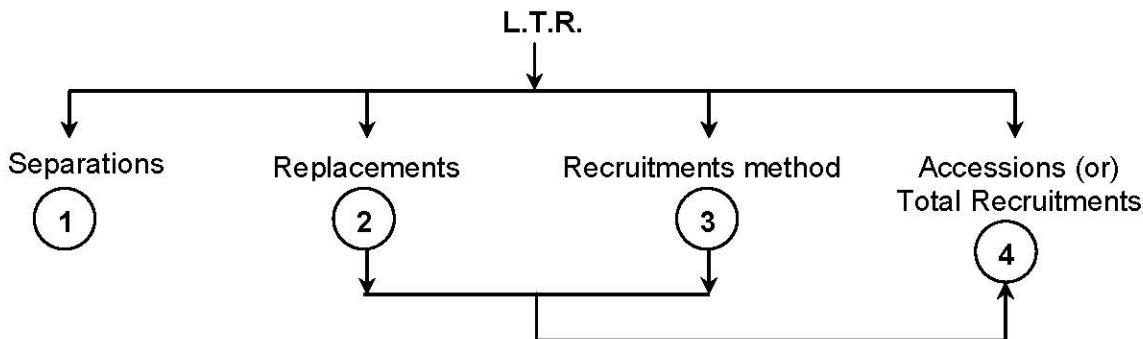
e) **Flux Method:**

Alternative 1:

$$\frac{\text{Separations} + \text{Replacements}}{\text{Average no. of workers}} \text{ i.e. } \textcircled{1} + \textcircled{2}$$

## Alternative 2:

$$\frac{\text{Separations} + \text{Replacements} + \text{New recruitments}}{\text{Average no. of workers}} \text{ i.e. } 1 + 2 + 3$$



## PROBLEMS FOR CLASSROOM DISCUSSION

### MODEL 1: CALCULATION OF REMUNERATION

**PROBLEM 1:** 'X' an employee of ABC Co. gets the following emoluments and benefits:

a. Basic pay	Rs. 10,000 p.m.
b. Dearness allowance	Rs. 2000 p.m.
c. Bonus	20% of salary and D.A.
d. Other allowances	Rs. 2500 p.m.
e. Employee's contribution to P.F.	10% of salary and D.A.

'X' works for 2,400 hours per annum, out of which 400 hours are non-productive and treated as normal idle time. You are required to find out the effective hourly cost of employee 'X'.

(B) (NEW SM, OLD SM) (ANS.: EFFECTIVE HOURLY COST OF X = 108.6)  
(SOLVE PROBLEM NO 1 OF ASSIGNMENT PROBLEMS AS REWORK)

**CONCEPT QUESTION:**

What would be the impact on the question  
If dearness allowance is 50% of basic pay

**Note:** \_\_\_\_\_

**PROBLEM 2:** Calculate the earnings of A and B from the following particulars for a month and allocate the labour cost to each job X, Y and Z:

Particulars	A	B
i) Basic Wages	10,000	16,000
ii) Dearness Allowance	50%	50%
iii) Contribution to provident Fund (on basic wages)	8%	8%
iv) Contribution to Employee's State Insurance (on basic wages)	2%	2%
v) Overtime	10 hours	

The normal working hours for the month are 200. Overtime is paid at double the total of normal wages and dearness allowance. Employer's contribution to state Insurance and Provident Fund are at equal rates with employees contributions. The two workers were employed on jobs X, Y and Z in the following proportions:

Particulars	Jobs		
	X	Y	Z
Worker A	40%	30%	30%
Worker B	50%	20%	30%

Overtime was done on job Y.

(A) (NEW SM, OLD SM, OLD PM) (ANS.: A - RS. 17,500; B - RS. 25,600)

(SOLVE PROBLEM NO 2 OF ASSIGNMENT PROBLEMS AS REWORK)

Concept question:

What would be the impact on the question

If overtime is 20 hours instead of 10 hours

Note: \_\_\_\_\_

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### MODEL 2: STANDARD PLANS

**PROBLEM 3:** You are given the following information of a worker:

a) Name of worker : 'X'	f) Work done and approved : 2000 units
b) Ticket No. : 002	g) Time and units allowed : 40 units per hour
c) Work started: 1-4-11 at 8 a.m.	h) Wage rate : Rs. 25 per hour
d) Work finished : 5-4-11 at 12 noon	i) Worker X worked 9 hours a day.
e) Work allotted: Production of 2,160 units	

You are required to calculate the remuneration of the worker on the following basis:

(i) Halsey plan and (ii) Rowan plan (iii) Find the labour cost per 100 units as per Halsey and Rowan plans.

(A) (OLD PM, M11 - 5M) (ANS.: (i) RS. 1,125; (ii) RS. 1,200, (iii) RS. 56.25, RS. 60)

(SOLVE PROBLEM NO 3,4 OF ASSIGNMENT PROBLEMS AS REWORK)

Concept question:

What would be the impact on the question

if 10% of total units are defective ,what is the cost per good unit

Note: \_\_\_\_\_

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**PROBLEM 4:** A skilled worker in XYZ Ltd, is paid a guaranteed wage rate of Rs. 30 per hour. The standard time per unit for a particular product is 4 hours. P, a machine man, has been paid wages under the Rowan Incentive Plan and he had earned an effective hourly rate of Rs. 37.50 on the manufacture of that particular product.

What could have been his total earnings and effective hourly rate, had he been put on Halsey Incentive Scheme (50%)? (A) (NEW SM, OLD SM) (ANS.: TOTAL EARNINGS - RS. 105, EFFECTIVE RATE/HOUR - RS. 35)

(SOLVE PROBLEM NO 5,6 OF ASSIGNMENT PROBLEMS AS REWORK)

Concept question:

What would be the impact on the question

If standard time is 5hours

Note: \_\_\_\_\_

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**PROBLEM 5: (PRINTED SOLUTION AVAILABLE):**

- Bonus paid under the Halsey Plan with bonus at 50% for the time saved equals the bonus paid under the Rowan System. When will this statement hold good? (Your answer should contain the proof).
- The time allowed for a job is 8 hours. The hourly rate is Rs.8. Prepare a statement showing:
  - The bonus earned
  - The total earnings of employee and
  - Hourly earnings.

Under the Halsey System with 50% bonus for time saved and Rowan System for each hour saved progressively.

(B) (NEW SM, OLD SM)

(ANS.: A) AH IS 50% OF SH, B) EFFECTIVE HOURLY EARNINGS AS PER HALSEY -RS.8,RS.8.57,RS.9.3,RS.10.40, RS.12, RS.14.67, RS.20, 36; ROWAN RS.8, RS.9, RS.10, RS.11, RS.12, RS.13, RS.14, RS.15)

(SOLVE PROBLEM NO 7,8 OF ASSIGNMENT PROBLEMS AS REWORK)

Concept question:

What would be the impact on the question

If actual time is more than standard time, then what is the bonus

**PROBLEM 6: (PRINTED SOLUTION AVAILABLE)** Mr. A is employing 10 skilled workers. He is considering the introduction of either the Halsey Scheme (with 50% bonus) or the Rowan Scheme of wage payment for increasing the labour productivity to cope with the increased demand for the product by 25%.

He feels that if the proposed incentive scheme could bring about an average 20% increase over the present earnings of the workers, it could act as sufficient incentive for them to produce more. As a result of this, the increase in productivity was observed as revealed by the following figures for the current month:

Hourly rate of wages (guaranteed)	Rs.40
Average time for producing 1 piece by one worker at the previous performance	2 Hours
No. of working days in the month	25
No. of working hours per day for each worker	8
Actual production during the month (units)	1,250

- Calculate the effective rate of earnings per hour under Halsey Scheme and Rowan Scheme
- Calculate the savings to Mr. A in terms of direct labour cost per piece under the above schemes
- Advise Mr. A about the selection of the scheme to fulfill his assurance.

(B) (NEW SM, OLD SM)

(ANS.: A) HALSEY - RS45, ROWAN - RS.48; B) HALSEY - RS.72, ROWAN - RS.76.8, C) ROWAN IS ADVISABLE)

(SOLVE PROBLEM NO 9 OF ASSIGNMENT PROBLEMS AS REWORK)

Concept question:

what is the impact of working over time

if there is no assurance ,which scheme is better from the employer point of view.

**Note:** \_\_\_\_\_

**PROBLEM 7: (PRINTED SOLUTION AVAILABLE)** The existing incentive scheme in a factory is as follows:

Normal working week : 5 days of 9 hours each plus 3 late shifts of 3 hours each.

**Rate of payment:** Day work: Rs.10 per hour & Late shifts: Rs.15 per hour

**Additional bonus payable:** Rs.25 per day shift & Rs.15 per late shift

Average output per operator for 54-hour week i.e. (including 3 late shifts) 120 articles. In order to increase output & eliminate overtime it was decided to switch on to a system of payment by results.

The following information is obtained: Time rate (as usual) - Rs.10 per hour, Basic time allowed for 15 articles - 5 hours, Piece - work rate - Add 20% to price, Premium bonus - Add 50% to time.

Assume that 135 articles are produced in a 45 hour week under piece rate system, Rowan system, Halsey plan. The additional bonus under the existing system will be discontinued in the proposed incentive scheme.

**Show:** Hours worked, Weekly earnings, No. of articles produced & Labour cost per article under existing time rate, Straight piece work, Rowan system & Halsey plan. (B) (OLD PM)

(ANS.: LABOUR COST PER ARTICLE: EXISTING - RS. 6.29, PIECE RATE - RS. 4, ROWAN - RS. 4.44, HALSEY - RS. 4.167)

Concept question:

What would be the impact on the question

If standard time per unit is 45min.

**Note:** \_\_\_\_\_

**PROBLEM 8:** Two workers 'A' and 'B' produce the same product using the same material. Their normal wage rate is also the same. 'A' is paid bonus according to Rowan scheme while 'B' is paid bonus according to Halsey scheme. The time allowed to make the product is 50 hours. 'A' takes 30 hours while 'B' takes 40 hours to complete the product. The factory overhead rate is Rs. 5 per person-hour actually worked. The factory cost of product manufactured by 'A' is Rs. 3,490 and for product manufactured by 'B' is Rs. 3,600.

**Required:**

- Compute the normal rate of wages.
- Compute the material cost.
- Prepare a statement comparing the factory cost of the product as made by two workers.

(A) (NEW SM, OLD SM, OLD PM, MTP1 M18) (ANS.: A) RS. 20 PER HOUR B) RS. 2,500, C). 3,490, 3,600)

(SOLVE PROBLEM NO 10,11 OF ASSIGNMENT PROBLEMS AS REWORK)

**Concept question:**

What would be the impact on the question

If standard time is 40 hours

**Note:** \_\_\_\_\_

### **PROBLEM 9:**

M/s. Zeba Private Limited allotted a standard time of 40 hours for a job and the rate per hour is Rs75.the actual time taken by a worker is 30 hours.

You are required to calculate total earnings under the following plans

- Halsey Premium plan rate (50%)
- Rowan plan
- Time Wage system
- Piece rate System

(may 19 new) (ANS.: i)2625 ii)2812.5 iii)2250 iv)3000)

**Concept question:**

What would be the impact on the question

If actual time is 35 hours

**Note :** \_\_\_\_\_

### **PROBLEM 10:(PRINTED SOLUTION AVAILABLE)**

Wage negotiations are going on with the recognised employees union, and the management wants you as an executive of the company to formulate an incentive scheme with a view to increase the productivity.

The case of three typical workers A,B and C who produce respectively 180,120 and 100 units of the company product in a normal day of 8 Hours is taken up for study.

Assuming that day wages would be guaranteed at Rs.75 per hour and the piece rate would be based on a standard hourly output of 10units,Calculate the earnings of each of the three workers and the employee cost per 100 pieces under i)day wages, ii)Piece rate, iii)Halsey scheme and iv)Rowan scheme

Also calculate under above schemes the average cost of labour for the company to produce 100 pieces. (NEW SM) (Ans: i)333.3, 500,600 ii)750,750,750 iii)541.67,625,675 iv)518.33,666.67,720)

**Concept question:**

What would be the impact on the question

If the guaranteed wage rate is 100 per hour

**Note :** \_\_\_\_\_

**PROBLEM 11:**

ADV Pvt. Ltd. manufactures a product which requires skill and precision in work to get quality products. The company has been experiencing high labour cost due to slow speed of work. The management of the company wants to reduce the labour cost but without compromising with the quality of work. It wants to introduce a bonus scheme but is indifferent between the Halsey and Rowan scheme of bonus. For the month of November 2019, the company budgeted for 24,960 hours of work. The workers are paid 80 per hour.

**Required:**

CALCULATE and suggest the bonus scheme where the time taken (in %) to time allowed to complete the works is (a) 100% (b) 75% (c) 50% & (d) 25% of budgeted hours (RTP NOV 19 NEW)(ANS: Rowan scheme)

**PROBLEM 12:**

Zico Ltd. has its factory at two locations viz Nasik and Satara. Rowan plan is used at Nasik factory and Halsey plan at Satara factory. Standard time and basic rate of wages are same for a job which is similar and is carried out on similar machinery. Normal working hours is 8 hours per day in a 5 day week.

Job in Nasik factory is completed in 32 hours while at Satara factory it has taken 30 hours. Conversion costs at Nasik and Satara are 5408 and 4950. Overheads account for 25 per hour.

**Required:**

- (i) To find out the normal wage; and
- (ii) To compare the respective conversion costs.

(NOV 19 NEW)() 10 MARKS

**MODEL 3: NON - STANDARD PLANS**

**PROBLEM 13:** The standard hours of job X is 100 hours. The job has been completed by Amar in 60 hours, Akbar in 70 hours and Anthony in 95 hours.

The bonus system applicable to the job is as follows:

Percentage of time saved to time allowed	Bonus
Saving upto 10%	10% of time saved
From 11% to 20%	15% of time saved
From 21% to 40%	20% of time saved
From 41% to 100%	25% of time saved

The rate of pay is Rs. 1 per hour; calculate the total earnings of each worker and also the rate of earnings per hour. (B) (NEWSM,OLDSM,OLDPM)  
(ANS: 66.5, 74.5, 95.5)

(SOLVE PROBLEM NO 12 OF ASSIGNMENT PROBLEMS AS REWORK)

**Concept question:**

What would be the impact on the question  
If standard time is 150 hours

**Note:** \_\_\_\_\_**MODEL 4: TREATMENT OF OVERTIME WAGES****Nil****MODEL 5: IDLE TIME TREATMENT**

**PROBLEM 14:** Following data have been extracted from the books of M/s. ABC Private Limited:

(i)	Salary (each employee, per month)	Rs.30,000
(ii)	Bonus	25% of salary
(iii)	Employer's contribution to PF, ESI etc.	15% of salary

(iv)	Total cost at employees' welfare activities	Rs.6,61,500 per annum
(v)	Total leave permitted during the year	30 days
(vi)	No. of employees	175
(ii)	Normal idle time	70 hours per annum
(viii)	Abnormal idle time (due to failure of power supply)	50 hours
(ix)	Working days per annum	310 days of S hours

You are required to calculate:

- Annual cost of each employee
- Employee cost per hour
- Cost of abnormal idle time, per employee

(ans: i)507780 ii)234 iii)11700)

(N18 (N) - 5M)

(SOLVE PROBLEM NO 13 OF ASSIGNMENT PROBLEMS AS REWORK)

Concept question:

What would be the impact on the question

If salary is 50,000 p.m /worker

Note: \_\_\_\_\_

### MODEL 6: LABOUR TURNOVER RATES

**PROBLEM 15:** Human resource department of A. Ltd computed labour turn over by replacement method at 3% for the Quarter ended June 2015. During the quarter fresh recruitment of 40 workers was made. The number of workers at the beginning and end of the quarter was 990 and 1,010 respectively.

You are required to calculate the labour turnover rate by separation Method and Flux method.

(B) (NEWSM, N15 - 5M) (ANS.: 5%, 12%) (SOLVE PROBLEM NO 14 OF ASSIGNMENT PROBLEMS AS REWORK)

Concept question:

What would be the impact on the question

If average no.of workers are 850

Note: \_\_\_\_\_

**PROBLEM 16:** The Accountant of Y Ltd. has computed employee turnover rates for the quarter ended 31st March, 20X1 as 10%, 5% and 3% respectively under 'Flux method', 'Replacement method' and 'Separation method' respectively. If the number of workers replaced during that quarter is 30, find out the number of workers for the quarter

- recruited and joined and
- left and discharged and
- Equivalent employee turnover rates for the year.

(B) (OLD SM, SIMILAR:MTP2 N18 (N), SIMILAR: M17 - 5M)

(ANS.: A) 42, B) 18, C) FLUX MAETHOD: 40%; REPLACEMENT METHOD: 20%; SEPERATION METHOD: 12%)

Concept question:

What would be the impact on the question

If no.of replacements is 50

Note: \_\_\_\_\_

**PROBLEM 17:** The information regarding number of employees on roll in a shopping mall for the month of December, 2017 are given below:

Number of employees as on 01-12-2017	900
Number of employees as on 31-12-2017	1,100

During December 2017, 40 employees resigned and 60 employees were discharged. 300 employees were recruited during the month. Out of these 300 employees, 225 employees were recruited for an expansion project of the mall and rest were recruited due to exit of employees.

Assuming 365 days in a year, calculate Employee Turnover Rate and Equivalent Annual Employee Turnover Rate by applying the following:

- i) Replacement Method
- ii) Separation Method
- iii) Flux Method (A) (NEW SM, M18 (N)-10M) (ANS.: (I) 7.5%, 88.31%; (II) 10%, 117.74%; III) 40%, 470.97%; 17.5%, 206.05%)

(SOLVE PROBLEM NO 15 OF ASSIGNMENT PROBLEMS AS REWORK)

**Concept question:**

*What would be the impact on the question*

*If average no.of workers are 950*

**Note:** \_\_\_\_\_

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### **MODEL 7: LABOUR TURNOVER EFFECT**

**PROBLEM 18: (PRINTED SOLUTION AVAILABLE):** The management of B.R Ltd. is worried about their increasing employee turnover in the factory and before analyzing the causes and taking remedial steps, it wants to have an idea of the profit foregone as a result of employee turnover in the last year.

Last year sales amounted to Rs.83,03,300 and P/V ratio was 20 per cent. The total number of actual hours worked by the direct employee force was 4.45 lakhs. As a result of the delays by the Personnel Department in filling vacancies due to employee turnover, 1,00,000 potentially productive hours were lost. The actual direct employee hours included 30,000 hours attributable to training new recruits, out of which half of the hours were unproductive.

The costs incurred consequent on employee turnover revealed, on analysis, the following:

Settlement cost due to leaving	Rs.43,820
Recruitment costs	Rs.26,740
Selection costs	Rs.12,750
Training costs	Rs.30,490

Assuming that the potential production lost as a consequence of employee turnover could have been sold at prevailing prices, find the profit foregone last year on account of employee turnover.

(B) (NEW SM, OLD SM) (ANS: (RS.5,00,000)

(SOLVE PROBLEM NO 16 OF ASSIGNMENT PROBLEMS AS REWORK)

**Concept question:**

*What would be the impact on the question*

*If p/v ratio is 50%*

**Note:** \_\_\_\_\_

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**PROBLEM 19:** ABC Limited is facing the problem of increasing labour turnover in the factory. The management is willing to analyse the causes and take remedial steps.

Last year sales of the company amounted to 12,18,49,320 and the P/V ratio was 25%. The total number of actual hours worked by the direct labour force was 5.75 lakhs. The company lost 125000 potentially productive hours due to delay in filling vacancies caused by labour turnover. The actual direct labour hours included 60000 hours attributable to training of new recruits, out of which 30% of the hours were unproductive.

The accounting records reveal the following costs incurred consequent to labour turnover:

Recruitment costs	- 5,36,300
Selection costs	- 2,78,400
Training costs	- 4,25,000
Settlement costs due to leaving	- 7,18,800

Assuming that the potential production lost as a consequence of labour turnover could have been sold at prevailing prices, find out the contribution and profit foregone by the company in the last year due to labour turnover.

(NOV 2019 OLD)(ANS:)

(SOLVE PROBLEM NO 17 OF ASSIGNMENT PROBLEMS AS REWORK

### **MODEL 8: BONUS TO DIRECT & INDIRECT LABOUR**

**Nil**

### **MODEL 9: LABOUR COST ANALYSIS**

**PROBLEM 20:** An article passes through five hand operations as follows:

Operation No.	Time per article (in minutes)	Grade of Worker	Wage rate per hour
1	15	A	0.65
2	25	B	0.50
3	10	C	0.40
4	30	D	0.35
5	20	E	0.30

The factory works 40 hours a week and the production target is 600 dozens per week. Prepare a statement showing for each operation and in total the no. of operators required, the labour cost per dozen and the total cost per week to produce the total targeted output.

(C) (OLD PM)

(ANS.: LABOUR COST PER DOZEN: 1 - RS. 1.95, 2 - RS. 2.50, 3 - RS. 0.80, 4 - RS. 2.10, 5 - RS. 1.20; COST PER WEEK - RS. 5,130)

**Concept question:**

What would be the impact on the question  
If the target production 1000 dozen

### **PRINTED SOLUTIONS TO SOME SELECTIVE PROBLEMS**

**PROBLEM NUMBERS TO WHICH SOLUTIONS ARE PROVIDED: 5,6,7,10,18**

#### **PROBLEM NO 5**

$$\text{a) Bonus under Halsey Plan} = \frac{50}{100} X(SH-AH)XR$$

$$\text{Bonus under Rowan Plan} = \frac{AH}{SH} X(SH-AH)XR$$

Bonus under Halsey Plan will be equal to the bonus under Rowan Plan when the following condition holds good:

$$\frac{50}{100} X(SH-AH)XR = \frac{AH}{SH} X(SH-AH)XR$$

$$\frac{50}{100} = \frac{AH}{SH}$$

Hence, when the actual time taken (AH) is 50% of the time allowed (SH), the bonus under Halsey and Rowan Plans is equal.

b) Statement of Bonus, total earnings of Employee and hourly earnings under Halsey and Rowan Systems.

SH	AH	Time saved	Basic wages (AH × 8) (B × 8)	Bonus under Halsey System	Bonus under Rowan system	Total Earnings under Halsey System D+E	Total Earnings under Rowan System D+F	Hourly Earnings under Halsey System G/B	Hourly Earnings under Rowan System H/B
A hours	B hours	C = (A - B) hours	D(Rs.)	E(Rs.)	F(Rs.)	G(Rs.)	H(Rs.)	I(Rs.)	J(Rs.)
8	8	-	64	-	-	64	64	8.00	8.00
8	7	1	56	4	7	60	63	8.57	9.00
8	6	2	48	8	12	56	60	9.33	10.00
8	5	3	40	12	15	52	55	10.40	11.00
8	4	4	32	16	16	48	48	12.00	12.00
8	3	5	24	20	15	44	39	14.67	13.00
8	2	6	16	24	12	40	28	20.00	14.00
8	1	7	8	28	7	36	15	36.00	15.00

### PROBLEM NO 6

Actual hour = 8b x 10 workers x 25 days = 2,000 hours

Statement showing effective hourly rate & saving in labour cost per unit.

Particulars	Halsey scheme	Rowan Scheme
a) Actual production	1,250 Unit	1,250 Units
Standard time for Actual prod (ST) [100 - 2h] 1250 - ?	2,500h	2,500h
Actual time (AT)	2,000h	2,000h
Time saved (ST - AT)	500h	500h
Rate per hour	40	40
Earnings	$TxR + \frac{1}{2} T.SxR$ $2,000 \times 40 + \frac{1}{2} \times 500 \times 40$ $= 90,000$	$TxR + \frac{T.S}{ST} RxR$ $2,000 \times 40 + \frac{500}{2500} \times 2,000 \times 40$ $= 96,000$
Effective hourly rate $\frac{\text{Total Earning}}{\text{Actual Time}}$	$\frac{90,000}{2,000} = 45$	$\frac{96,000}{2,000} = 48$
b) Labour cost per unit		
As per Existing scheme (Time wages) [2 x 40]	80	80.00
As per the proposed scheme	$\frac{90,000}{1,250} = 72$	$\frac{96,000}{1,250} = 76.80$
Saving in labour cost per unit	8	3.20

c) Time wages (T x R)

$$\begin{aligned}
 (2,000h \times 40) &= 80,000 \\
 (+) 80,000 \times 20\% &= \underline{16,000} (80,000 \times 20\%) \\
 &= \underline{96,000}
 \end{aligned}$$

Assured amount is paid in Rowan Scheme.

**PROBLEM NO 7****Calculation of earnings under existing system:****Wages:**

$$\text{Day shift} = 5d \times 9h \times 10 = 450$$

$$\text{Late shift} = 3d \times 3h \times 15 = 135$$

$$= 585 \quad 585$$

**Bonus:**

$$\text{Day shift} = 5d \times 25 = 125$$

$$\text{Late shift} = 3h \times 15 = 45$$

$$= 170$$

$$= 755$$

**Calculation of earnings under piece rate system:**

$$\text{Standard time for 15 articles} = 5\text{hrs}$$

$$\text{Wages for 15 articles} = \text{Rs.}50 (5\text{hrs} \times 10)$$

$$\text{Add: Premium @ 20\%} = \text{Rs.}10$$

$$= \text{Rs.}60$$

$$\text{Piece rate} = 60/15 \text{ uts} = \text{Rs.}4$$

$$\text{Earnings} = 135 \text{ uts} \times 4 = \text{RS.}540$$

**Calculation of earnings under Halsey and Rowan system:**

Given,

$$\text{Standard time for 150 articles} = 5\text{hrs}$$

$$\text{Add: Premium @ 50\%} = 2.5\text{hrs}$$

$$\text{Revised S.T for 15 articles} = 7.5\text{hrs}$$

$$\text{Standard time for actual production} = 67.5\text{hrs}$$

$$\begin{pmatrix} 15 \text{ art} - 7.5\text{hrs} \\ 135 \text{ art} - ? \end{pmatrix}$$

$$\text{Actual time} = 45\text{hrs}$$

$$\text{Time saved (S.T. - A.T)} = 22.5\text{hrs}$$

$$\begin{aligned} \text{Halsey earnings} &= (45 \times 10) + \frac{1}{2} (22.5 \times 10) \\ &= 450 + 112.5 \\ &= 562.50 \end{aligned}$$

$$\begin{aligned} \text{Rowan earnings} &= (45 \times 10) + \frac{22.5}{67.5} (45 \times 10) = \text{Rs.}600 \end{aligned}$$

	Hours worked	Weekly earnings	No. of articles produced	Labour cost / articles
Existing	54h	755	120	755/12 = Rs.6.29
Piece rate	45h	540	135	540/135 = Rs.4
Halsey	145h	562.50	135	562.5/135=Rs.4.16
Rowan	45h	600	135	600/135 = Rs.4.44

**PROBLEM NO 10**

Calculation of earnings under different wage schemes:

**(i) Day wages**

Worker	Day wages	Actual Output (Units)	Labour cost per 100 pieces
A	600	180	333.33
B	600	120	500.00
C	600	100	600.00
Total	1,800	400	

Average labour cost to produce 100 pieces:  $\frac{\text{Total wages paid}}{\text{Total output}} \times 100 = \frac{1,800}{400 \text{ units}} = \text{Rs.}450$

**(ii) Piece rate**

Worker	Actual Output (Units)	Piece rate	Wages earned (amt.)	Labour cost per 100 pieces (amt.)
A	180	7.50	1,350	750.00
B	120	7.50	900	750.00
C	100	7.50	750	750.00
Total	400		3,000	

Average cost of labour for the company to produce 100 pieces:  $\frac{3000}{400 \text{ UNITS}} = \text{Rs.}750$

**(iii) Halsey Scheme**

Worker	Actual Output (Units)	Std. time (Hrs.)	Actual time (Hrs.)	Time saved (Hrs.)	Bonus hours (50% of time saved)	Rate per hour (Rs.)	Total wages (Rs.)	Labour cost per 100 pieces (Rs.)
	A	B	C	D=B-C	E	F	G=FX(C+D)	H=G/AX100
A	180	18	8	10	5	75	975	541.67
B	120	12	8	4	2	75	750	625.00
C	100	10	8	2	1	75	675	675.00
Total	400						2,400	

Average cost of labour for the company to produce 100 pieces:  $\frac{2,400}{400 \text{ units}} \times 100 = \text{Rs.}600$

**(iv) Rowan Scheme :**

Worker	Actual Output (Units)	Std. time (Hrs.)	Actual time (Hrs.)	Time saved (Hrs.)	Bonus hours*	Rate per hour (Rs.)	Total wages including bonus (Rs.)	Labour cost per 100 pieces (Rs.)
	A	B	C	D=B-C	E	F	G=FX(C+D)	H=G/AX100
A	180	18	8	10	4.44	75	933	518.33
B	120	12	8	4	2.67	75	800	666.67
C	100	10	8	2	1.60	75	720	720.00
Total	400						2453	

\* Bonus hours =  $\frac{\text{Time saved}}{\text{Standard time}} \times \text{Actual time}$

Average cost of labour for the company to produce 100 pieces =  $\frac{2,453}{400 \text{ units}} \times 100 = \text{Rs.}613.25$

**PROBLEM NO 18****Workings :**

Computation of productive hours and contribution foregone

Actual hours worked (given) 4,45,000

Less: Unproductive training hours (15,000)

Actual productive hours 4,30,000

The potentially productive hours lost are 1,00,000

83,03,300

Sales lost for 1,00,000 hours =  $\frac{4,30,000}{1,00,000} \times 1,00,000 = 19,31,000$  $\frac{19,31,000}{100} \times 20 = 3,86,200$ 

Contribution lost for 1,00,000 hours = 100

**Computation of profit forgone on account of employee turnover**

	Amt.
Contribution foregone (as calculated above)	3,86,200
Settlement cost due to leaving	43,820
Recruitment cost	26,740
Selection cost	12,750
Training costs	30,490
Profit foregone	5,00,000

**ASSIGNMENT PROBLEMS****MODEL 1: CALCULATION OF REMUNERATION****PROBLEM 1:** 'X' an employee of ABC Co. gets the following emoluments and benefits:

- a. Basic pay Rs.7,000 p.m.
- b. Dearness allowance Rs. 1000 p.m.
- c. Bonus 10% of salary and D.A.
- d. Other allowances Rs. 1500 p.m.
- e. Employee's contribution to P.F. 5% of salary and D.A.

'X' works for 2,000 hours per annum, out of which 200 hours are non-productive and treated abnormal idle time. You are required to find out the effective hourly cost of employee 'X'.

(ANS.: EFFECTIVE HOURLY COST OF X = 71.33)

**PROBLEM 2:** Calculate the earnings of A and B from the following particulars for a month and allocate the labour cost to each job X, Y and Z:

Particulars	A	B
Basic wages	Rs. 100	Rs.160
Dearness allowance (on basic wages)	50%	50%
Contribution to provident fund (on basic wages plus DA)	10%	10%
Contribution to employees' state insurance (on basic wages plus DA)	1.75%	1.75%
Overtime Hours	10	-

The normal working hours for the month are 200. Overtime is paid at double the total of normal wages and dearness allowance. Employer's contribution to State Insurance is 4.75% and Provident Fund are at equal rates of employees' contributions. The two workers were employed on jobs X, Y and Z in the following proportions:

Jobs	X	Y	Z
Worker-A	40%	30%	30%
Worker-B	50%	20%	30%

Overtime was done on job Y.

(A) NEWSM,OLD SM) (ANS.: JOB COST: 206.55, 121.71, 134.26)

### **MODEL 2: STANDARD PLANS**

**PROBLEM 3:** Calculate the amount of wages, bonus earned and effective rate of earnings: Job commenced: Monday, 23<sup>rd</sup> September, 1991, 8 A.M. Job finished: Saturday, 28<sup>th</sup> September, 1991, 1 P. M. Quantity of pieces of work given out: 638. Quantity of pieces of worker produced: 600. Worker's rate: 50 Paise per hour. Time allowed: 10 per hour. Bonus: 40% of time saved. Assume that the employee worked for 9 hours day and no overtime.

(B) (ANS.: WAGES - RS.25, BONUS - RS.2, EFFECTIVE RATE OF EARNINGS - RS.0.54)

**PROBLEM 4:** A skilled worker is paid a guaranteed wage rate of Rs. 120 per hour. The standard time allowed for a job is 6 hour. He took 5 hours to complete the job. He is paid wages under Rowan Incentive Plan.

- Calculate his effective hourly rate of earnings under Rowan Incentive Plan.
- If the worker is placed under Halsey Incentive Scheme (50%) and he wants to maintain the same effective hourly rate of earnings, calculate the time in which he should complete the job.

(B) (OLD PM) (M13 - 6M) (ANS.: (I) RS.140/HR, (II) 4.5HRS)

**PROBLEM 5:** A skilled worker is paid a guaranteed wage rate of Rs.150.00 per hour. The standard time allowed for a job is 50 hours. He gets an effective hourly rate of wages of 180.00 under Rowan Incentive Plan due to saving in time. For the same saving in time, calculate the hourly rate of wages he will get, if he is placed under Halsey Premium Scheme (50%).

(B) (N17) (ANS.:168.75)

**PROBLEM 6:** Standard Time for a job is 90 hours. The hourly rate of guaranteed wages is Rs.50. Because of the saving in time a worker A gets an effective hourly rate of wages of Rs.60 under Rowan premium bonus system. For the same saving in time, calculate the hourly rate of wages a worker B will get under Halsey premium bonus system assuring 40% to worker.

(B) (OLD PM) (ANS.: EFFECTIVE RATE OF EARNINGS = RS.55)

**PROBLEM 7:** Calculate the earnings of a worker under Halsey System and Rowan system. The relevant data is as below:

Time Rate (p.h.)	Rs.60
Time allowed	8 hours
Time taken	6 hours
Time saved	2 hours

(C) (NEW SM, OLD SM) (ANS.: TOTAL EARNINGS RS.420, 450)

**PROBLEM 8:** A worker takes 15 hours to complete a piece work for which time allowed is 20 hours. His wage rate is Rs.5 per hour. Following additional information is also available:

Material cost of work	Rs.50
Factory overheads	100% of wages

Calculate the factory cost of work under the following methods of wage payments:

- Rowan Plan
- Halsey Plan

(A) (M18 (N) - 5M) (ANS: (I) 237.5 (II) 225)

**PROBLEM 9:** ZED Limited is working by employing 50 skilled workers, it is considering the introduction of incentive scheme-either Halsey scheme (with 50% bonus) or Rowan scheme of wage payment for increasing the labour productivity to cope up the increasing demand for the product by 40%. It is believed that proposed incentive scheme could bring about an average 20% increase over the present earnings of the workers; it could act as sufficient incentive for them to produce more.

Because of assurance, the increase in productivity has been observed as revealed by the figures for the month of April, 2014.

Hourly rate of wages (guaranteed)	Rs.30
Average time for producing one unit by one worker at the previous performance (This may be taken as time allowed)	1.975 hours
Number of working days in the month	24
Number of working hours per day of each worker	8
Actual production during the month	6,120 units

**Required:**

- Calculate the effective rate of earnings under the Halsey scheme and the Rowan scheme.
- Calculate the savings to the ZED Limited in terms of direct labour cost per piece.
- Advise ZED Limited about the selection of the scheme to fulfill their assurance.

(B) (OLD PM, MTP M15) (ANS.: A. RS.33. 89, RS.36.17 B). RS.6.10, RS.2.51 C). ROWAN PLAN)

**PROBLEM 10:** Two workmen, Vishnu & Shiva, produce the same product using the same material. Their normal wage rate is also the same. Vishnu is paid bonus according to the Rowan system, while Shiva is paid bonus according to Halsey system. The time allowed to make the product is 100 hours. Vishnu takes 60 hours while Shiva takes 80 hours to complete the product. The factory overhead rate is Rs.10 per man-hour actually worked. The factory cost for the product for Vishnu is Rs.7,280 and that for Shiva is Rs.7,600.

**You are required:**

- To find the normal rate of wages.
- To find the cost of materials.

(A) (OLD PM) (ANS.: A. RS. 20; B. 5,000)

**PROBLEM 11:** A job can be executed either through workman A or B. A takes 32 hours to complete the job while B finishes it in 30 hours. The standard time to finish the job is 40 hours.

The hourly wage rate is same for both the workers. In addition workman A is entitled to receive bonus according to Halsey plan (50%) sharing while B is paid bonus as per Rowan plan. The works overheads are absorbed on the job at Rs. 7.50 per labour hour worked. The factory cost of the job comes to Rs. 2,600 irrespective of the workman engaged.

INTERPRET the hourly wage rate and cost of raw materials input. Also show cost against each element of cost included in factory cost.

(RTP N18 (N&O))

(ANS.: HOURLY WAGE RATE: RS. 10; COST OF RAW MATERIAL (FOR JOB): RS. 2,000)

### **MODEL 3: NON-STANDARD PLANS**

**PROBLEM 12:** The standard hours of job X is 100 hours. The job has been completed by X in 50 hours, Y in 60 hours and Z in 70 hours.

The bonus system applicable to the job is as follows:

Percentage of time saved to time allowed	Bonus
Saving upto 10%	5% of time saved
From 11% to 20%	10% of time saved
From 21% to 40%	15% of time saved
From 41% to 100%	20% of time saved

The rate of pay is Rs. 2 per hour; calculate the total earnings of each worker and also the rate of earnings per hour.

(ANS: 2.26,2.15,2.08)

**MODEL 4: TREATMENT OF OVERTIME WAGES****NIL****MODEL 5: IDLE TIME TREATMENT**

**PROBLEM 13:** Following data have been extracted from the books of M/s. ABC Private Limited:

(i)	Salary (each employee, per month)	Rs.37,500
(ii)	Bonus	10% of salary
(iii)	Employer's contribution to PF, ESI etc.	5% of salary
(iv)	Total cost at employees' welfare activities	76,600 per annum
(v)	Total leave permitted during the year	25 days
(vi)	No. of employees	250
(ii)	Normal idle time	50 hours per annum
(viii)	Abnormal idle time (due to failure of power supply)	70 hours
(ix)	Working days per annum	315 days of 8 hours

You are required to calculate:

- I) Annual cost of each employee
- II) Employee cost per hour

Cost of abnormal idle time, per employee.

(ANS.: I)5,17,806 II)228.11 III)15,968

**MODEL 6: LABOUR TURNOVER RATES**

**PROBLEM 14:** From the following information, calculate Labour turnover rate

No. of workers as on 01.01.2000 = 7,600

No. of workers as on 31.12.2000 = 8,400

During the year, 80 workers left while 320 workers were discharged. 1,500 workers were recruited during the year of these, 300 workers were recruited because of exits and the rest were recruited in accordance with expansion plans.

(A) (OLD PM, MTP2 M18, M17)

(ANS.: SEPARATION: 5%, REPLACEMENT: 3.75%, RECRUITMENT: 15%, ACCESSIONS: 18.75%, FLUX I: 8.75%, FLUX II: 23.75%)

**PROBLEM 15**

RST Company Ltd. has computed labour turnover rates for the quarter ended 31<sup>st</sup> March, 2017 as 20%, 10% and 5% under flux method, replacement method and separation method respectively. If the number of workers replaced during that quarter is 50,

**CALCULATE**

- (i) Workers recruited and joined
- (ii) Workers left and discharged and
- (iii) Average number of workers on roll.

(ANS.: I)75 II)25 III)500 (MTP NOV18 S-II)

**MODEL 7: LABOUR TURNOVER EFFECT**

**PROBLEM 16:** The management of B.R Ltd. is worried about their increasing employee turnover in the factory and before analyzing the causes and taking remedial steps, it wants to have an idea of the profit foregone as a result of employee turnover in the last year.

Last year sales amounted to Rs.53,00,000 and P/V ratio was 30 per cent. The total number of actual hours worked by the direct employee force was 4.45 lakhs. As a result of the delays by the Personnel Department in filling vacancies due to employee turnover, 50,000 potentially productive hours were lost. The actual direct employee hours included 10,000 hours attributable to training new recruits, out of which half of the hours were unproductive.

The costs incurred consequent on employee turnover revealed, on analysis, the following:

Settlement cost due to leaving	Rs.50,000
Recruitment costs	Rs.35,000
Selection costs	Rs.10,000
Training costs	Rs. 5,000

Assuming that the potential production lost as a consequence of employee turnover could have been sold at prevailing prices, find the profit foregone last year on account of employee turnover. (ans:2,80,682)

**PROBLEM 17 :** Anirban Ltd. wants to ascertain the profit lost during the year 20X8-X9 due to increased labour turnover. For this purpose, they have given you the following information:

1. Training period of the new recruits is 50,000 hours. During this period their productivity is 60% of the experienced workers. Time required by an experienced worker is 10 hours per unit.
2. 20% of the output during training period was defective. Cost of rectification of a defective unit was Rs. 25.
3. Potential productive hours lost due to delay in recruitment were 1,00,000 hours.
4. Selling price per unit is Rs.180 and P/V ratio is 20%.
5. Settlement cost of the workers leaving the organization was Rs.1,83,480.
6. Recruitment cost was Rs.1,56,340
7. Training cost was Rs.1,13,180.

You are required to Calculate the profit lost by the company due to increased labour turnover during the year 20X8-X9.

(may 19 mtp s-ii) (ANS: 9,00,000)

(SOLVE PROBLEM NO 22 OF ASSIGNMENT PROBLEMS AS REWORK)

**Concept question:**

What would be the impact on the question  
If cost of rectification of defectives are Rs.50

**Note:** \_\_\_\_\_

#### **MODEL 8: BONUS TO DIRECT AND INDIRECT LABOUR**

**NIL**

#### **MODEL 9: LABOUR COST ANALYSIS**

**NIL**

### **ADDITIONAL PROBLEMS FOR STUDENTS SELF PRACTICE**

**PROBLEM 1:** It is seen from the job card for repair of the customer's equipment that a total of 154 labour hours have been put in as detailed below:

Particulars	Worker 'A' paid at Rs.200 per day of 8 hours	Worker 'B' paid at Rs.100 per day of 8 Hours	Worker 'C' paid at Rs.300 per day of 8 Hours
Monday (hours)	10.5	8.0	10.5
Tuesday (hours)	8.0	8.0	8.0
Wednesday (hours)	10.5	8.0	10.5
Thursday (hours)	9.5	8.0	9.5
Friday (hours)	10.5	8.0	10.5
Saturday (hours)	----	8.0	8.0
Total (hours)	49.0	48.0	57.0

In terms of an award in a labour conciliation, the workers are to be paid dearness allowance on the basis of cost of living index figures relating to each month which works out @ . 968 for the relevant month. The dearness allowance is payable to all workers irrespective of wages rate if they are present or are on leave with wages on all working days.

Sunday is a weekly holiday and each worker has to work for 8 hours on all week days and 4 hours on Saturdays; the workers are however paid full wages for Saturday (8 hours for 4 hours worked).

Workers are paid overtime according to the Factories Act, 1948. Excluding holidays the total number of hours works out to 176 in the relevant month. The company's contribution to Provident Fund and Employees State Insurance Premium are absorbed into overheads.

Work out the wages payable to each worker. (C) (NEW SM, OLD SM) (ANS.: A: RS. 1,647; B: RS. 864; C: RS. 2,838)

**PROBLEM 2:** A worker is paid Rs.10,000 per month and a dearness allowance of Rs. 2,000 p.m. Worker contribution to provident fund is @ 10% and employer also contributes the same amount as the employee. The Employees State Insurance Corporation premium is 6.5% of wages of which 1.75% is paid by the employees. It is the firm's practice to pay 2 months' wages as bonus each year.

The number of working days in a year is 300 of 8 hours each. Out of these the worker is entitled to 15 days leave on full pay. Calculate the wage rate per hour for costing purposes.

(B) (NEW SM, OLD SM) (ANS.: RS. 83/HR.)

**PROBLEM 3:** Assuming a man-day of 8 hours, you are required to calculate the labour cost per man - day. The following data has been provided.

i)	Basic Salary	Rs. 80 per day
ii)	Dearness Allowance	80 paise per every point over 100 cost of living index for working class Current cost of living index is 785 points.
iii)	Leave Salary	10% of (i) and (ii)
iv)	Employer's contribution to Provident Fund	10% of (i), (ii) and (iii)
v)	Employer's contribution to State Insurance	2.5% of (i), (ii) and (iii)
vi)	Expenditure on amenities to labour	Rs. 30 per head per month
vii)	Number of working days in a month	25 days of 8 hours each

(B) (MTP N16) (ANS.: TOTAL LABOUR COST: RS 127.32)

**PROBLEM 4:** Jigyasa Ltd. pays a basic wage of Rs. 125 per hour to its production workers. The company works 6 days a week in a single shift of 8:00 AM. to 4:30 PM. The company also pays the overtime rule is as under:

- No over-time is paid for any work upto 5:30 PM.
- Rs.62.50 per hour for any work done after 5:30 PM.
- The Maximum over-time payment is restricted to Rs. 375 for a day, However, workers are paid Rs. 80 as diet allowance for work done beyond 8:30 PM
- On Sunday or any holiday, workers are paid Rs. 375 provided they work atleast for 4 hours.

The extract of attendance for three workers is as follows:

	Worker- A	Worker- B	Worker- C
Monday	8:00AM - 6:30 PM	8:00 AM - 7:30 PM	8:00 AM - 9:30 PM
Tuesday (Holiday)	8:00 AM - 5:30 PM	8:00 AM - 12:30 PM	Absent
Wednesday	8:00 AM - 10:30 PM	8:00 AM - 5:30 PM	8:00 AM - 11:30 PM
Thursday	8:00 AM - 4:30 PM	8:00 AM - 9:30 PM	8:00 AM - 8:30 PM
Friday	8:00 AM - 11:00 PM	8:00 AM - 4:30 PM	8:00 AM - 4:30 PM
Saturday	Absent	8:00 AM - 5:30 PM	8:00 AM - 7:30 PM
Sunday	Absent	8:00 AM - 1:30 PM	8:00 AM - 4:30 PM

Required:

- Calculate the amount of overtime and diet allowance payable to each worker.

ii) Calculate the amount and accounting treatment of overtime and diet allowance in each case:

- a) Worker A and C were involved in a specific job work assigned to them.
- b) Overtime was due to under-estimation of sales demand provided by the sales department.
- c) Overtime was due to make up a shortfall in production due to sudden demand.

(B) (RTP M17) (ANS.: (I) OVER TIME ALLOWANCE FOR WORKER A,B,C IS 1,093.75, 1,125.00, 1,312.50; DIET ALLOWANCES IS 160,80,160 RESPECTIVELY AND (II) A) CHARGED TO THE SPECIFIC JOB, B) CHARGED TO SALES DEPARTMENT, C) CHARGED TO COST OF PRODUCTION AS FACTORY OVERHEAD.)

**PROBLEM 5:** In a factory, the basic wage rate is Rs.10 per hour and overtime rates are as follows:

Before and after normal working hours: 175% of basic wage rate

Sundays and holidays: 225% of basic wage rate

During the previous year, the following hours were worked:

Normal time:	1,00,000 hours
Overtime before and after working hours:	20,000 hours
Overtime on Sundays and holidays:	5,000 hours
Total:	1,25,000 hours

The following hours have been worked on job 'Z':

Normal:	1000 hours.
Overtime before and after working hours:	100 hours.
Sundays and holidays:	25 hours.
Total:	1125 hours

You are required to calculate the labour cost chargeable to job 'Z' and overhead in each of the following instances:

- a) Where overtime is worked regularly throughout the year as a policy due to the labour shortage.
- b) Where overtime is worked irregularly to meet the requirements of production.
- c) Where overtime is worked at the request of the customer to expedite the job.

(C) (NEW SM, OLD SM) (ANS.: A) LABOUR COST - RS. 13,162.5; B) LABOUR COST - RS. 11,250; OH - RS. 1,062.5; C) LABOUR COST - RS. 12,312.5) (SOLVE PROBLEM NO 22 OF ASSIGNMENT PROBLEMS AS REWORK)

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To **MASTER MINDS**, Guntur

**The End**