

CH 2

Financial Mathematics

(Answers)



لا تعتبر الإجابات (إجابات نموذجية مُعتمدة)

قد تكون هناك بعض الأخطاء الغير مقصودة

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Financial Mathematics

Secondary Level





Unit 2

Salaries and Wages System

2

Learning Objective

By the end of this unit, the student should be able to:

- ▶ identify system of payment.
- ▶ methods of payment – hour-week-month -over time.
- ▶ methods of payment – piece – rate.
- ▶ calculating payroll by commission - bonus.
- ▶ calculating deductions and adjustments to pay.



2.1 System of Payment

Introduction

Every organisation employing personnel will be involved in the calculation of gross and net wages or salaries. In large companies this will be done by specialist staff using computers while in a small one it might be done by one person as part of general office duties. Whatever the situation, the principle is common to all organization.

Wages and salaries in the Kingdom of Bahrain are regulated by law Decree No (48) of 2010 Promulgating Civil Service Law and Law No (36) of 2012 The promulgation of the labor law in the private sector.

You should know that the terms ‘wages’ and ‘salaries’ have the same meaning, but wages is usually applied to hourly-paid or weekly-paid staff, while salaries is used for employees paid monthly.

There are many ways of calculating salary and wages. The following are payment methods that can be used by an organisation:

- ▶ Payment by the hour, week, month and annually.
- ▶ Piece-rate system and Bonus systems.
- ▶ Commission based upon quantity sold.
- ▶ Annual salary.



Activity 2-1-1:

What method of payment that has been used in the Kingdom of Bahrain for the following sectors:

- ▶ Ministries.
- ▶ Banks.
- ▶ Companies and small businesses.

2.2 Payroll by Hour and Week

Payment per hour or week; in which an employee is paid according to the number of hours or weeks worked together with any overtime or bonus payment. Sometimes, as an alternative, a basic minimum wage is paid supplemented by a commission based upon the number of sales achieved by the employee.



The worker's wage should be determined in accordance with the individual or collective labor contract or the work regulations at the establishment. In case the wage is not determined in such manners, the worker shall be entitled to a wage calculated for the work performed of the same nature if any. Where no such wage exists, it should be calculated in accordance with the business practice retained in the occupation in the relevant sector. If no such practices exist, the competent court shall estimate the wage due to the worker in accordance with the requirements of equity. This method shall be retained in determining the type of the service to be performed by the worker.

Decided article (38) Wages may be calculated by the hour, day, week, month, on a piece-rate or per production. As the articles (51,53) stated a worker may not be effectively employed for more than **48 hours** per week for more than **eight hours** per day unless otherwise agreed upon, provided the effective working hours do not exceed ten hours per day, and the Muslim worker may not be employed during the month of Ramadan for more than **six hours** per day, or **36 hours** per week. Article (54) of the Labor Law stipulates the worker shall receive for each additional working hour a wage equivalent to his due wage plus at least **25 % for hours worked during the day**, and at least **50% for hours worked during the night**. An employer may require a worker to work on his weekly day of rest if so, required by the circumstances of the work and in this case the worker shall have the choice between receiving an additional wage equivalent to 150% of his normal wage or another day for rest.



Example 2-2-1:

- An employee is engaged for 46 hours during the day a week at a basic rate of BD2.500 per hour. Calculate the gross wage received during the period.

Days	FRI	SAT	SUN	MON	TUE	WED	THU
Hours	0	8	8	6	8	8	8
O.T during the day	0	0	0	0	0	0	0
O.T during the night	0	0	0	0	0	0	0

Note: (O.T) it means over time.

Solution:

Number of hours = $8 + 8 + 6 + 8 + 8 + 8 = 46$ hours

Total Regular Wage = $46 \times \text{BHD}2.500$

= BHD115.000





Example 2-2-2:

► Jameel worked the following hours during the week in Jan 2021:

Week	FRI	SAT	SUN	MON	TUE	WED	THU
1	1 JAN	2 JAN	3 JAN	4 JAN	5 JAN	6 JAN	7 JAN
	0	8	8	7	8	8	8
2	8 JAN	9 JAN	10 JAN	11 JAN	12 JAN	13 JAN	14 JAN
	0	8	8	8	8	8	5
3	15 JAN	16 JAN	17 JAN	18 JAN	19 JAN	20 JAN	21 JAN
	0	6	8	8	8	8	8
4	22 JAN	23 JAN	24 JAN	25 JAN	26 JAN	27 JAN	28 JAN
	0	8	8	8	8	8	8
5	29 JAN	30 JAN	31 JAN	1 FEB	2 FEB	3 FEB	4 FEB
	0	8	8	8	8	6	8

Calculate the wage for the month of January 2021, the average hourly wage is BHD 2.800.

Solution:

Number of hours: week 1 = 8 + 8 + 7 + 8 + 8 + 8 = 47 hours

week 2 = 8 + 8 + 8 + 8 + 8 + 5 = 45 hours

week 3 = 6 + 8 + 8 + 8 + 8 + 8 = 46 hours

week 4 = 8 + 8 + 8 + 8 + 8 + 8 = 48 hours

week 5 = 8 + 8 = 16 hours

Total Working Hours = 202 hours

Total Regular Wage = 202 × 2.800 = BHD565.600



Example 2-2-3:

▶ Ahmed worked the following hours during the week in:

Days	FRI	SAT	SUN	MON	TUE	WED	THU
Hours	8	8	8	6	8	8	8
O.T during the day	0	2	0	3	0	2	0
O.T during the night	0	0	1	0	2	3	0

Calculate the total wage during the week, if you know that the average hourly wage is BHD 3.000.

Solution:

- Regular Wage = $(8 + 8 + 8 + 6 + 8 + 8 + 8) \times 3 = \text{BHD}162.000$
- Wage of Weekly rest day (Friday) = $8 \times 3 \times 1.50 = \text{BHD} 36.000$
- Over Time of during the day = $(2+ 3 +2) \times 3 \times 1.25 = \text{BHD} 26.250$
- Over Time of during the night = $(1+ 2 +3) \times 3 \times 1.50 = \text{BHD} 27.000$
- Total Wages = $162.000 + 36.000 + 26.250 + 27.000 = \text{BHD} 251.250$



Exercises 2-2-1:

- ▶ An employee is engaged for 47 hours during a week at a basic rate of BHD3.500. Calculate the wage received during the period?

$$47 \times 3.500 = \text{BHD} 164.500$$



Exercises 2-2-2:

Faisal worked the following hours during the week in:

Days	FRI	SAT	SUN	MON	TUE	WED	THU
Hours	0	7	8	6	8	7	8
O.T during the day	0	0	0	2.5	0	3.5	1
O.T during the night	0	0	3	0	2	3	2

Calculate the total wage during the week, if you know that the average hourly wage is BHD 3.750.



Exercises 2-2-3:

Mohammed worked the following hours during the month of Ramadan from 13 April 2021 to 12 May 2021:

Week	FRI	SAT	SUN	MON	TUE	WED	THU
1	09 APR	10 APR	11 APR	12 APR	13 APR	14 APR	15 APR
	8	8	8	8	6	6	6
2	16 APR	17 APR	18 APR	19 APR	20 APR	21 APR	22 APR
	0	6	6	6	6	5	6
3	23 APR	24 APR	25 APR	26 APR	27 APR	28 APR	29 APR
	0	6	6	6	6	6	6
4	30 APR	01 MAY	02 MAY	03 MAY	04MAY	05 MAY	06 MAY
	0	5	6	6	6	6	6
5	07 MAY	08 MAY	09 MAY	10 MAY	11 MAY	12 MAY	13 MAY
	0	6	6	6	6	4	0

Calculate the wage for the month of Ramadan, if you know that the average hourly wage is BHD 4.200.

Exercises 2-2-2:**Exercises 2-2-2:**

Faisal worked the following hours during the week in:

Days	FRI	SAT	SUN	MON	TUE	WED	THU
Hours	0	7	8	6	8	7	8
O.T during the day	0	0	0	2.5	0	3.5	1
O.T during the night	0	0	3	0	2	3	2

Calculate the total wage during the week, if you know that the average hourly wage is BHD 3.750.

Solution:

- Regular Wage = $(7 + 8 + 6 + 8 + 7 + 8) \times 3.750 = \text{BHD } 165$
- Over Time of during the day = $(2.5 + 3.5 + 1) \times 3.750 \times 1.25 = \text{BHD } 32.8125$
- Over Time of during the night = $(3 + 2 + 3 + 2) \times 3.750 \times 1.50 = \text{BHD } 56.250$
- Total Wages = $165 + 32.8125 + 56.250 = \underline{\underline{\text{BHD } 254.0625}}$

Exercises 2-2-3:



Exercises 2-2-3:

Mohammed worked the following hours during the month of Ramadan from 13 April 2021 to 12 May 2021:

Week	FRI	SAT	SUN	MON	TUE	WED	THU
1	09 APR	10 APR	11 APR	12 APR	13 APR	14 APR	15 APR
	8	8	8	8	6	6	6
2	16 APR	17 APR	18 APR	19 APR	20 APR	21 APR	22 APR
	0	6	6	6	6	5	6
3	23 APR	24 APR	25 APR	26 APR	27 APR	28 APR	29 APR
	0	6	6	6	6	6	6
4	30 APR	01 MAY	02 MAY	03 MAY	04MAY	05 MAY	06 MAY
	0	5	6	6	6	6	6
5	07 MAY	08 MAY	09 MAY	10 MAY	11 MAY	12 MAY	13 MAY
	0	6	6	6	6	4	0

Calculate the wage for the month of Ramadan, if you know that the average hourly wage is BHD 4.200.

Number of hours:

week 1 = $6+6+6 = 18$ hours

week 2 = $6+6+6+6+5+6 = 35$ hours

week 3 = $6+6+6+6+6+6 = 36$ hours

week 4 = $5+6+6+6+6+6 = 35$ hours

week 5 = $6+6+6+6+4 = 28$ hours

Total Working Hours = 152 hours

Total Regular Wage : 152 x 4.200 = BHD 638.400

2.3 Payroll by Piece & Rate System

Piece-rate system; in which the employee is paid for each unit of output (piece) produced. Article No (38). of the Labor Law stipulates wages may be calculated by the hour, day, week, month, on a piece-rate or per production. Wages shall not be deemed to be calculated on a piece-work or production basis unless expressly specified in the labour contract.



Example 2-3-1:

- ▶ Khalid an employee at Gulf Plastic co. is given BHD0.750 as piece rate of work. Find his total pay for a September 2021, if his total production for that month was 360 pieces?

Solution:

$$\begin{aligned}\text{Total wage pay} &= \text{Number produced} \times \text{Rate per piece} \\ &= 360 \times \text{BHD}0.750 \\ &= \text{BHD}270.000\end{aligned}$$





Exercises 2-3-1:

A- Fatima an employee at Manama co. is given BHD 0.750 as piece of work. If she produced 300 pieces. How much she received?

$$300 \times 0.750 = \text{BHD } 225$$

B- Ebrahim is an employee of the ABC Co. He is entitled to a monthly salary of BHD 400 addition to BHD0.250 each piece produced per month. If he produced 450 pieces in this month, how much is his total monthly salary?

$$450 \times 0.250 = \text{BHD } 112.5$$

$$400 + 112.5 = \text{BHD } 512.500$$

C- Find his total pay for Sep 2021, if his total production for that month was 320 pieces and BHD0.800 a piece rate.

$$320 \times 0.800 = \text{BHD } 256$$

D- Fill in the missing value in the following table:

No	Employee	No-produced	Rate per piece	Total pay
1	Sami	900	$405 \div 900 = 0.450$	BHD 405.000
2	Ahmed	$382.500 \div 0.850 = 450$	0.850	BHD 382.500
3	Ziad	600	1.450	$600 \times 1.450 = \text{BHD } 870$

E- Mona an employee at Al-Jazeera Company, earned BHD300 in one month. If, in this month, she produced 360 pieces, what is the rate for each piece of work she's given?

$$300 \div 360 = 0.8333$$

2.4 Payroll by Commission & Bonuses

Commission is the money that is paid as a reward for services which bears a simple percentage relationship to the value of business transacted.

Many sales agents are rewarded by a commission, sometimes like 5% of the value of the deal arranged. If salesman were paid a basic salary the employee would not be able to enjoy a very good standard of living. But with the commission they gain they will increase their salary. This will depend on the sales made. The following are the common types of commission that are used:

- (1) **Straight Commission.** This means that the employees are paid a certain amount (as a percentage) of sales made or business transacted. Commissions act as an incentive to salesman that allow them to earn more money if they sell more.
- (2) **Graduated Commission.** This means that the employees are paid a certain amount (or as a percentage or increasing steps) according to the grades or the steps that the organisation keeps.
- (3) **Volume Commission and Value Commission.** This means that the employees are paid a certain amount on the number of sales items made or the range of the business transactions. The commission amount depends on the total value of the goods sold.
- (4) **Bonuses.** This means that the employees are paid a certain basic salary, get a quota to be sold and if they sell it they will gain the bonus. The bonus is always been fixed as a percentage of the extra sales made.





Example 2-4-1:

- ▶ Nasser works as a salesman in a company for a base salary of BHD 300 per month plus a commission of 5% of sales. If he has made sales of BHD2000 at the end of the Mar 2021. What is the gross salary for this employee for the Mar 2021?

Solution:

$$\text{Commission} = 5\% \times 2000 = \text{BHD } 100$$

$$\begin{aligned} \text{Total gross wage} &= \text{Basic wage} + \text{Commission} \\ &= 300 + 100 \\ &= \text{BHD } 400 \end{aligned}$$



Example 2-4-2:

- ▶ Ahmed, an employee, is paid a basic salary of BHD 300 per month, followed by a **graduated commission** of 2½% on the first BHD1,000 of sales and 5% thereafter.

What will he earn in a week when sales total BHD4,700?

Solution:

$$\text{Commission on the first BD1,000} = 2\frac{1}{2}\% \times 1,000 = \text{BHD } 25$$

$$\text{Balance} = 4,700 - 1,000 = \text{BHD } 3,700$$

$$\text{Commission on the balance} = 5\% \times 3,700 = \text{BHD } 185$$

$$\begin{aligned} \text{Total gross wage} &= \text{Basic wage} + \text{Commission} \\ &= 300 + 25 + 185 = \text{BHD } 510. \end{aligned}$$



Example 2-4-3:

- Rashid works as a sales employee with a monthly salary of BHD300 per month in addition **bonus** to 5% of annual sales, which are over BHD30000. If its annual sales reach 45000. Find his annual salary.

Solution:

$$\text{Annual bonus} = (45000 - 30000) \times 5\% = \text{BHD } 750$$

$$\text{Annual salary} = 300 \times 12 = \text{BHD } 3600$$

$$\text{Total annual salary} = 3600 + 750 = \text{BHD } 4350$$



Exercises 2-4-1:

- A. Salman should be refianed a basic salary of BHD250, and a commission of 5% of goods sold, if the total sales for BHD722. What was his total income this month?
 $722 \times 5\% = 36.100$
 $250 + 36.100 = \text{BHD } 286.100$
- B. Waleed works as salesman with 5% of sales and it increases to 7% if he sells more than BHD25,000 - what is his total commission if the sales BHD 48000?
 $48000 \times 7\% = \text{BHD } 3,360$
- C. Lyla work with basic salary monthly BHD 500 and commission takes 2% of the first BHD 20,000 of sales arranged, and 1% thereafter. If she sells BHD175,580 of goods in total, what is the gross salary for this month?

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Exercises 2-4-2:

Find the missing value in the following table:

No	Employee	Salary BHD	Total Sales BHD	Commission		Total Salary
				Rate	BHD	
1	Khalid	400	3000	5%	150	$400+150 = \text{BHD } 550$
2	Jamal	350	$100 \div 2\% = 5000$	2%	100	$350+100 = \text{BHD } 450$
3	Manal	300	4000	4%	160	BHD ???

$$160 \div 4000 =$$

$$0.04 \times 100 = 4\%$$

Exercises 2-4-1:

C. Lyla work with basic salary monthly BHD 500 and commission takes 2% of the first BHD 20,000 of sales arranged, and 1% thereafter. If she sells BHD175,580 of goods in total, what is the gross salary for this month?

Commission on the first BD20,000 = $2\% \times 20,000 = \text{BHD } 400$

Balance = $175,580 - 20,000 = \text{BHD } 155,580$

Commission on the balance = $1\% \times 155,580 = \text{BHD } 1555.800$

Total gross wage = Basic wage + Commission

= $500 + 400 + 1555.800 = \underline{\underline{\text{BHD } 2,455.800}}$.

2.5 Deductions

Deductions:

- ▶ Deductions is the money that is deducted from the employee's salary for different purposes like pension funds, social insurance or the repayment of debts or loans.□

The labour law for the private sector (decree 23/1976) in the Kingdom of Bahrain that is shown in article 74 in chapter ten that has been amended by Amiri Decree 14/1993. Shows that any employer shall not deduct more than 10% of the wage of a worker in repayment of debts or loans due to the employer nor shall any interest be charged on such debts or loans. There are two types of deductions that can be incurred:

- (1) Statutory Deductions.** This means that a certain deduction amount (as a percentage) has been taken from employee's income to the pension funds or social insurance. Payments made by the employee are according to a graduated scale, greater contributions being paid by higher wage or salary earners. The employer also making a contribution to that of the employee. The purpose of these payments is to provide a state pension to the employee on retirement. Zaka (زكاة) is also deducted as a percentage of the employees annual income .
- (2) Non-statutory Deductions.** These kind of deductions may be made from an employee's income and subject to the employee's agreement. These include payments to private employer-sponsored pension schemes, holiday funds, savings schemes, etc.

On a monthly draw basis and the following deductions are made:

- 6% Pension Fund Contribution Deduction (Basic Salary + Social Allowance)
Private sector.
- 7% as social insurance. (Basic Salary + Fixed allowances) Public Sector.
- 1% Unemployment Insurance Deduction.
- Housing Bank Loan Repayment Deduction.
- Law Court Deduction.



Example 2-5-1:

- Moh'd works in a private sector in the Bahrain Co., with a basic monthly salary of BHD 400 and BD30 as a monthly qualification allowance. And BHD 20 as phone allowances this month only. Deducted per month BHD 50 law court. Calculate his net salary for the month?

Solution:

- Total allowances = qualification allowance + phone allowances

$$= \quad \quad 30 \quad \quad + \quad \quad 20$$

$$= \text{BHD } 50$$

- Social Insurance = (basic salary + qualification allowance) \times 7%

$$= (\quad 400 \quad + \quad 30 \quad) \times 7\%$$

$$= \text{BHD } 30.100$$

- Unemployment Insurance = (basic salary + Social allowance) \times 1%

$$= (\quad 400 \quad + \quad 30 \quad) \times 1\%$$

$$= \text{BHD } 4.300$$

- Total deduction =

Social	Unemployment	Law
insurance	Insurance	Court Deduction
+ 30.1	+ 4.300	+ 50
= BHD84.400		

- Net salary = basic salary + Total allowances

$$= (400 + 50) - 84.400 = \text{BHD}365.600$$



Example 2-5-2:

- ▶ Ahmed Ali works in the Ministry of Education earning BHD1277 as basic salary, BHD70 as social allowance, BHD20 as transport allowance and BHD50 as living standard improving allowance.

Calculate his net salary for May 2021 if the housing bank loan is BHD 171.

PERSONEL INFORMATION	
Ministry	EDUC-MINISTRY OF EDUCATION
CPR	XXXXXXXXXX
Name	AHMED ALI AHMED
Position Title	SPECIALIST
Month	05-2021
Grade-Step	A7-Step 13
Bank-name	AHLI UNITED BANK
Acc.No.	0013XXXX-060
PAYMENT INFORMATION	
Basic Salary	1,277.000
ALLOWANCES	
Social Allowance	70.000
Transport Allowance	20.000
Living Standard Improving Allowance	50.000
GROSS PAY	1,417.000
DEDUCTIONS	
Social Pension Deduction	4.200
Unemployment Insurance Deduction	13.470
Housing Bank Loan Repayment Deduction	171.000
Pension Fund Contribution Deduction	76.620
GROSS DEDUCTION	265.290
NET PAY	1,151.710

Solution:

- Total allowances = Social allowance + Transport allowance + living standard improving

$$= 70 + 20 + 50 = \text{BHD } 140$$
- Pension Fund Contribution = (basic salary + Social allowance) \times 6%

$$= (1277 + 70) \times 6\% = \text{BHD } 80.820$$
- Unemployment Insurance = (basic salary + Social allowance) \times 1%

$$= (1277 + 70) \times 1\% = \text{BHD } 13.470$$
- Total deduction = Pension Fund Contribution + Unemployment Insurance + Housing bank loan

$$= 80.820 + 13.470 + 171 = \text{BHD } 265.290$$
- Net salary = (1277 + 140) – 265.290 = BHD1151.710



Exercises 2-5-1:

A- Fawaz Moh'd, an accountant at an engineering company, earns BHD 450 per month and BHD 50 social allowance monthly and BHD 20 telephone allowance. Find how much he receives each month, if the housing bank loan BD 100.

B- Complete the following payroll blanks with the solution steps:

PERSONEL INFORMATION	
Ministry	Ministry of Health
CPR	XXXXXXXXXX
Name	Yasser Salman Juma
Position Title	X-ray specialist
Month	Sep- 2021
Grade-Step	B8- 5
Bank-name	National Bank of Bahrain
Acc.No.	002969721563400
PAYMENT INFORMATION	
Basic Salary	850.000
ALLOWANCES	
Social Allowance	50.000
Living Standard Improving Allowance	50.000
GROSS PAY	???
DEDUCTIONS	
Social Pension Deduction	???
Unemployment Insurance Deduction	???
Pension Fund Contribution Deduction	???
GROSS DEDUCTION	???
NET PAY	???

C- Majed works in the Moon Co. He receives monthly a basic salary BHD 525, BHD 40 phone allowances and deducted per month BHD 120 law court. What is his net salary?

Exercises 2-5-1:

A- Fawaz Moh'd, an accountant at an engineering company, earns **BHD 450** per month and **BHD 50** social allowance monthly and **BHD 20 telephone allowance**. Find how much he receives each month, if the **housing bank loan BD 100**.

Solution:

Total allowances = Social allowance + Telephone allowance

$$= 50 + 20 = \text{BHD } 70$$

$$\begin{aligned} \text{Pension Fund Contribution} &= (\text{basic salary} + \text{Fixed allowance}) \times 7\% \\ &= (450 + 50 + 20) \times 7\% = \text{BHD } 36.400 \end{aligned}$$

$$\begin{aligned} \text{Unemployment Insurance} &= (\text{basic salary} + \text{Fixed allowance}) \times 1\% \\ &= (450 + 50 + 20) \times 1\% = \text{BHD } 5.200 \end{aligned}$$

$$\begin{aligned} \text{Total deduction} &= \text{Pension Fund Contribution} + \text{Unemployment Insurance} + \text{Housing bank loan} \\ &= 36.400 + 5.200 + 100 = \text{BHD } 141.6 \end{aligned}$$

$$\text{Net salary} = (450 + 70) - 141.6 = \underline{\underline{\text{BHD } 378.400}}$$

B- Complete the following payroll blanks with the solution steps:

PERSONEL INFORMATION	
Ministry	Ministry of Health
CPR	XXXXXXXXXX
Name	Yasser Salman Juma
Position Title	X-ray specialist
Month	Sep- 2021
Grade-Step	B8- 5
Bank-name	National Bank of Bahrain
Acc.No.	002969721563400
PAYMENT INFORMATION	
Basic Salary	850.000
ALLOWANCES	
Social Allowance	50.000
Living Standard Improving Allowance	50.000
GROSS PAY	???
DEDUCTIONS	
Social Pension Deduction	???
Unemployment Insurance Deduction	???
Pension Fund Contribution Deduction	???
GROSS DEDUCTION	???
NET PAY	???

Solution:

- Gross pay = basic salary + Social allowance + living standard improving
= 850 + 50 + 50 = BHD 950

Social pension deduction = Social allowance × 6%
= 50 × 6% = BHD 3

- Pension Fund Contribution = (basic salary) × 6%
= 850 × 6% = BHD 51

- Unemployment Insurance = (basic salary + Social allowance) × 1%
= (850+ 50) × 1% = BHD 9

- Total deduction = Pension Fund Contribution + Unemployment Insurance
= 3+ 51 + 9 = BHD 63

- Net salary = 950 – 63 = **BHD 887**

C- Majed works in the Moon Co. He receives monthly a basic salary BHD 525, BHD 40 phone allowances and deducted per month BHD 120 law court. What is his net salary?

Solution:

$$\begin{aligned} \text{Total allowances} &= \\ &= \text{BHD } 40 \end{aligned}$$

$$\begin{aligned} \text{Pension Fund Contribution} &= (\text{basic salary} + [\text{Fixed allowance}]) \times 7\% \\ &= (525 + 40) \times 7\% = \text{BHD } 39.55 \end{aligned}$$

$$\begin{aligned} \text{Unemployment Insurance} &= (\text{basic salary} + \text{Fixed allowance}) \times 1\% \\ &= (525 + 40) \times 1\% = \text{BHD } 5.65 \end{aligned}$$

Total deduction = Pension Fund Contribution + Unemployment Insurance + law court

$$= 39.55 + 5.65 + 120 = \text{BHD } 165.2$$

$$\text{Net salary} = (525 + 40) - 165.2 = \underline{\underline{\text{BHD } 399.8}}$$



Exercises 2-5-2:

A- Khalid Salem is an assistant manager at one of the government ministries. Calculate his net monthly salary if you know that he is due for the following month:

- Basic salary BHD 1250
- Social allowance BHD 70
- living standard improving allowance BHD 50
- Travel allowance BHD 120

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B- Taha worked on the hourly system in the Kingdom Co. For BHD 3.000 per hour BHD 30 social allowance monthly and deducted BHD90 for the housing bank loan. If the working hours during the month of September 2022 are as follows:

- 46 hours of normal work.
- 10 hours of work during the day. الإجابة في الصفحة التالية
- 6 hours of work a night.
- 6 hours of work on Friday.

Calculate the net wage of September 2022

Exercises 2-5-2:

A- Khalid Salem is an assistant manager at one of the government ministries.
Calculate his net monthly salary if you know that he is due for the following month:

- Basic salary BHD 1250
- Social allowance BHD 70
- living standard improving allowance BHD 50
- Travel allowance BHD 120

Solution:

- Total allowances = Social allowance + Travel allowance + living standard improving
 $= 70 + 120 + 50 = \text{BHD } 240$

- Pension Fund Contribution = (basic salary + Social allowance) \times 6%
 $= (1250 + 70) \times 6\% = \text{BHD } 79.2$

- Unemployment Insurance = (basic salary + Social allowance) \times 1%
 $= (1250 + 70) \times 1\% = \text{BHD } 13.200$

- Total deduction = Pension Fund Contribution + Unemployment Insurance
 $= 79.2 + 13.2 = \text{BHD } 92.400$

- Net salary = $(1250 + 240) - 92.400 = \underline{\underline{\text{BHD } 1,397.6}}$

B- Taha worked on the hourly system in the Kingdom Co. For BHD 3.000 per hour BHD 30 social allowance monthly and deducted BHD90 for the housing bank loan. If the working hours during the month of September 2022 are as follows:

- **46 hours** of normal work.
- **10 hours** of work during the day.
- **6 hours** of work a night.
- **6 hours** of work on Friday.

Calculate the net wage of September 2022

Solution:

$$\text{Regular Wage} = 46 \times 3 = \text{BHD } 138$$

$$\text{Wage of Weekly rest day (Friday)} = 6 \times 3 \times 2.50 = \text{BHD } 45$$

$$\bullet \text{ Over Time of during the day} = 10 \times 3 \times 1.25 = \text{BHD } 37.500$$

$$\bullet \text{ Over Time of during the night} = 6 \times 3 \times 1.50 = \text{BHD } 27$$

$$\text{Total Wages} = 138 + 45 + 37.500 + 27 = \underline{\underline{\text{BHD } 247.500}}$$

Solution:

$$\bullet \text{ Total allowances} = \text{Social allowance} \\ = \text{BHD } 30$$

$$\text{Pension Fund Contribution} = (\text{basic salary} + \text{Fixed allowance}) \times 7\% \\ = (247.500 + 30) \times 7\% = \text{BHD } 19.425$$

$$\text{Unemployment Insurance} = (\text{basic salary} + \text{Fixed allowance}) \times 1\% \\ = (247.500 + 30) \times 1\% = \text{BHD } 2.775$$

$$\text{Total deduction} = \text{Pension Fund Contribution} + \text{Unemployment Insurance} + \\ \text{Housing bank loan}$$

$$= 19.425 + 2.775 + 90 = \text{BHD } 112.200$$

$$\text{Net salary} = (247.500 + 30) - 112.200 = \underline{\underline{\text{BHD } 165.300}}$$

2.6 Computerized Payroll System

A payroll clerk computes the net wages an employee earns as well as gross wages. Gross wages are the total earnings of an employee. Net wages are what the employee takes wages after all deductions such as pension funds or social insurance and other payment. Naturally these deductions vary from time to time.

Gross wages require no calculation if the wage payable is fixed as a weekly or monthly sum of money. However, if payment is made on any other principle, for example on an hourly basis with varying rates of overtime pay, or on a basic-salary-plus-commission basis, then it will be necessary to work out each employee's earnings. This calculation involves looking at time clock records.

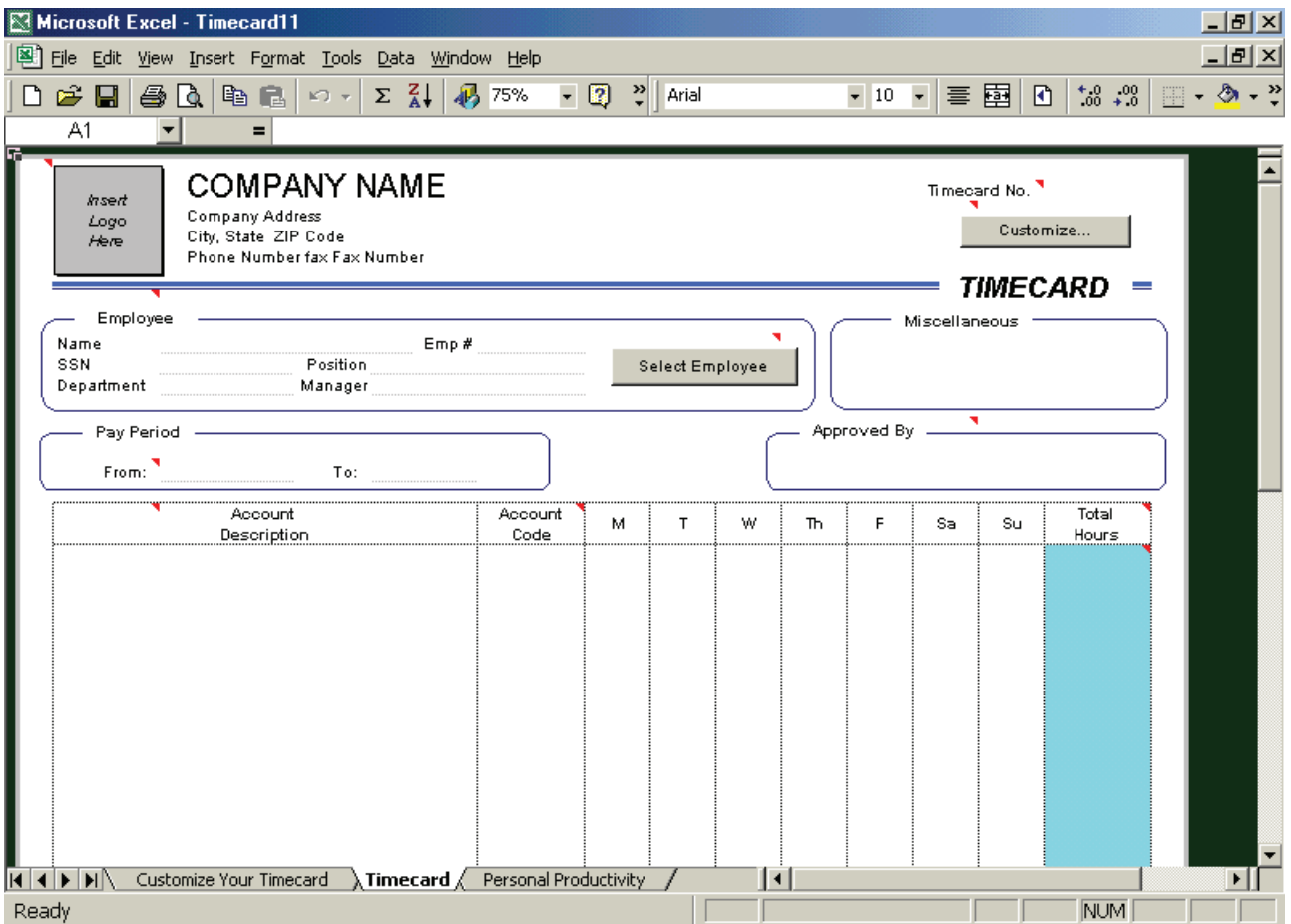


Figure (2-5-1): Calculating time using Time card document

The traditional way of recording hours of work for hourly-paid workers was by “clocking in and clocking out”. A timing device was placed at the factory gate with clock cards arranged in racks on either side of the clock.

Many companies use computers for payroll. Following the procedure outlined below:

- 1- The payroll clerk completes a time records manual as in figure (2-5-2). Table collected for each employee from the record of each one when they used their magnet card whenever they came to work or left it.



Payroll Record		DATE								
EMPLOYEE										
ADDRESS										
EMPLOYER			S.S.N.							
HOURS	SUN	MON	TUE	WED	THU	FRI	SAT	TOTAL HRS	RATE	AMOUNT
REG. TIME										
OVER TIME										
PIECE WORK	UNIT OF WORK									
SALARY FOR PAY PERIOD ENDING THIS DATE										
REMUNERATION (ROOM, BOARD, TIPS, ETC.)										
GROSS EARNINGS										
NUMBER OF EXEMPTIONS <input type="checkbox"/>					DEDUCTIONS					
FEDERAL INCOME TAX										
STATE INCOME TAX										
MEDICARE TAX										
SOCIAL SECURITY TAX										
INSURANCE										
CASH ADVANCE										
MERCHANDISE BOUGHT										
BONDS, ETC.										
OTHER:										
LESS TOTAL DEDUCTIONS										
NET EARNINGS THIS PAY PERIOD										
<input type="checkbox"/> CASH					<input type="checkbox"/> CHECK NUMBER					
RECEIVED BY										EMPLOYER'S RECORD

Figure (2-5-2): Payroll Records

- 2- The information about each employee’s time record’s transferred into the computer and formatted.

- 3- Afterwards the computer will print out the payroll and the cheque of each employee.



For you as a beginner you may use the ready made spreadsheet that is available on your computer, as shown in figure (2-5-1) as an English record. This will allow you to have a nice time work record but you have to make sure that you fill in the customize time record that is shown in figure (2-5-3). The time summary for the full month or annually you will get it after you finish from entering your information.

Others may prefer to use Microsoft Excel or Microsoft Access (as in figure 2-5-4) or the Microsoft Small Business. It depends on the purpose of the use and the lay out that you need.

Weekly Timesheet

Week of:

Employee name:	Hourly pay:
Title:	Supervisor:

DAY	Start Time	Lunch Start	Lunch End	End Time	Vacation/ Sick leave	Regular Hours	Overtime hours	Total Hours Worked
Monday								
Tuesday								
Wednesday								
Thursday								
Friday								
Saturday								
Sunday								
WEEKLY TOTALS								
TOTAL PAY								

Employee signature:	Date:
Supervisor signature:	Date:

Figure (2-5-3): Customize Time Card document

The screenshot displays the Microsoft Access interface for a 'Time and Billing1 : Database'. The main window is titled 'Time Cards' and is in 'Form View'. The form includes the following elements:

- Header Section:** Contains a date field with the value '30/06/2002', a 'Date Entered' label, a dropdown menu, and an 'Employee' field.
- Time Worked Table:** A table with columns: 'Billing Rate', 'Work Code', 'Project', and 'Date Work'. It has a scrollable area below the header.
- Expenses Table:** A table with columns: 'Amount', 'Expense Code', 'Project', and 'Date'. It also has a scrollable area below the header.
- Summary Section:** Includes two text boxes labeled 'Total Expenses' and 'Total Hours', and a 'Preview Time Card...' button.
- Record Navigation:** At the bottom, it shows 'Record: 1 of 1' with navigation icons.

The status bar at the bottom left indicates 'Form View' and the bottom right shows 'NUM'.

Figure (3-5-4): Time Summary in Microsoft Access

General Questions

1Q: An employee is engaged for 46 hours during a week at a basic rate of BHD4.500. Calculate the wage received during the period?

$$46 \times 4.500 = \text{BHD } 207$$

2Q: Ahmed worked the following hours during the month of Ramadan from 13 April 2021 to 12 May 2021:

Week	FRI	SAT	SUN	MON	TUE	WED	THU
	09 APR	10 APR	11 APR	12 APR	13 APR	14 APR	15 APR
1	0	8	8	8	6	6	6
	16 APR	17 APR	18 APR	19 APR	20 APR	21 APR	22 APR
2	6	4	6	6	6	5	0
	23 APR	24 APR	25 APR	26 APR	27 APR	28 APR	29 APR
3	0	6	5	6	6	6	5
	30 APR	01 MAY	02 MAY	03 MAY	04MAY	05 MAY	06 MAY
4	6	0	6	6	6	6	6
	07 MAY	08 MAY	09 MAY	10 MAY	11 MAY	12 MAY	13 MAY
5	0	6	6	6	4	6	0

Calculate the wage for the month of Ramadan, if you know that the average hourly wage is BHD 3.500.

الإجابة في الصفحة التالية

3Q: Find his total pay for Dec 2021, if his total production for that month was 415 pieces and BHD0.750 a piece rate.

$$415 \times 0.750 = \text{BHD } 311.250$$

4Q: Munira an employee at Sky Co. earned BHD 450 in one month. If, in this month, she produced 750 pieces, what is the rate for each piece of work she's given?

$$450 \div 750 = 0.6$$

5Q: Fill in the missing value in the following table:

No	Employee	No-produced	Rate per piece	Total pay
1	Najm	1200	$405 \div 1200 = 0.3375$	BHD 405.000
2	Najlaa	$387.500 \div 0.775 = 500$	0.775	BHD 387.500
3	Amer	800	X	BHD 960

6Q: Aisha works as a salesperson a monthly salary of HBD 4500, with a commission of 1.5% on the first BHD3000 of merchandise sold, and 2% thereafter. If the total sales for the month BHD5500. What is her total salary? الإجابة في الصفحة التالية

7Q: Find the missing value in the following table:

No	Employee	Salary BHD	Total Sales BHD	Commission		Total Salary
				Rate	BHD	
1	Tariq	500	5000	1%	50	BHD 550
2	Majed	320	10,000	2%	200	BHD 520
3	Awatef	610	5000	3%	150	BHD 760

8Q: Waleed works as salesman with 5% of sales and it increases to 7% if he sells more than BHD25,000 - what is his total commission if the sales BHD 48000?

$$48,000 \times 7\% = \text{BHD } 3,360$$

9Q: Lyla work with basic salary monthly BHD 500 and commission takes 2% of the first BHD 20,000 of sales arranged, and 1% thereafter. If she sells BHD175,580 of goods in total, what is the gross salary for this month?

الإجابة في الصفحة التالية

10Q: A clerk earns a gross salary of BHD3,600 p.a. (per annum) and receives an increase of 8% on 1st Jan 2021. What will be the amount of gross salary paid at the end of each month?

$$3,600 \times 108\% = \text{BHD } 3,888$$

$$3,888 \div 12 = \text{BHD } 324$$

OR

$$3,600 \times 8\% = \text{BHD } 288$$

$$3,600 + 288 = \text{BHD } 3,888$$

$$3,888 \div 12 = \text{BHD } 324$$

11Q: Alaa works in a private hospital. He receives monthly a basic salary BHD 450, BHD 50 social allowances and deducted per month BHD 100 loan installment from social insurance organization. What is her net salary?

الإجابة في الصفحة التالية

12Q: Yahia is an assistant manager at one of the government ministries. Calculate his net monthly salary if you know that he is due for the following month:

- Basic salary BHD 1850
 - Social allowance BHD 50
 - living standard improving allowance BHD 80
- الإجابة في الصفحة التالية

13Q: Mohamed Adel worked on the hourly system in the Alsalam Co. BHD 4.500 per hour BHD 50 social allowance monthly. If the working hours during the month of Dec 2021 are as follows:

- 47 hours of normal work.
- 8 hours of work during the day.
- 4 hours of work a night.
- 3 hours of work on Friday.

Calculate the net wage of Dec 2021.

14Q: Use the following link to answer the questions:

https://forms.office.com/Pages/ResponsePage.aspx?id=oeT_Cpw_90aTVwafLBO6BNKho9-4ixNoHCKkWQCFIVUOFpTN09FMVJPTjBSV1ISVjJRVk5WTUNTQi4u



الإجابة في الصفحة التالية

General Questions (page 59)

Q2

2Q: Ahmed worked the following hours during the month of Ramadan from 13 April 2021 to 12 May 2021:

Week	FRI	SAT	SUN	MON	TUE	WED	THU
	09 APR	10 APR	11 APR	12 APR	13 APR	14 APR	15 APR
1	0	8	8	8	6	6	6
	16 APR	17 APR	18 APR	19 APR	20 APR	21 APR	22 APR
2	6	4	6	6	6	5	0
	23 APR	24 APR	25 APR	26 APR	27 APR	28 APR	29 APR
3	0	6	5	6	6	6	5
	30 APR	01 MAY	02 MAY	03 MAY	04MAY	05 MAY	06 MAY
4	6	0	6	6	6	6	6
	07 MAY	08 MAY	09 MAY	10 MAY	11 MAY	12 MAY	13 MAY
5	0	6	6	6	4	6	0

Calculate the wage for the month of Ramadan, if you know that the average hourly wage is BHD 3.500.

Number of hours:

- week 1 = 6+6+6 = 18 hours
- week 2 = 4+6+6+6+5+0 = 27 hours
- week 3 = 6+5+6+6+6+5 = 34 hours
- week 4 = 0+6+6+6+6+6= 30 hours
- week 5 = 6+6+6+4+6 = 28 hours

Total Working Hours = 137 hours

Total Regular Wage : 137 x 3.500 = BHD 479.500

Wage of Weekly rest day (Friday) = (6+6) × 3.500 × 2.50 = BHD 105

Total wages: 479.500 + 105 = BHD 584.500

6Q: Aisha works as a salesperson a monthly salary of HBD 4500, with a commission of 1.5% on the first BHD3000 of merchandise sold, and 2% thereafter. If the total sales for the month BHD5500. What is her total salary?

Commission on the first BD3,000 = $1.5\% \times 3,000 = \text{BHD } 45$
Balance = $5,500 - 3,000 = \text{BHD } 2,500$

Commission on the balance = $2\% \times 2,500 = \text{BHD } 50$

Total gross wage = Basic wage + Commission

= $4500 + 45 + 50 = \underline{\text{BHD } 4,595}$

9Q: Lyla work with basic salary monthly BHD 500 and commission takes 2% of the first BHD 20,000 of sales arranged, and 1% thereafter. If she sells BHD175,580 of goods in total, what is the gross salary for this month?

Commission on the first BD20,000 = $2\% \times 20,000 = \text{BHD } 400$
Balance = $175,580 - 20,000 = \text{BHD } 155,580$

Commission on the balance = $1\% \times 155,580 = \text{BHD } 1555.800$

Total gross wage = Basic wage + Commission

= $500 + 400 + 1555.800 = \underline{\text{BHD } 2,455.800}$.

8Q Waleed works as salesman with 5% of sales and it increases to 7% if he sells more than BHD25,000 - what is his total commission if the sales BHD 48000?

Commission on the first BD25,000 = $5\% \times 25,000 = \text{BHD } 1,250$
Balance = $48,000 - 25,000 = \text{BHD } 23,000$

Commission on the balance = $7\% \times 23,000 = \text{BHD } 1,610$

Total gross wage = Basic wage + Commission

= $0 + 1,250 + 1,610 = \text{BHD } 2,860$

11Q: Alaa works in a private hospital. He receives monthly a basic salary BHD 450, BHD 50 social allowances and deducted per month BHD 100 loan installment from social insurance organization. What is her net salary?

Solution:

- Total allowances = Social allowance
= BHD 50

$$\begin{aligned} \text{Pension Fund Contribution} &= (\text{basic salary} + \text{Fixed allowance}) \times 7\% \\ &= (450 + 50) \times 7\% = \text{BHD } 35 \end{aligned}$$

$$\begin{aligned} \text{Unemployment Insurance} &= (\text{basic salary} + \text{Fixed allowance}) \times 1\% \\ &= (450 + 50) \times 1\% = \text{BHD } 5 \end{aligned}$$

Total deduction = Pension Fund Contribution + Unemployment Insurance + loan installment from social insurance

$$= 35 + 5 + 100 = \text{BHD } 140$$

- Net salary = $(450 + 50) - 140 = \underline{\underline{\text{BHD } 360}}$

12Q: Yahia is an assistant manager at one of the government ministries. Calculate his net monthly salary if you know that he is due for the following month:

Basic salary BHD 1850

Social allowance BHD 50

living standard improving allowance BHD 80

Solution:

$$\begin{aligned} \text{Total allowances} &= \text{Social allowance} + \text{living standard improving} \\ &= 50 + 80 = \text{BHD } 130 \end{aligned}$$

$$\begin{aligned} \text{Pension Fund Contribution} &= (\text{basic salary} + \text{Social allowance}) \times 6\% \\ &= (1850 + 50) \times 6\% = \text{BHD } 114 \end{aligned}$$

$$\begin{aligned} \text{Unemployment Insurance} &= (\text{basic salary} + \text{Social allowance}) \times 1\% \\ &= (1850 + 50) \times 1\% = \text{BHD } 19 \end{aligned}$$

$$\begin{aligned} \text{Total deduction} &= \text{Pension Fund Contribution} + \text{Unemployment Insurance} \\ &= 114 + 19 = \text{BHD } 133 \end{aligned}$$

$$\text{Net salary} = (1850 + 130) - 133 = \underline{\underline{\text{BHD } 1,847}}$$

13Q: Mohamed Adel worked on the hourly system in the Alsalam Co. BHD 4.500 per hour BHD 50 social allowance monthly. If the working hours during the month of Dec 2021 are as follows:

- 47 hours of normal work.
- 8 hours of work during the day.
- 4 hours of work a night.
- 3 hours of work on Friday.

Calculate the net wage of Dec 2021.

Solution:

$$\text{Regular Wage} = 47 \times 4.500 = \text{BHD } 211.5$$

$$\text{Wage of Weekly rest day (Friday)} = 3 \times 4.500 \times 2.50 = \text{BHD } 33.750$$

$$\bullet \text{ Over Time of during the day} = 8 \times 4.500 \times 1.25 = \text{BHD } 45$$

$$\bullet \text{ Over Time of during the night} = 4 \times 4.500 \times 1.50 = \text{BHD } 27$$

$$\text{Total Wages} = 211.5 + 33.750 + 45 + 27 = \underline{\underline{\text{BHD } 317.250}}$$

Solution:

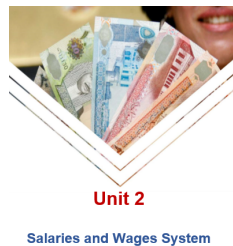
$$\bullet \text{ Total allowances} = \text{Social allowance} \\ = \text{BHD } 50$$

$$\text{Pension Fund Contribution} = (\text{basic salary} + \text{Fixed allowance}) \times 7\% \\ = (317.250 + 50) \times 7\% = \text{BHD } 25.707$$

$$\text{Unemployment Insurance} = (\text{basic salary} + \text{Fixed allowance}) \times 1\% \\ = (317.250 + 50) \times 1\% = \text{BHD } 3.672$$

$$\text{Total deduction} = \text{Pension Fund Contribution} + \text{Unemployment Insurance} \\ = 25.707 + 3.672 = \text{BHD } 29.379$$

$$\text{Net salary} = (317.250 + 50) - 29.379 = \underline{\underline{\text{BHD } 337.871}}$$



Unit 2:Salaries and Wages System

توحيد المسارات (تجاري) - تعليم فني ومهني

...

Points: 100%

✓ **Correct**

1. Bader worked the following hours during the week in:

Days		FRI	SAT	SUN	MON	TUE	WED	THU
Hours	0	8	8	8	8	8	8	
Over Time	0	2	0	2	3	1	2	

(during the day)

If you know that the average hourly wage is BHD 5.000. The total wage during the week are:

*

- BHD302.500 ✓
- BHD240
- BHD177.500

✓ **Correct**

2. Mostafa co. is given a worker BHD0.800 as piece rate of work. If his total production for that month was 500 pieces. the total wage received are: *

BHD40

BHD400 ✓

BHD440

✓ **Correct**

3. Hadi works as a salesman in a company for a base salary of BHD450 per month plus a commission of 6% of sales. If he has made sales of BHD5000 at the end of the May 2021. The gross salary received are: *

BHD450

BHD750 ✓

BHD300

✓ **Correct**

4. Ahmed, an employee, is paid a basic salary of BHD 380 per month, followed by a graduated commission of 3% on the first BHD2,000 of sales and 4% thereafter. If his total sales this month BHD5000, the total gross salary are: *

BHD605

DHD650

BHD560 ✓

✓ **Correct**

5. Danah works as a sales employee with a monthly salary of BHD600 per month in addition bonus to 2% of annual sales, which are over BHD10000. If its annual sales reach 50000. The annual salary is: *

BHD8000 ✓

BHD7200

BHD6400

✓ **Correct**

6. Fatmah works in a private sector in the Bahrain Co., with a basic monthly salary of BHD 500 and BD70 a monthly qualification allowance. Fatmah's net salary for the month is: *

BHD524.400 ✓

BHD570

BHD615.600

✓ **Correct**

7. An employee is worked for 48hours during a week at a basic rate BHD3.750. The gross wage received this week are: *

BHD188

BHD108

BHD180 ✓

✓ **Correct**

8. Salem worked this month 160 basic hours at rate BHD4.250 per hours, in addition 20 hours over time during the night. The gross wages received are: *

BHD765

BHD680

BHD807.500 ✓

✓ **Correct**

9. Mohammed is an employee of ALHuda Co. He is entitled to a monthly salary of BHD350 addition to BHD0.400 each piece produced per month. If he produced 500 pieces in this month, His total salary this month are: *

- BHD550 ✓
- BDH350
- BHD505

✓ **Correct**

10. Abdulla is an a doctor in the Ministry of Healthy earning BHD1450 basic salary, BHD70 social allowance, BHD20 Transport allowance and BHD50 living standard improving allowance. His net salary are: *

- BHD1483.600 ✓
- BHD1438.600
- BHD1590

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