3. EMPLOYEE COST AND DIRECT EXPENSES

NO. OF PROBLEMS IN 41E OF CA INTER: CLASSROOM - 28, ASSIGNMENT – 27
NO. OF PROBLEMS IN 42E OF CA INTER: CLASSROOM - 23, ASSIGNMENT – 22
NO. OF PROBLEMS IN 43E OF CA INTER: CLASSROOM - 25, ASSIGNMENT – 25

MODEL - WISE ANALYSIS OF PREVIOUS EXAMINATIONS

No.	MODEL NAME	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)	M-19(N)	N - 19(N)	N - 19(O)
1.	CALCULATION OF REMUNERATION	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.	STANDARD PLANS	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 2020)	PROBLEM NO. IN OLD SM	PROBLEM NO. IN OLD PM	RTP	MTP	PREVIOUS EXAMS	REMARKS
CR 1	ILL 1	ILL 1 (95%)	-	-	-	-	
CR 2	-	-	-	-	-	-	
CR 3	ILL 3 (90%)	ILL 2 (95%)	24(95%)	-	-	-	
CR 4	ILL 13	ILL 28 (95%)	-	-	-	-	
CR 5	-	-	16	-	-	-	
CR 6	ILL 10	ILL 16	-	-	-	-	
CR 7	ILL 9	ILL 17	-	-	-	-	
CR 8	-	-	-	-	-	M 19(N)	
CR 9	-	-	-	-	-	N-19(N)	
CR 10	-	-	-	N-19 (N,O)	-	-	
CR 11	PQ 2	-	-	-	-	-	
CR 12	-	-	-	-	-	-	
CR 13	-	-	10 (95%)	-	-	-	
CR 14	PQ 1	ILL 20 (95%)	-	-	-	-	
CR 15	-	-	-	N16,M-19(N,O)	-	-	
CR 16	-	ILL-9	9	-	-	-	
CR 17	ILL 5	-	20	-	-	M13	
CR 18	ILL 2	ILL 27	-	-	-	-	
CR 19	-	-	-	-	-	N18 (N)	
CR 20	-	-	-	-	-	N15	
CR 21	ILL-14	ILL 6	-	-	Nov18-ii	M17	

CR 22	-	-	-	-	-	M18 (N)	
CR 23	ILL-15	-	-	-		N-19(O)	
CR 24	-	-	-	N-17	M 19-ii	-	
CR 25	-	-	5	-	-	-	
ASG 1	-	-	-	-	-	-	
ASG 2	-	-	-	-	-	-	
ASG 3	-	ILL 2 (95%)	-	-	-	-	
ASG 4	-	-	-	-	-	-	
ASG 5	-	-	-	-	-	-	
ASG 6	-	-	-	-	-	N17	
ASG 7	-	-	-	15	-	-	
ASG 8	ILL-6 ILL-7	ILL 14 (95%)	-	-	-	-	
ASG 9	ILL-13	-	-	N18 (N&O)	-	-	
ASG 10	-	-	-	-	-	-	
ASG 11	-	-	-	-	-	N18 (O)	
ASG 12	-	-	-	-	-	-	
ASG 13	-	-	-	-	-	-	
ASG 14	-	-	-	-	-	-	
ASG 15	-	ILL-27	-	-	-	-	
ASG 16	-	-	-	-	-	-	
ASG 17	-	-	-	-	-	-	
ASG 18	-	-	-	-	-	-	
ASG 19	-	-	-	-	-	-	
ASG 20	-	-	-	-	-	-	
ASG 21	-	-	-	-	N 18-2	-	
ASG 22	-	-	-	-	M 18-2	-	
ASG 23	-	ILL-5	-	-	-	-	
ASG 24	-	-	-	-	-	-	
ASG 25	-	-	-	-	-	-	

TOPICS 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:

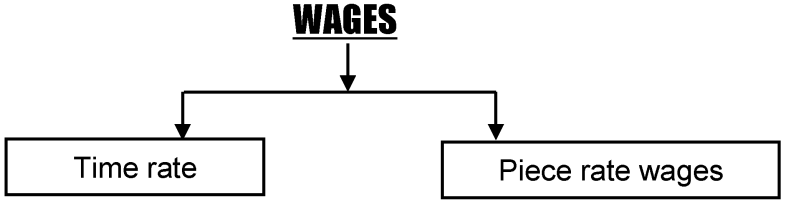
Direct employee cost	Indirect employee cost
1. It is the cost incurred in payment of employees who are directly engaged in the production process.	**1.** Cost incurred for payment of employee who are not directly engaged in the production process.
2. Direct employee cost can be easily identified and 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
	Statutory Deductions	
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.
	Other Deductions	
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.

Wages = Rate per hour X No. of hours worked

Advantages: Easy to calculate, Guaranteed wages.

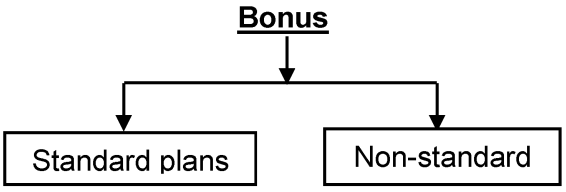
Disadvantages: Efficiency may be on low side, No respect for hard work.

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

Wages = Production in Units X 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.

Remuneration = T X R + ½ [T.S. X 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 × 700 = 1,400 hours. Actual time for 700 units = 1,200 hours. Time saved = 200 hours.

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

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

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. In case of indirect workers, normal idle time is considered for the computation of overhead 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.	

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 characterized 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.

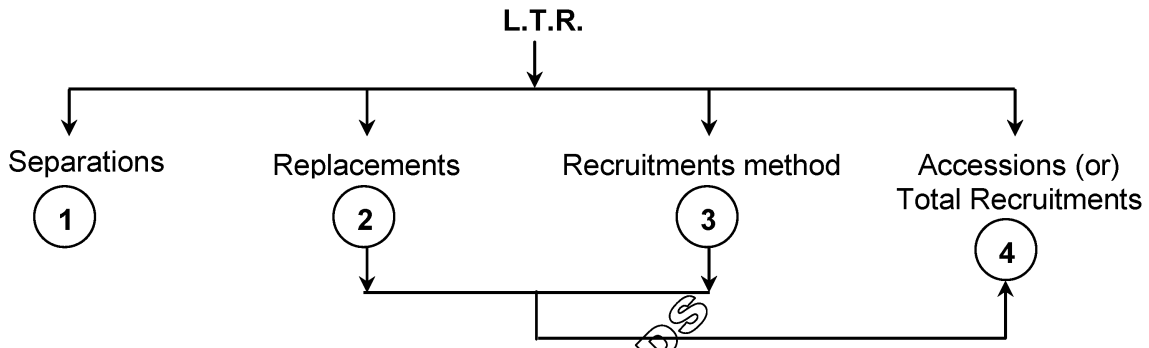
e) Flux Method:

Alternative 1:

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

Alternative 2:

$$\frac{\text{Separations} + \text{Replacements} + \text{New recruitments}}{\text{Average no. of workers}}$$ **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 QUESTIONS: What would be the impact on the question,

a) If dearness allowance is 50% of basic pay. **b)** If non-productive hours are 200.

Note:_____

PROBLEM 2: A' an employee of XYZ co. gets the following cash and benefits.

a) Salary : Rs.250 per month

b) Dearness allowance: On 1st Rs.100 of Salary - Rs.400, On next Rs.100 of Salary - Rs.100 & On balance of every Rs.100 - Rs. 50 or part thereof

c) Employer's Contribution to Provident Fund 8% salary and D.A.

d) E.S.I. : 4% of Salary and D.A.

e) Bonus : 20% of Salary and D.A.

f) Other Allowances : Rs. 2,725 per annum.

A works for 2,400 hours p.a., out of which 400 hours are non-productive but treated as normal idle time. Find out:

1. Effective hourly cost of A.
2. A worked for 18 effective hours on Job '13', where the cost of direct material equal A's earnings and the overhead applied is 100% of prime cost. The sale value of the job is quoted to earn a profit of 10% on such value. What is the sale value?

(B) (OLD SM) (ANS.: 1. RS. 7.50/HR. 2. RS. 600) (SOLVE PROBLEM NO 2 OF ASSIGNMENT PROBLEMS AS REWORK)

CONCEPT QUESTIONS: What would be the impact on the question

a) If salary is 450 per month. **b)** if bonus is 200 per month.

Note:_____

_____

PROBLEM 3: 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:

	Jobs		
Particulars	**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 3 OF ASSIGNMENT PROBLEMS AS REWORK)

CONCEPT QUESTIONS: What would be the impact on the question,

a) If overtime is 20hours instead of 10 hours. **b)** if basic wages after worker A is 8,000.

Note:_____

_____

PROBLEM 4: Calculate the labour hour rate of a worker X from the following data:

Basic pay	10,000 p.m.
D.A	3,000 p.m.
Fringe benefits	1,000 p.m.

Number of working days in a year 300. 20 days are availed off as holidays on full pay in a year. Assume a day of 8 hours. *(B) (NEW SM, OLD SM) (ANS: RS. 75HR)*

(SOLVE PROBLEM NO 4OF ASSIGNMENT PROBLEMS AS REWORK)

CONCEPT QUESTIONS: What would be the impact on the question,

a) if fringe benefit is 12,000 p.a. **b)** if D.A is 1000.

Note:_____

MODEL 2: STANDARD PLANS

PROBLEM 5: You are given the following information of a worker:

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

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 5 OF ASSIGNMENT PROBLEMS AS REWORK)

CONCEPT QUESTIONS: What would be the impact on the question

a) If 10%of total units are defective, what is the cost per good unit.

b) If standard time is 70 hours.

Note:_____

PROBLEM 6: 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 6 OF ASSIGNMENT PROBLEMS AS REWORK)

CONCEPT QUESTIONS: What would be the impact on the question

a) If standard time is 5hours. **b)** if wage rate is Rs.40 per hour.

Note:_____

PROBLEM 7: (PRINTED SOLUTION AVAILABLE)

a) 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).

b) The time allowed for a job is 8 hours. The hourly rate is Rs.8. Prepare a statement showing:

i) The bonus earned
ii) The total earnings of employee and
iii) 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 OF ASSIGNMENT PROBLEMS AS REWORK)

CONCEPT QUESTIONS: What would be the impact on the question,

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

b) If standard time is 10 hours.

Note:_____

_____

PROBLEM 8: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 fallowing plans

(i) Halsey Premium plan rate (50%)

(ii) Rowan plan

(iii) Time Wage system

(iv) Piece rate System

(B)(May 19 new) (ANS.: i)2625 ii)2812.5 iii)2250 iv)3450)

(SOLVE PROBLEM NO 8 OF ASSIGNMENT PROBLEMS AS REWORK)

CONCEPT QUESTIONS: What would be the impact on the question,

a) If actual time is 35 hours.

b) if standard time is 25 hours.

Note :_____

_____

PROBLEM 9: 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 days 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.

(A) (N19 (N) - 5M) (SOLVE PROBLEM NO 9 OF ASSIGNMENT PROBLEMS AS REWORK)

CONCEPT QUESTIONS: What would be the impact on the question**,**

a) If standard time is 40 hours.

b) If actual hours per day is 6 hours.

Note:_____

_____

PROBLEM 10: (PRINTED SOLUTION AVAILABLE) 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.

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.

(B) *(RTP N19(New)* (Ans: Rowan scheme)

(SOLVE PROBLEM NO 10 OF ASSIGNMENT PROBLEMS AS REWORK)

CONCEPT QUESTIONS: What would be the impact on the question

a) If budgeted labour hours 30,000 hours **b)** if wage per hour is 100.

Note:_____

_____

PROBLEM 11:(PRINTED SOLUTION AVAILABLE): Wage negotiations are going on with the recognised employee's union, and the management wants you as on 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)** *(B)(Ans: i)333.3, 500,600 ii)750,750,750 iii)541.67,625,675 iv)518.33,666.67,720)*

(SOLVE PROBLEM NO 11 OF ASSIGNMENT PROBLEMS AS REWORK)

CONCEPT QUESTIONS: What would be the impact on the question

a) If the guaranteed wage rate is 100 per hour. **b)** if the hourly out put is 15 units.

Note :_____

_____

PROBLEM 12: The finishing shop of a company employs 60 direct workers. Each worker is paid 400 as wages per week of 40 hours. When necessary, overtime is worked up to a maximum of 15 hours per week per worker at time rate plus one-half as premium. The current output on an average is 6 units per man hour which may be regarded as standard output. If bonus scheme is introduced, it is expected that the output will increase to 8 units per man hour. The workers will, if necessary, continue to work Overtime up to the specified limit although no premium on incentives will be paid.

The company is considering introduction of either Halsey Scheme or Rowan Scheme of Wage Incentive system. The budgeted weekly output is 19,200 units. The selling price is 11 per unit and the direct Material Cost is 8 per unit. The variable overheads amount to 0.50 per direct labour hour and the fixed overhead is 9,000 per week.

Prepare a Statement to show the effect on the Company's weekly Profit of the proposal to introduce (a) Halsey Scheme, and (b) Rowan Scheme. *(B) (OLD PM) (ANS.: A) RS. 19,400, B) RS. 17,400)*

(SOLVE PROBLEM NO 12 OF ASSIGNMENT PROBLEMS AS REWORK)

CONCEPT QUESTIONS: what is the impact of working overtime

a) If on overall production (increase/decrease) b) cost per unit (increase/decrease)

b) If budgeted production is 20,000**.**

PROBLEM 13: (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)

(SOLVE PROBLEM NO 13 OF ASSIGNMENT PROBLEMS AS REWORK)

CONCEPT QUESTIONS: What would be the impact on the question,

a) If standard time per unit is 45min. **b)** If wage per hour is Rs.5.

Note :_____

_____

PROBLEM 14: 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

a) Calculate the effective rate of earnings per hour under Halsey Scheme and Rowan Scheme

b) Calculate the savings to Mr. A in terms of direct labour cost per piece under the above schemes

c) 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 14 OF ASSIGNMENT PROBLEMS AS REWORK)

CONCEPT QUESTIONS: what the impact of is working overtime.

a) If there is no assurance, which scheme is better from the employer point of view.

b) If the rate per hour is 30.

Note:_____

_____

PROBLEM 15: (PRINTED SOLUTION AVAILABLE) A Company is undecided as to what kind of wage scheme should be introduced. The following particulars have been compiled in respect of three workers. Which are under consideration of the management.

Particulars	I	II	III
Actual hours worked	380	100	540
Hourly rate of wages (in Rs.)	40	50	60

Productions in units:			
- Product A	210	-	600
- Product B	360	-	1350
- Product C	460	250	-
Standard time allowed per unit of each product is:			
	A	B	C
Minutes	15	20	30

For the purpose of piece rate, each minute is valued at Rs. 1/-

You are required to calculate the wages of each worker under:

i) Guaranteed hourly rate basis

ii) Piece work earning basis, but guaranteed at 75% of basic pay (Guaranteed hourly rate if his earnings are less than 50% of basic pay.)

iii) Premium bonus basis where the worker received bonus based on Rowan scheme. ***(B) (RTP N16) (RTP may 19 new &old)***

(ANS.: (I)RS.15,200;5,000;32,400,(II) RS.24,150 , RS.7,500 , RS.36,000;(III)RS.16,050; RS. 6,000; RS.35,640 RESPECTIVELY.)

(SOLVE PROBLEM NO 15 OF ASSIGNMENT PROBLEMS AS REWORK)

CONCEPT QUESTIONS: What would be the impact on the question

a) If the workers are guaranteed at 80% if his earnings are less than 20% of basic pay.

b) If there is no guaranteed wages.

Note:_____

MODEL 3: NON - STANDARD PLANS

PROBLEM 16: 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) (OLDSM,OLDPM) (ANS: 66.5, 74.5, 95.5)***

(SOLVE PROBLEM NO 16 OF ASSIGNMENT PROBLEMS AS REWORK)

CONCEPT QUESTIONS: What would be the impact on the question,

a) If standard time is 150 hours. **b)** No bonus scheme.

Note:_____

MODEL 4: TREATMENT OF OVERTIME WAGES

PROBLEM 17: 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 17 OF ASSIGNMENT PROBLEMS AS REWORK)

CONCEPT QUESTIONS: What would be the impact on the question,

a) If normal wage rate is 20 **b)** Sunday overtime is 400% of normal wage.

Note:_____

MODEL 5: IDLE TIME TREATMENT

PROBLEM 18: In a factory working six days in a week and eight hours each day, a worker is paid at the rate of Rs. 100 per day basic plus D.A. @ 120% of basic. He is allowed to take 30 minutes off during his hours shift for meals-break and a 10 minutes recess for rest. During a week, his card showed that his time was chargeable to:

Job X - 15 hrs. Job Y - 12 hrs. Job Z - 13 hrs.

The time not booked was wasted while waiting for a job. In Cost Accounting, how would you allocate the wages of the workers for the week? ***(B) (OLD SM) (ANS.: EARNINGS OF WORKER - RS. 1,320)***

(SOLVE PROBLEM NO 18 OF ASSIGNMENT PROBLEMS AS REWORK)

CONCEPT QUESTIONS: What would be the impact on the question,

a) If the actual time taken for job X is 19 hours. **b)** Meal break is 90 minutes.

Note:_____

PROBLEM 19: (PRINTED SOLUTION AVAILABLE) 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:

i) Annual cost of each employee

ii) Employee cost per hour

iii) Cost of abnormal idle time, per employee *(Ans: i) 507780 ii) 234 iii) 11700)* *(A) (N18 (N) - 5M)*

(SOLVE PROBLEM NO 19 OF ASSIGNMENT PROBLEMS AS REWORK)

CONCEPT QUESTIONS: What would be the impact on the question,

a) If salary is 50,000 p.m. /worker. **b)** If bonus is 50% salary.

Note:_____

MODEL 6: LABOUR TURNOVER RATES

PROBLEM 20: 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) (N15 - 5M) (ANS.: 5%, 12%) (SOLVE PROBLEM NO 20 OF ASSIGNMENT PROBLEMS AS REWORK)

CONCEPT QUESTIONS: What would be the impact on the question,

a) If average no. of workers are 850. **b)** Closing workers are 1200.

Note:_____

PROBLEM 21: 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

a) recruited and joined and

b) 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%)

(SOLVE PROBLEM NO 21 OF ASSIGNMENT PROBLEMS AS REWORK)

CONCEPT QUESTIONS: What would be the impact on the question,

a) If no. of replacements is 50. **b)** if flux method is 50%.

Note:_____

PROBLEM 22: 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) (M18 (N)-10M)) (ANS.: (I) 7.5%, 88.31%; (II) 10%, 117.74%; III) 40%, 470.97%; 17.5%, 206.05%)

(SOLVE PROBLEM NO 22 OF ASSIGNMENT PROBLEMS AS REWORK)

CONCEPT QUESTIONS: What would be the impact on the question

a) If average no. of workers are 950 **b)** If opening workers are 1000.

Note:_____

MODEL 7: LABOUR TURNOVER EFFECT

PROBLEM 23: 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. (A)***Nov19 (Old)*** ***(SOLVE PROBLEM NO 23 OF ASSIGNMENT PROBLEMS AS REWORK)***

CONCEPT QUESTIONS: What would be the impact on the question,

a) If p/v ratio is 50% **b)** If training cost is 6,00,000

Note:_____

PROBLEM 24: (PRINTED SOLUTION AVAILABLE) 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. raining 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. *(A)(RTPNOV17) (MAY19 MTP S-ii) (ANS: 9,00,000)*

(SOLVE PROBLEM NO 24 OF ASSIGNMENT PROBLEMS AS REWORK)

CONCEPT QUESTIONS: What would be the impact on the question,

a) If cost of rectification of defectives are Rs.50. **b)** if p/v ratio is 30%

Note:_____

MODEL 8: BONUS TO DIRECT &INDIRECT LABOUR

Nil

MODEL 9: LABOUR COST ANALYSIS

PROBLEM 25: 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)

(SOLVE PROBLEM NO 25 OF ASSIGNMENT PROBLEMS AS REWORK)

CONCEPT QUESTIONS: What would be the impact on the question,

a) If the target production 6000 units **b)** If production 100 pairs.

Note:_____

PRINTED SOLUTIONS TO SOME SELECTIVE PROBLEMS

PROBLEM NUMBERS TO WHICH SOLUTIONS ARE PROVIDED: 7,10,11,13,15,19,24.

PROBLEM NO 7

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

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 10

The Cost of labour under the bonus schemes are tabulated as below:

Time Allowed	Time taken	wages	Bonus		Total wages		Earning per share	
			Halsey*	Rowan**	Halsey	Rowan	Halsey	Rowan
1	2	3=2*80	4	5	6=3+4	7=3+5	8=6/2	9=7/2
24,960	24960	19,96,800	-	-	19,96,800	19,96,800	80.00	80.00
24,960	18720	14,97,600	2,49,600	3,74,400	17,47,200	18,72,000	93.33	100.00
24,960	12480	9,98,400	4,99,200	4,99,200	14,97,600	14,97,600	120.00	120.00
24,960	6240	4,99,200	7,48,800	3,74,400	12,48,000	8,73,600	200.00	140.00

*Bonus under Halsey Plan = 50% of (Time Allowed – Time Taken) × Rate per hour

** Bonus under Rowan Plan = Time taken *Time saved* Rate per hour /Time allowed

Rowan scheme of bonus keeps checks on speed of work as the rate of incentive increases only upto 50% of time taken to time allowed but the rate decreases as the time taken to time allowed comes below 50%. It provides incentives for efficient workers for saving in time but also puts check on careless speed. On implementation of Rowan scheme, the management of ADV Pvt. Ltd. would resolve issue of the slow speed work while maintaining the skill and precision required maintaining the quality of product.

PROBLEM NO 11

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 13

Calculation of earnings under existing system:

Wages:

Day shift = 5d x 9h x 10 = 450

Late shift = 3d x 3h x 15 = 135

= 585 585

Bonus:

Day shift = 5d x 25 = 125

Late shift = 3h x 15 = 45

= 170

= 755

Calculation of earnings under piece rate system:

Standard time for 15 articles = 5hrs

Wages for 15 articles = Rs.50 (5hrs x 10)

Add: Premium @ 20% = Rs.10

= Rs.60

Piece rate = 60/15 uts = Rs.4

Earnings = 135 uts x 4 = RS.540

Calculation of earnings under Halsey and Rowan system:

Given,

Standard time for 150 articles = 5hrs

Add: Premium @ 50% = 2.5hrs

Revised S.T for 15 articles = 7.5hrs

Standard time for actual production = 67.5hrs

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

Actual time = 45hrs

Time saved (S.T. - A.T) = 22.5hrs.

Halsey earnings

= (45x10) + ½ (22.5x10)

= 450 + 112.5

= 562.50

Rowan earnings

$$= (45x10) + \frac{22.5}{67.5}(45x10) = Rs.600$$

	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.15

i) Computation of wages of each worker under guaranteed hourly rate basis.

Worker	Actual Hours worked	Hourly wage rate (Rs.)	Wages (Rs.)
I	380	40	15,200
II	100	50	5,000
III	540	60	32,400

ii) Computation of Wages of each worker under piece work earning basis

Product	Piece	Worker-I	Worker-II	Worker-III

	rate per unit (Rs.)	Units	Wages (Rs.)	Units	Wages (Rs.)	Units	Wages (Rs.)
A	15	210	3,150	-	-	600	9,000
B	20	360	7,200	-	-	1,350	27,000
C	30	460	13,800	250	7,500	-	-
Total			24,150		7,500		36,000

Since each worker's earnings are more than 50% of basic pay. Therefore, worker-I, II and III will be paid the wages as computed i.e. Rs. 24,150, Rs. 7,500 and Rs. 36,000 respectively

Working Notes:

1. Piece rate per unit

Product	Standard time per unit in minute	Piece rate each minute (Rs.)	Piece rate per unit (Rs.)
A	15	1	15
B	20	1	20
C	30	1	30

2. Time allowed to each worker

Worker	Product-A	Product-B	Product-C	Total Time (Hours)
I	210 units × 15 = 3,150	360 units × 20 = 7,200	460 units × 30 = 13,800	24,150/60 = 402.50
II	-	-	250 units × 30 = 7,500	7,500/60 = 125
III	600 units ×15 = 9,000	1, 350 units ×20 = 27,000	-	36,000/60= 600

iii) Computation of wages of each worker under Premium bonus basis (where each worker receives bonus based on Rowan Scheme)

Worker	Time Allowed (Hr.)	Time Taken (Hr.)	Time saved (Hr.)	Wage Rate per hour (Rs.)	Earnings (Rs.)	Bonus (Rs.) *	Total Earning (Rs.)
I	402.5	380	22.5	40	15,200	850	16,050
II	125	100	25	50	5,000	1,000	6,000
III	600	540	60	60	32,400	3,240	35,640

$$* \frac{\text{Time Taken}}{\text{Time Allowed}} \times \text{Time saved} \times \text{Wage Rate}$$

Worker-I = $\frac{380}{402.5} \times 22.5 \times 40$ = 850

Worker-II = $\frac{100}{125} \times 25 \times 50$ = 1,000

Worker-III = $\frac{540}{600} \times 60 \times 60$ = 3,240

PROBLEM NO 19

(i) 1.

	Annual cost of each employee	
1.	Salary (30,000×12)	3,60,000
2.	Bonus (25% of Salary)	90,000
3.	Employees Contribution to PF (15% of Salary)	54,000
4.	Employers welfare (661500/175)	3,780
	Total Annual Cost	5,07,780

2.

Effective Working hours (310 days × 8 hours)	2480 hours
Less: Leave days (30 days × 8 hours)	240 hours*
Available Working hours	2240 hours
Less: Normal Loss @	70 hours
	2170 hours

Employee Cost per hour 507780 2170 = 234

*It is assumed 310 working days are without taking leave permitted into consideration

3. Cost of abnormal idle time per employee = 234× 50 hours= 11700.

(ii) **(1)** Over heads distribution Sheet

Item	Basis	Total Amount	Production Departments		Service Departments	
			A	B	X	Y
Variable overheads (` 12.60 lakhs - ` 4.20 lakhs)	Horse Power hours used	8,40,000	2,40,000	3,00,000	1,80,000	1,20,000
Fixed Overheads	Horse power for Capacity production	4,20,000	1,20,000	1,50,000	90,000	60,000
Total Overheads	-	12,60,000	3,60,000	4,50,000	2,70,000	1,80,000
Service dept X allocated to A, B & Y	As per the ratio given 6:4:2	(2,70,000)	1,35,000	90,000	-	45,000
Service dept Y allocated to A & B	As per the ratio of 4:1	(1,80,000+4 5000 = 2,25,000)	1,80,000	45,000	-	-
Total Overheads of Production departments	-		6,75,000	5,85,000	-	-

(2) Calculation of Factory overhead per labour hour

Item	Production Departments	
	A	B
Total overheads	6,75,000	5, 85,000
Direct labour hours	67,500	48,750
Factory overheads per hour	10	12

PROBLEM NO 24

Output by experienced workers in 50,000 hours =50,000/10=5,000

Output by new recruits = 60% of 5,000 = 3,000 units

Loss of output = 5,000 – 3,000 = 2,000 units

Total loss of output = 10,000 + 2,000 = 12,000 units

Contribution per unit = 20% of 180 = Rs. 36

Total contribution cost = 36 × 12,000 = Rs. 4,32,000

Cost of repairing defective units = 3,000 × 0.2 × 25 = Rs. 15,000

Profit forgone due to labour turnover

	Amt.
Loss of Contribution	4,32,000
Cost of repairing defective units	15,000

Recruitment cost	1,56,340
Training cost	1,13,180
Settlement cost of workers leaving	1,83,480
Profit forgone in 20X8-X9	9,00,000

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'.

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

CONCEPT QUESTIONS: What would be the impact on the question,

a) If bonus 15% of salary and DA. **b)** If other allowance's are 2000 p.m.

PROBLEM 2: X an employee of XYZ co. gets the following cash and benefits.

a) Salary : Rs.200 per month

b) Dearness allowance: On 1st Rs.100 of Salary - Rs.400, On next Rs.100 of Salary - Rs.100 & On balance of every Rs.100 - Rs. 50 or part thereof

c) Employer's Contribution to Provident Fund 5% salary and D.A.

d) E.S.I. : 10% of Salary and D.A.

e) Bonus : 10% of Salary and D.A.

f) Other Allowances : Rs. 10,000 per annum.

A works for 2,500 hours p.a., out of which 100 hours are non-productive but treated as normal idle time. Find out:

1. Effective hourly cost of A.
2. A worked for 18 effective hours on Job '13', where the cost of direct material equal A's earnings and the overhead applied is 150% of prime cost. The sale value of the job is quoted to earn a profit of 20% on such value. What is the sale value? ***(A) (ANS.: 1. RS. 8.5416/HR. 2. RS. 963)***

CONCEPT QUESTIONS: What would be the impact on the question,

a) If salary Rs.500. **b)** If sale value of the job quoted to earn profit 30%.

PROBLEM 3: 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)***

CONCEPT QUESTIONS: What would be the impact on the question,

a) If basic wages are A=200, B=320. **b)** If DA is A=60%, B=70%.

PROBLEM 4: Calculate the labour hour rate of a worker X from the following data:

Basic pay	20,000 p.m.
D.A	5,000 p.m.
Fringe benefits	4,000 p.m.

Number of working days in a year 313. 13 days are availed off as holidays on full pay in a year. Assume a day of 10 hours**.** (C)(ans:Rs.9.67)

CONCEPT QUESTIONS: What would be the impact on the question,

a) If basic pay is Rs.25,000 **b)** If working hours per day is 8hours.

MODEL 2: STANDARD PLANS

PROBLEM 5: Calculate the amount of wages, bonus earned and effective rate of earnings: Job commenced: Monday, 23rd September, 1991, 8 A.M. Job finished: Saturday, 28th 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

CONCEPT QUESTIONS: What would be the impact on the question,

a) If bonus is 50% of time saved. **b)** If employee worked for 8 hours.

PROBLEM 6: 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)***

CONCEPT QUESTIONS: What would be the impact on the question,

a) If wage rate is 170 per hour. **b)** If standard time allowed for job is 60 hours.

PROBLEM 7: 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)

CONCEPT QUESTIONS: What would be the impact on the question,

a) If effective hourly rate is Rs.90. **b)** If standard time for the job is 80 hours.

PROBLEM 8: 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)

CONCEPT QUESTIONS: What would be the impact on the question,

a) If time rate is Rs.50 **b)** If time allowed is 10 hours

PROBLEM 9: 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. *(B)(RTP N18 (N&O))*

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

CONCEPT QUESTIONS: What would be the impact on the question,

a) If factory cost for a job is Rs.3000 **b)** If wage rate is Rs.8

PROBLEM 10: X executes a piece of work in 120 hours as against 150 hours allowed to him. His hourly rate is Rs. 10 and he gets a dearness allowance @ Rs. 30 per day of 8 hours worked in addition to his wages. You are required to calculate total wages received by X under the following incentive schemes:

i) Rowan Premium Plan, and *(B) (OLD PM, N11 - 5M) (ANS.: (I). RS.1,890, (II). RS.2,190)*

CONCEPT QUESTIONS: What would be the impact on the question,

a) If DA per day is Rs.40 **b)** If it is a halsay plan

PROBLEM 11: The following information of a work is given

Weekly working hours	45
Wage Rate per hour (Rs.)	8.00
Piece Rate per Unit (Rs.)	4.00
Normal time taken per piece	20 Minutes
Normal time per week	100 Pieces
Actual Output for the week	120 Pieces

You are required to calculate the earnings of a worker for a week under following plan:

Halsey Premium Scheme (50% sharing) *(B)(Ans: i)576 ii)396) (N18 (O) - 5M)*

CONCEPT QUESTIONS: What would be the impact on the question,

a) If normal output per day is Rs.120 **b)** If actual output for the week is 140 pieces.

PROBLEM 12: The finishing shop of a company employs 40 direct workers. Each worker is paid 210 as wages per week of 30 hours. When necessary, overtime is worked up to a maximum of 15 hours per week per worker at time rate plus one-half as premium. The current output on an average is 7 units per man hour which may be regarded as standard output. If bonus scheme is introduced, it is expected that the output will increase to 10 units per man hour. The workers will, if necessary, continue to work Overtime up to the specified limit although no premium on incentives will be paid.

The company is considering introduction of either Halsey Scheme or Rowan Scheme of Wage Incentive system. The budgeted weekly output is 19,200 units. The selling price is 15 per unit and the direct Material Cost is 9 per unit. The variable overheads amount to 0.80 per direct labour hour and the fixed overhead is 10,000 per week.

Prepare a Statement to show the effect on the Company's weekly Profit of the proposal to introduce (a) Halsey Scheme, and (b) Rowan Scheme. ***(B)(ANS.: A) RS. 87,343, B) RS. 86,192)***

CONCEPT QUESTIONS: What would be the impact on the question,

a) If it is a 50 direct workers **b)** If budgeted weekly output is 20,000 units

PROBLEM 13: The existing incentive scheme in a factory is as follows:

Normal working week : 6 days of 7 hours each plus 4 late shifts of 4 hours each.

Rate of payment: Day work: Rs.15 per hour & Late shifts: Rs.30 per hour

Additional bonus payable: Rs.50 per day shift & Rs.25 per late shift

Average output per operator for 58-hour week i.e. (including 4 late shifts) 150 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.15 per hour, Basic time allowed for 10 articles - 2 hours, Piece - work rate - Add 30% to price, Premium bonus - Add 25% to time.

Assume that 200 articles are produced in a 42 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.

(A)(ans: wage rate per unit 10.07,3.90,3.15,3.15))

CONCEPT QUESTIONS: What would be the impact on the question,

a) If average output 180 articles **b)** If wage rate is Rs.20 per hour and Rs.40 for the late shift.

PROBLEM 14: 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:

a) Calculate the effective rate of earnings under the Halsey scheme and the Rowan scheme.

b) Calculate the savings to the ZED Limited in terms of direct labour cost per piece.

c) 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)

CONCEPT QUESTIONS: What would be the impact on the question,

a) If actual production per month is 7000 units **b)** If no. of working hours per day is 10 hours.

PROBLEM 15: A Company is undecided as to what kind of wage scheme should be introduced. The following particulars have been compiled in respect of three workers. Which are under consideration of the management.

Particulars	I	II	III
Actual hours worked	250	150	300
Hourly rate of wages (in Rs.)	10	30	40
Productions in units:			
- Product A	450	-	100
- Product B	700	-	1000
- Product C	300	500	-
Standard time allowed per unit of each product is:			
	A	B	C
Minutes	10	15	20

For the purpose of piece rate, each minute is valued at Rs. 2/-

You are required to calculate the wages of each worker under:

i) Guaranteed hourly rate basis

ii) Piece work earning basis, but guaranteed at 75% of basic pay (Guaranteed hourly rate if his earnings are less than 50% of basic pay.)

iii) Premium bonus basis where the worker received bonus based on Rowan scheme.

(B) ANS.: (I)RS.2,500;4,500;12,000,(II) RS.42,100 , RS.20,000 , RS.32,000;(III)RS.3811; RS. 4,500; RS.17038 RESPECTIVELY.)

CONCEPT QUESTIONS: What would be the impact on the question,

a) If piece rate for each minute is Rs.4 **b)** If hourly rate is I=Rs.15, II=45, III=60

MODEL 3: NON - STANDARD PLANS

PROBLEM 16: 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. ***(C) (ANS: 2.26,2.15,2.08)***

CONCEPT QUESTIONS: What would be the impact on the question,

a) If rate of pay is 2 p.h. **b)** If job X is 120 hours.

MODEL 4: TREATMENT OF OVERTIME WAGES

PROBLEM 17: In a factory, the basic wage rate is Rs.15 per hour and overtime rates are as follows:

Before and after normal working hours: 133.33% of basic wage rate

Sundays and holidays: 200% of basic wage rate

During the previous year, the following hours were worked:

Normal time:	10,000 hours
Overtime before and after working hours:	3,000 hours
Overtime on Sundays and holidays:	4,000 hours
Total:	17,000 hours

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

Normal:	10 hours.
Overtime before and after working hours:	2 hours.
Sundays and holidays:	1 hours.
Total:	13 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) (ans:a) nil b) 25 c) nil)***

CONCEPT QUESTIONS: What would be the impact on the question,

a) If normal time is 15,000 hours. **b)** If overtime on Sundays and holidays 5000 hours.

MODEL 5: IDLE TIME TREATMENT

PROBLEM 18: In a factory working six days in a week and eight hours each day, a worker is paid at the rate of Rs. 150 per day basic plus D.A. @ 200% of basic. He is allowed to take 10 minutes off during his hours shift for meals-break and a 5 minutes recess for rest. During a week, his card showed that his time was chargeable to:

Job X - 20 hrs. Job Y - 10 hrs. Job Z - 15 hrs.

The time not booked was wasted while waiting for a job. In Cost Accounting, how would you allocate the wages of the workers for the week?

(C) (asn: labour cost of jobX, jobY, jobZ=1161.2,580.6,870.9,ABNORMAL IDLE TIME COST=87.09)

CONCEPT QUESTIONS: What would be the impact on the question,

a) If DA is 150% of basic **b)** If working hours per day is 10 hours.

PROBLEM 19: 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	315days of 8 hours

You are required to calculate:

I) Annual cost of each employee **III)** Cost of abnormal idle time, per employee

II) Employee cost per hour

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

CONCEPT QUESTIONS: What would be the impact on the question,

a) If salary is Rs.40,000. **b)** If no. of employees are 300.

MODEL 6: LABOUR TURNOVER RATES

PROBLEM 20: Human resource department of B. Ltd computed labour turn over by replacement method at 5% for the Quarter ended June 2015. During the quarter, fresh recruitment of 30 workers was made. The number of workers at the beginning and end of the quarter was 500 and 700 respectively.
You are required to calculate the labour turnover rate by separation Method and Flux method

(B) (ans:23.33%,33.33%)

CONCEPT QUESTIONS: What would be the impact on the question,

a) If replacement method is 10%. **b)** If no. of workers at 700 and 800.

PROBLEM 21: RST Company Ltd. has computed labour turnover rates for the quarter ended 31st 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)***

CONCEPT QUESTIONS: What would be the impact on the question,

a) If number of workers replaced during the quarter is 100

b) If labour turn-over rates are 30%,20%,10% under flux method, replacement method and separation method respectively.

PROBLEM 22: 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%)

CONCEPT QUESTIONS: What would be the impact on the question,

a) If no. of workers as on 01.01.2000 =8000 **b)** If 400 workers were discharged.

MODEL 7: LABOUR TURNOVER EFFECT

PROBLEM 23: 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)

CONCEPT QUESTIONS: What would be the impact on the question,

a) If sales amounted 90,00,0000 **b)** If training cost is 35,000.

PROBLEM 24: Jyoti Ltd. wants to ascertain the profit lost during the year 2014-15 due to increased labour turnover. For this purpose, they have given you the following information:

a) 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.

b) 20% of the output during training period was defective. Cost of rectification of a defective unit was Rs. 25.

c) Potential productive hours lost due to delay in recruitment were 1,00,000 hours.

d) Selling price per unit is Rs. 180 and P/V ratio is 20%.

e) Settlement cost of the workers leaving the organization was Rs. 1,83,480.

f) Recruitment cost was Rs. 1,56,340

g) Training cost was Rs. 1,13,180 *(B) (RTP M18 (N&O), M16) (ANS.: PROFIT FORGONE IN 2014 - 15 IS 9,00,000)*

CONCEPT QUESTIONS: What would be the impact on the question,

a) If training period is 60,000. **b)** If P/V ratio is 25%

MODEL 8: BONUS TO DIRECT & INDIRECT LABOUR

Nil

MODEL 9: LABOUR COST ANALYSIS

PROBLEM 25: An article passes through five hand operations as follows:

Operation No.	Time per article (in minutes)	Grade of Worker	Wage rate per hour
1	10	A	1.00
2	15	B	1.50
3	5	C	0.75
4	10	D	2.00
5	30	E	1.80

The factory works 48 hours a week and the production target is 100 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. **(ans:22.05)**

CONCEPT QUESTIONS: What would be the impact on the question,

a) If production target is 200 dozens. **b)** If wage rates are 2,3,1.5,4,3.6.

ADDITIONAL QUESTION BANK 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 @ Rs. 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:

i) No over-time is paid for any work upto 5:30 PM.

ii) Rs.62.50 per hour for any work done after 5:30 PM.

iii) 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.

iv) 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:

i) 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: 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.

i) Calculate his effective hourly rate of earnings under Rowan Incentive Plan.

ii) 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 6: 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:

i) Rowan Plan

ii) Halsey Plan ***(A) (M18 (N) - 5M) (ANS: (I) 237.5 (II) 225)***

PROBLEM 7: 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:

i) Rowan Plan **ii)** Halsey Plan ***(A) (M18 (N) - 5M) (ANS: (I) 237.5 (II) 225)***

PROBLEM 8: 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:

a) To find the normal rate of wages. **b)** To find the cost of materials.

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

PROBLEM 9: 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 10: 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:

a) Compute the normal rate of wages. **b)** Compute the material cost.

c) 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)

THE END

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