

SOUTH WEST REGIONAL MOCK EXAMINATION

TECHNICAL AND VOCATIONAL EDUCATION

THE TEACHERS' RESOURCE UNIT (TRU)

Cellule d'appui à l'action Pédagogique

BUSINESS MATHEMATICS 5020 ITVEE

MARKING GUIDE

QUESTION ONE

1 (a) Determination of the amount shared S

$$A + B + C + D = S$$

$$6:4:10:7 = K$$

$$K = S/27$$

$$6 + 4 + 10 + 7 = 27$$

$$K = S/27$$

$$A \times S/27 = 300\,000,$$

$$6 \times S/27 = 300\,000$$

$$0.22222222S = 300,000$$

$$S = 300\,000 / 0.222222 \quad S = \underline{\underline{1\,350\,000\text{FCFA}}}$$

1(b) Determination of the shares of others

$$B, s \text{ share} = B, s \text{ ratio} \times K$$

$$K = 1\,350\,000 / 27 = 50\,000$$

$$B = B, s \text{ ratio} \times K = 4 \times 50\,000 = \underline{\underline{200\,000\text{FCFA}}}$$

$$C = C, s \text{ ratio} \times K = 10 \times 50\,000 = \underline{\underline{500\,000\text{FCFA}}}$$

$$D = D, s \text{ ratio} \times K = 7 \times 50\,000 = \underline{\underline{350\,000\text{FCFA}}}$$

1(C) Determination of the number of customers brought by each agent

$$\text{Total number of customers} = 540$$

$$K = 540 / 27 = 20$$

$$A = 6 \times 20 = 120 \text{ customers}$$

$$B = 4 \times 20 = 80 \text{ customers}$$

$$C = 10 \times 20 = 200 \text{ customers}$$

$$D = 7 \times 20 = 140 \text{ customers}$$

QUESTION 2

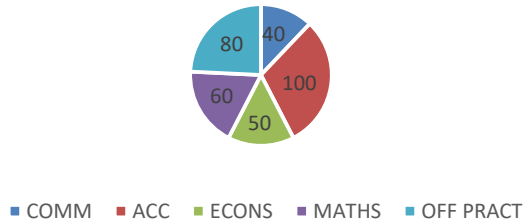
2(a) : GRAPHICAL REPRESENTATION

Total students per subject

$$= 20 + 50 + 25 + 15 + 30 + 40 = 180 \text{ students}$$

SUBJECT	CALCULATIONS	DEGREE
COMMERCE	$20/180 \times 360$	40°
ACCOUNTING	$50/180 \times 360$	100°
BUSSINESS MATHEMATICS	$25/180 \times 360$	50°
ECONOMICS	$15/180 \times 360$	30°
MATHEMATICS	$30/180 \times 360$	60°
OFFICE PRACTICE	$40/360 \times 360$	80°

STUDENTS PER SUBJECTS



2(b) (i) CALCULATION OF THE AMOUNT OF THE INVESTMENT STILL NEEDED

NAMES	CALCULATION OF THE ACQUIRED VALUES $AV = C + I$	ACQUIRED VALUE
NJI	$4\,000\,000 + \frac{4000000 \times 5 \times 2}{100}$	4 400 000FCFA
TUME	$2000\,000 + \frac{2\,000\,000 \times 6 \times 2}{100}$	2 240 000FCFA
NDEP	$1\,500\,000 + \frac{1\,500\,000 \times 4 \times 2}{100}$	1 620 000FCFA

TOTAL $4\,400\,000 + 2\,240\,000 + 1\,620\,000 = 8\,260\,000$

AMOUNT STILL NEEDED = $10\,000\,000 - 8\,260\,000 = 1\,740\,000\text{FCFA}$

(II) CALCULATION OF AMOUNT STILL NEEDED BY EACH OF THE PARTNER

Simplified ratios = 8: 4:3

Sum of ratio = 15

$$K = 1\,740\,000 / 15 = 116\,000$$

$$\text{NJI} = 4\,400\,000 + 116\,000 \times 8 = 5\,328\,000\text{FCFA}$$

$$\text{TUME} = 2\,240\,000 + 116\,000 \times 4 = 2\,704\,000\text{FCFA}$$

$$\text{NDEP} = 1\,620\,000 + 116\,000 \times 3 = 1\,968\,000\text{FCFA}$$

QUESTION 03 a (i) Calculation of the gross amount

Items	Quantity	Unit price	Amount
Tomatoes	3 baskets	10 000	30 000FCFA
Pepper	2 baskets	8 000	16 000FCFA
Vegetables	10 bundles	1 000	10 000FCFA
Onion	2 bags	25 000	50 000FCFA
Garlics	1 bag	30 000	30 000FCFA
GROSS AMOUNT			136 000FCFA

3(ii) Calculation the value of X

$$\text{Rebate } 5\% = .05 \times 1360\,000 = 6800\text{FCFA}$$

$$\text{Net } 136000 - 6800 = 129200$$

$$\text{T.D \%} = \frac{X}{100} \times 12$$

$$129200 - \frac{X}{100} \times 129200 = 120156$$

$$129200 \times 129200 = 120\,156$$

$$X = 9044 / 1292 = 7\%$$

(i) Determination of the price and the quantity indices

Year	Price FCFA	Quantity (kg)	Simple Price index $= \frac{P_n}{P_0} \times 100$	Simple Quantity index $= \frac{Q_n}{Q_0} \times 100$
2020	1500	500	$1500/1500 \times 100 = 100\%$	$500/500 \times 100\% = 100\%$
2021	1700	550	$1700/1500 \times 100 = 113.3\%$	$550/500 \times 100\% = 110\%$
2022	1600	480	$1600/1500 \times 100 = 106.6\%$	$480/500 \times 100\% = 96\%$
2023	1800	610	$2200/1500 \times 100 = 120\%$	$610/500 \times 100\% = 122\%$

QUESTION 4

(I) Calculation of salary with a turnover of 1 800 000FCFA

Turnover	Commission	Rate	Base	Comm	Cumm Comm
0 - 500 000	15FCFA/1000	1.5%	500 000	7 500	7 500
500 000 - 1 000 000	20FCFA/1000	2%	500 000	10 000	17 500
1 000 000 - 1 500 000	25FCFA/1000	2.5%	500 000	12 500	30 000
1 500 000 - 1 800 000	30FCFA/1000	3%	300 000	9000	39 000

Fixed Commission = 15 500FCFA

Commission = 39 000FCFA

GROSS SALARY 54 500FCFA

(i) Calculation of turnover with a salary of 43 000FCFA

Let the turnover be A

Commission = 43 000 - 15 500 = 27 500FCFA

Turnover	Commission	Rate	Base	Comm	Cumm Comm
0 - 500 000	15FCFA/1000	1.5%	500 000	7 500	7 500
500 000 - 1 000 000	20FCFA/1000	2%	500 000	10 000	17 500
1 000 000 - A	25FCFA/1000	2.5%	(A - 1 000 000)	10 000	27 500

We can deduct from the above table that,

2.5% of (A - 1 000 000) 10 000

 $2.5/100 \times (A - 1\,000\,000) = 10\,000$ $.025A - 25000 = 10\,000$ $.025A = 10\,000 + 25\,000$ $.025A = 35000 \quad A = 35000/.025$ **A = 1 400 000FCFA****QUESTION 04 (b)****Determination of the Average due date**

$$T = \frac{NV1n1 + NV2n2 + NV3n3 + NV4n4}{NV}$$

NV

$$T = \frac{(120\,000 \times 29) + (64\,000 \times 44) + (76\,000 \times 77) + (1\,120\,000 \times 90)}{120\,000 + 64\,000 + 76\,000 + 1\,120\,000}$$

$$T = 112\,948\,000/1\,380\,000$$

$$T = 81.8$$

$$T = 82\text{days}$$

We now count 82 days from 1st of April

This implies the average due date is the 22nd of June**QUESTION 5**

5 (a) Calculation of the arithmetic progression

$$a = 2 \quad d = 4 \quad r = 3/2$$

$$a_8 = a + (8-1)d + (8-1)r = 2 + (7)4 + 7(3/2)$$

$$= 2 + 28 + 10.5 = \underline{40.5}$$

5(b) Calculation of the meeting distance

$$S = D/T \quad D = \text{Speed} \times \text{Time}$$

Distance travelled by the train from Yaounde in X hr = 14X

Distance travelled by the train from Douala in X hr = 21X

Distance between the towns = 14X + 21X = 35X

$$\text{Now } 21X - 14X = 70$$

$$7X = 70 \quad X = 70/7 \quad X = 10, \text{ so they meet after 10 hr}$$

Distance between Douala and Yaounde 35X

$$35 \times 10 = \underline{350KM}$$

QUESTION 6

(a)(i) Calculation of the total expenses

$$= 620\,000\text{N} + 15\,500\,000\text{N} + 380\,000\text{N} + 570\,000\text{N} + 30\,000 \times 2.5 = \underline{17\,145\,000\text{N}}$$

$$\text{Expenses in FCFA } 17\,145\,000/2.5 = \underline{6,858,000\text{FCFA}}$$

$$\text{(ii) Balance money} = 7\,000\,000\text{FCFA} - 6\,858\,000\text{FCFA} = \underline{142\,000\text{FCFA}}$$

6(b)(ii)

- Calculation of the probability that both balls are Red. $= (5/8 \times 4/7) = 5/14$
- Probability of selecting one red and one green $= (5/8 \times 3/7) + (3/8 \times 5/7)$
- $15/56 + 15/56 = 15/28$

QUESTION 7

(a)(i) Determination of the unit price of each type of fruit juice

Let the cost of a bottle of carrot juice be X and that of Soupsoup be Y

$$5X + 7Y = 8900 \text{-----(equ 1)}$$

$$6X + 8Y = 10300 \text{-----(equ 2) multiplying the value of X in equ(1) and the value X in (equ(2), we have}$$

$$30x + 42y = 53\,400$$

$$(30x + 40y = 51\,500)$$

$$//// \quad 2y = 1900 \quad Y = 1900/2 \quad Y = \underline{950\text{FCFA}}$$

Substituting the value of Y in equ one, we have,

$$5X + 7(950) = 8900$$

$$5X = 8900 - 6650 \quad 5X = 2250 \quad X = \underline{450\text{FCFA}}$$

(i) Calculation of 10 bottles of carrot juice and 20 bottles of soupsoup juice

$$10(450) + 950(20) = 4500 + 19000$$

$$\underline{23\,500\text{FCFA}}$$

7 (b) Advising MMe Bih on the Microfinance to do her investment

$$\begin{aligned} \text{Future value in MUFIC} \quad C + \frac{CXRXT}{100} &= 2\,000\,000 + \frac{2\,000\,000 \times 2 \times 5}{100} \\ &= \underline{2\,200\,000\text{FCFA}} \end{aligned}$$

union Future value in NTARIKON credit

$$C(1+i)^2 = 2\,200\,000(1.05)^2 = \underline{2\,205\,000\text{FCFA}}$$

I advise MMe Bih to choose the Ntarikon Credit union because their interest rate is higher

QUESTION 8

a) Determination of the due dates of the bills of Douala, Limbe and Manjo,

Douala

Date of acceptance : 15/09/2022

September (30-15) = 15days

Oct = 31days

Nov = 30days

Dec = 14days

Total 90days

Hence, the Douala bill matures on 14/12/2022

Limbe

Date of creation: 12/09/2022

September (30-12) = 18 days

Oct = 31

Nov = 11

60 days

Hence, the Limbe bill matures on the 11/11/2022

Manjo

Date of acceptance = 19/09/2022

September (31-19) = 11

Oct = 31

Nov = 03
45 days

Hence, the manjo bill matures on 03/11/2022

DISCOUNTING SLIP

List of bills Presented for discounting On: 20 th					UBC KUMBO		Our Children Provision P.O BOX 32 TOBIN		
							COMMISSIONS		
No	Place of payment	Due date	No of days	Nominal Value	Discount	En. comm	Listiing	Mani	Exit
1	Douala	14/12	86	1 400 000	50.167	1.672	1.167	200	
2	Limbe	11/11	53	900 000	19.875	663	750	200	
3	Nkong	29/10	39	700 000	11.375	379	583	200	
4	Eseka	17/11	59	1000 000	26.22	819	833	200	400
5	Bafia	17/09	/	/	/	/	/	/	///
6	Manjo	03/11	44	400 000	7.823	244	333	200	400
7	Nkambe	24/09	10	800 000	3.556	111	667	200	400
TOTAL				5 200 000	119017	3888	4333	1200	1200

Details of transactions	DR	CR
Total nominal value		5 200 000
Bafia bill		1 200 000
Discount	1119 017	
Commission	10 621	
Total AGIO excluding tax	129 638	
VAT(19.25%)	24 955	
Total AGIO inclusive tax	154 593	
Net to your credit		6 245 407