basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

SENIOR CERTIFICATE EXAMINATIONS/ NATIONAL SENIOR CERTIFICATE EXAMINATIONS

MATHEMATICAL LITERACY P1

2023

MARKS: 150

TIME: 3 hours

Stanmorephysics

This question paper consists of 13 pages and an addendum with 3 annexures.

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INSTRUCTIONS AND INFORMATION

1. This question paper consists of FIVE questions. Answer ALL the questions.
2. Use the ANNEXURES in the ADDENDUM to answer the following questions:
   - ANNEXURE A for QUESTION 2.1
   - ANNEXURE B for QUESTION 3.1
   - ANNEXURE C for QUESTION 3.2
3. Number the answers correctly according to the numbering system used in this question paper.
4. Start EACH question on a NEW page.
5. You may use an approved calculator (non-programmable and non-graphical), unless stated otherwise.
6. Show ALL calculations clearly.
7. Round off ALL final answers appropriately according to the given context, unless stated otherwise.
8. Indicate units of measurement, where applicable.
9. Diagrams are NOT necessarily drawn to scale, unless stated otherwise.
10. Write neatly and legibly.

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QUESTION 1

1.1 A generator is a useful device that can be used to provide an alternate source of electricity during a power outage.

Shown below is a picture of a generator with different payment options.

PAYMENT OPTIONS OF A GENERATOR

Cash price	**Hire-purchase**	**Online credit (via Mobicred)**
R10 999 (including 15% VAT) 	Deposit: 10% Instalment: R534,14 pm × 24 months Interest rate: 14,75%	Instalment: R1 006 pm × 12 months Interest rate: 9,76%

[Adapted from www.muncha.com]

Use the information above to answer the questions that follow.

1.1.1 Give TWO payment options for this generator. (2)

1.1.2 Define *hire-purchase* within the given context. (2)

1.1.3 Write down the interest rate if the generator was bought on hire-purchase. (2)

1.1.4 Calculate the total cost of the generator using Mobicred. (2)

1.1.5 A 12,5% discount is given on the cash price.

Calculate the amount of discount given if the generator is purchased for cash. (2)

1.1.6 Name the type of interest charged if the generator is bought on hire-purchase. (2)

1.2 John's daughter joined the school's hockey team in 2022.

TABLE 1 below shows the school sport uniform she would need as well as the percentage (%) change in the price compared to the previous year.

TABLE 1: PRICES OF SCHOOL SPORT UNIFORM WITH PERCENTAGE (%) CHANGE IN PRICE

ITEM	2021 PRICE	2022 PRICE	% CHANGE IN PRICE
Sport shirt	R267,92	R265,00	– 1,1
Sport shorts	R214,17	R177,00	– 17,4
Sport skirt	R248,70	R232,00	– 6,7
Tracksuit top	R267,78	R382,00	42,7
Tracksuit pants	R87,75	R195,00	122,2
Sport socks	R48,58	R53,50	10,1
Cap	R89,95	R171,00	90,1

[Adapted from www.news24.com/fin24/money/education]

Use TABLE 1 to answer the questions that follow.

1.2.1 Arrange (in ascending order) the % change in price. (2)

1.2.2 Identify the third most expensive item in 2022. (2)

1.2.3 Calculate the difference in price of a cap bought in 2022 compared to 2021. (2)

1.2.4 Determine the total cost of the school sport uniform in 2021. (2)

1.2.5 Name ONE other item NOT listed in the table that John's daughter might need in order to play for the school hockey team. (2)

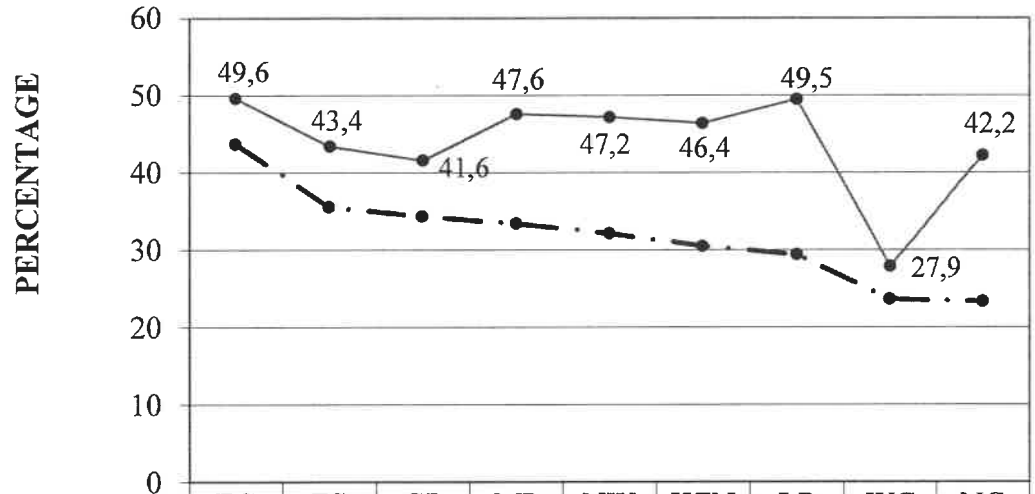
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1.3 The line graph below shows the official and expanded unemployment rates for 2021 for all the provinces in South Africa.

NOTE:

The **expanded unemployment** rate includes the statistics of unemployed persons not looking for employment or trying to become self-employed.
The **total labour force** includes all those who are employable, including the unemployed.

OFFICIAL AND EXPANDED UNEMPLOYMENT RATES FOR 2021 FOR ALL THE PROVINCES IN SOUTH AFRICA



	EC	FS	GP	MP	NW	KZN	LP	WC	NC
Official	43,8	35,6	34,4	33,5	32,2	30,5	29,4	23,7	23,4
Expanded	49,6	43,4	41,6	47,6	47,2	46,4	49,5	27,9	42,2

Use the graph above to answer the questions that follow.

1.3.1 Write down the province with the:

(a) Highest expanded unemployment rate (2)

(b) Smallest difference between the official unemployment rate and the expanded unemployment rate (2)

1.3.2 Determine which province represents the modal official unemployment rate. (2)

1.3.3 The total labour force for the Free State (FS) was 918 000 in 2021.

Calculate the number of officially unemployed people in the Free State. (3)
[31]

QUESTION 2

2.1 Roadside Tours and Travel Agency made a booking at a guesthouse for 36 work colleagues to attend a conference in Upington.

The guesthouse offers rooms with 2 beds and 4 beds for accommodation.

ANNEXURE A shows an invoice that Roadside Tours and Travel Agency received from the guesthouse.

The total amount for accommodation and meals were paid for in advance.

Use ANNEXURE A and the information above to answer the questions that follow.

2.1.1 Write down the address of the guesthouse. (2)

2.1.2 The accommodation cost includes 15% VAT.

Determine (excluding VAT) the price for a person per night in a 2-bed room. (3)

2.1.3 Calculate the missing value **C**, the total for the 4-bed room. (2)

2.1.4 Determine (in simplified form) the ratio of the number of guests booked in the 2-bed rooms to the number of guests booked in the 4-bed rooms. (6)

2.1.5 Two work colleagues who booked the 2-bed rooms cancelled as follows:

One cancelled at 11:00, while the other one cancelled at 15:00 on the check-in date.

Their meal cost will be fully refunded, while the accommodation costs will be refunded according to the conditions of the cancellation policy stated in ANNEXURE A.

The tour operator stated that the refund would be less than R2 500.

Verify, showing ALL calculations, whether this statement is CORRECT. (7)

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2.2 Niel owns a panel beating business. He specialises in buying accident-damaged cars which he refurbishes (repairs, repaints, valets) for resale.

Shown below are the different costs incurred to refurbish an accident-damaged 2019 model Renault Kwid bought for R50 000.

COST OF REFURBISHING THE CAR		PICTURE OF THE DAMAGED CAR
Cost of the panel beating and painting:	R22 000,00	
Cost of fixing minor engine faults:	R3 682,50	
Valet (deep cleaning of the vehicle):	R450,00	

[Source: www.autosalvagecentre.co.za]

Use the information above to answer the questions that follow.

2.2.1 Calculate the total cost of buying and refurbishing the accident-damaged car. (2)

2.2.2 Niel normally sells the refurbished car at 65% of the cost price of a brand new similar model car.

The cost price of a brand new similar model car is R145 900.

Niel stated that he will make a profit of more than R20 000 when he sells the refurbished car.

Verify, showing ALL calculations, whether his statement is VALID. (5)

2.2.3 Niel invests R15 000 of his total profit in a bank which offers him the following interest rates:

6,25% interest compounded yearly for the first year and an interest rate of 6,95% compounded yearly for the second year.

Calculate the total interest that Niel's investment would earn at the end of the second year. (6)

[33]

QUESTION 3

3.1 TABLE 2 in ANNEXURE B shows the number of people employed at Motor Holdings (MH) in August 2020 and 2019.

In August 2020, the company had 41 motor dealerships and a head office.

Use TABLE 2 in ANNEXURE B to answer the questions that follow.

3.1.1 Write down the total number of semi-skilled workers employed by MH during August 2020. (2)

3.1.2 Determine the difference in the total number of employees from August 2019 to August 2020. (2)

3.1.3 Determine the number of staff with disabilities employed in 2020 as a percentage of all the employees in 2020. (3)

3.1.4 Calculate the average number of employees per dealership if 1,5% of the total number of employees worked at the head office in August 2020. (5)

3.1.5 Determine (as a percentage rounded off to THREE decimal places) the probability of randomly choosing a coloured female from the list of employees in August 2020. (3)

3.2 ANNEXURE C shows in percentages box and whisker plots of the unemployment rate for all the provinces in South Africa from 2019 to 2021.

Use ANNEXURE C to answer the questions that follow.

3.2.1 Determine the following:

(a) Lower quartile for 2020 (2)

(b) 75^{th} percentile for 2019 (2)

(c) Median for 2021 (2)

3.2.2 Give TWO reasons why it could be said that the unemployment rate was at its highest in 2021. (4)

[25]

QUESTION 4

4.1 Katlego is employed at a school by the Presidential Youth Employment Initiative (PYEI). He earns a salary of R4 000 per month.

He presently has a NEDBANK Pay-as-you-use Account but is thinking of changing to a CAPITEC Global One Account.

TABLE 3 below shows the transactional fees for the two banks.

TABLE 3: TRANSACTIONAL FEES OF TWO BANKS

TRANSACTION TYPE	BANK FEES	
	NEDBANK (Pay-as-you-use)	**CAPITEC (Global One)**
Deposits (ATM)	R1,30 per R100	R1,30 per R100
Deposits (Branch)	R80 + R2,30 per R100	R4,00 per R100
Cash withdrawals (own ATM)	R9,00 per R1 000 (or a part thereof)	R8 per R1 000 (or a part thereof)
Cash withdrawals (other ATM)	R11 + R2,30 per R100 (or a part thereof)	R10 per R1 000 (or a part thereof)
Cash withdrawals (branch)	R80 + R2,30 per R100	N/A
Debit order (internal)	Free	Free
Debit order (external)	R5,00	R1,50
Send cash (R1–R1 000)	R10,00	R8,00
Send cash (R1 001–R5 000)	R15,00	R16,00
Airtime/Data/Electricity (own ATM)	R1,50	R0,50
Airtime/Data/Electricity (other ATM)	R10,00	R8,00

[Adapted from nedbank.co.za and capitec.co.za]

Use TABLE 3 and the above information to answer the questions that follow.

4.1.1 Give ONE reason why banks charge more for branch deposits than ATM deposits. (2)

4.1.2 Determine the difference in cost of an external debit order using a Nedbank Pay-as-you-use account and a Capitec Global One account. (2)

4.1.3 Katlego had the following monthly transactions on his bank statement:

- Two external debit orders
- One cash withdrawal of R1 500 at own bank ATM
- One cash withdrawal of R450 at another bank ATM
- One Send cash transaction of R1 500 to his mother

The CAPITEC banking fees for the listed transactions are R45,00.

Katlego states that he would have saved R20,50 on bank fees if he banked with CAPITEC rather than NEDBANK.

Verify, showing ALL calculations, whether Katlego's statement is VALID. (7)

4.2 Katlego (who is 24 years old) has two jobs: one at the PYEI and the other at a retail store.

He earned a combined annual taxable income of R87 329 for the 2021/2022 tax year.

TABLE 4 shows the personal income tax rates, tax rebates and tax thresholds for 2021/2022.

TABLE 4: PERSONAL INCOME TAX RATES, TAX REBATES AND TAX THRESHOLDS FOR 2021/2022

TAX RATES 2021/2022

TAXABLE INCOME (R)	RATES OF TAX (R)
R0–R216 200	18% of each R1
R216 201–R337 800	R38 916 + 26% of the amount above R216 200
R337 801–R467 500	R70 532 + 31% of the amount above R337 800
R467 501–R613 600	R110 739 + 36% of the amount above R467 500

TAX REBATES 2021/2022

Primary (below 65)	R15 714
Secondary (65 and older)	R8 613
Tertiary (75 and older)	R2 871

TAX THRESHOLDS 2021/2022

Below age 65	R87 300
Age 65 to age 74	R135 150
Age 75 and older	R151 100

[Adapted from www.sars.za]

Use TABLE 4 and the information above to answer the questions that follow.

4.2.1 Calculate Katlego's annual tax payable for the 2021/2022 tax year. (4)

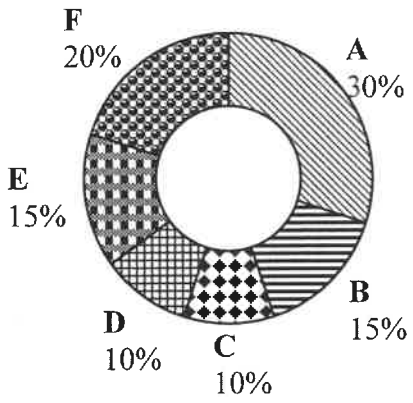
4.2.2 Define the term *tax rebate*. (2)

4.2.3 Show that the tax threshold for age 65 to age 74 in the table is CORRECT. (5)

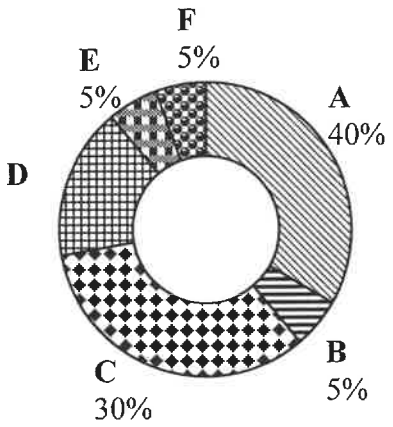
4.3 Katlego moved into a rented flat.

Below are two pie charts showing a comparison of his monthly budget with his parents' combined monthly budget.

Katlego's parents' combined monthly budget (income R29 300)



Katlego's monthly budget (income R7 000)



Key for the pie charts:

A	Food and electricity
B	Insurance
C	Clothing and personal care
D	Communication (cellphone and data)
E	Savings
F	Other

Study the pie charts above and answer the questions that follow.

4.3.1 Name ONE other type of graph that could be used to display the data above. (2)

4.3.2 Calculate the missing value **D** in Katleho's monthly budget. (2)

4.3.3 Determine (as a decimal) the probability of randomly choosing an item in the parents' budget which is NOT savings. (3)

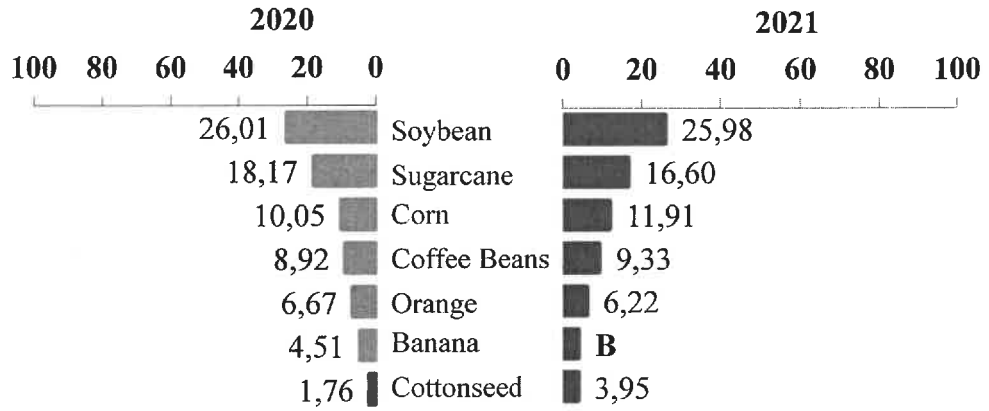
[29]

QUESTION 5

5.1 The graph below shows the percentage of the gross value of production of the main agricultural products in Brazil. One value **(B)** was omitted.

The total gross value for 2020 was US$110 322 million.

PERCENTAGE OF THE GROSS VALUE OF PRODUCTION OF THE MAIN AGRICULTURAL PRODUCTS IN BRAZIL



[Adapted from *IBGE – Systematic Survey of Agricultural Production*]

Use the graph above and the information to answer the questions that follow.

5.1.1 The percentage gross value of production of bananas decreased from 2020 to 2021.

Identify the agricultural product that had the largest increase from 2020 to 2021. (2)

5.1.2 Determine the total amount (in US$) that coffee contributed in 2020. (3)

5.1.3 Determine the probability of randomly choosing potatoes as an agricultural product from the data above. (2)

5.1.4 The gross value for the production of soybeans was US$32 201 billion in 2021.

Determine (in billions) the amount for the production of corn in 2021. (5)

5.1.5 The average percentage contribution for the seven agricultural products was 11,15% in 2021.

Determine the percentage contribution of bananas (**B**) in 2021. (5)

5.1.6 The projected total gross value for 2022 was one hundred and eighteen billion, four hundred and five million US dollars.

Write down this value using numerals (numbers). (2)

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5.2 Brazil has trade relationships with a number of countries.

TABLE 5 below shows the value (in billions of US$) of imports and exports for Brazil with six countries.

TABLE 5: THE VALUE (IN BILLIONS OF US$) OF IMPORTS AND EXPORTS FOR BRAZIL WITH SIX COUNTRIES

COUNTRY	IMPORTS (Billions of US$)	EXPORTS (Billions of US$)
China	36,74	67,79
United States of America	29,72	21,62
Germany	9,68	4,12
Argentina	8,22	8,49
South Korea	4,66	3,76
Japan	4,32	4,13

TABLE 6 below indicates the exchange rates on 27 April 2022.

TABLE 6: CURRENCY CONVERSION FACTORS

CURRENCY	EXCHANGE RATES
US dollar (US$) to Brazilian real (BRL)	US$1 = BRL4,9642
Brazilian real (BRL) to South African rand (ZAR)	1BRL = R3,2026
Euro (€) to Brazilian real (BRL)	€1 = BRL5,2379

[Adapted from www.xe.com]

Use TABLE 5 and TABLE 6 above to answer the questions that follow.

5.2.1 State the country with the smallest range between the imports and exports to Brazil. (2)

5.2.2 Identify the weakest currency against the Brazilian real. (2)

5.2.3 Calculate the exchange rate between the euro and the South African rand in the form €1 = R… (3)

5.2.4 Ludwig, a German citizen, stated that the difference between the United States imports and exports to Brazil is more than 7 600 million euros.

Verify, showing ALL calculations, whether Ludwig's statement is VALID. (6)
[32]

TOTAL: 150

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ADDENDUM

2023

This addendum consists of 4 pages with 3 annexures.

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ANNEXURE A

QUESTION 2.1

INVOICE FOR BOOKING A GUESTHOUSE



On the Hill Guesthouse
125 Bossie Street, Upington

Tel: +27(0)54 333 9870
Cell: +27(0)82 477 2695

E-mail: admin@onthehill.lodge.co.za
Web: www.onthehill.lodge.co.za

Tax Invoice THB 3940
15/05/2022

To: Road Side Tours and Travel Agency	**Address:** Rooms 3–12, Ground Floor
	Rosy Garden Office Park, 22 Bush Street
	Industria Park 0157 Centurion
	South Africa

Tel: +27(0)87 005 4942
Fax: +27(0)86 445 4916
Cell: +27(0)82 885 0089
VAT No.: 444 457 8895

Voucher No.: THB 3940
Check in: 16 May 2022
Check out: 18 May 2022
Number of Guests: 36

ITEM DESCRIPTION	DURATION	PRICE PER PERSON PER NIGHT	TOTAL
4-bed room	2 nights	R850,00	**C**
2-bed room	2 nights	R900,00	R28 800,00
36 x lunch meals	2 nights	R80,00	R5 760,00
36 x dinner meals	2 nights	R90,00	R6 480,00
		TOTAL:	**R75 040,00**

BANK ACCOUNT DETAILS:
Account Name: On the Hill Guesthouse
Bank: Standard Bank
Branch Code: 050002
Account Number: 418985565

NOTE:
Arrival/Check-in time: 14:00
Departure/Check-out time: 10:00

CANCELLATION POLICY
Cancellation will attract the following charges, which will automatically be debited to the tour operator's account:

- 25% of accommodation cost if booking is cancelled before check-in time on the check-in date.
- 75% of accommodation cost if booking is cancelled after check-in time on the check-in date.

[Adapted from original invoice]

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ANNEXURE B

QUESTION 3.1

TABLE 2: NUMBER OF PEOPLE EMPLOYED AT MOTOR HOLDINGS (MH) IN AUGUST 2020 AND 2019

ALL EMPLOYEES (INCLUDING STAFF WITH DISABILITIES)	**MALE**				**FEMALE**				**FOREIGN NATIONALS**		**TOTAL**
	B	**C**	**I**	**W**	**B**	**C**	**I**	**W**	**M**	**F**	
Top management	2	0	6	48	4	3	1	9	1	0	74
Senior management	30	11	60	100	27	3	31	66	1	0	329
Professionally qualified and experienced specialists	203	24	139	153	87	14	31	63	4	0	718
Skilled technically and academically qualified	92	10	30	11	69	11	33	35	1	0	292
Semi-skilled	250	17	84	19	87	21	26	30	3	0	537
Unskilled	105	1	4	3	89	2	1	4	3	1	213
Total August 2020	**682**	**63**	**323**	**334**	**363**	**54**	**123**	**207**	**13**	**1**	**2 163**
Total August 2019	909	95	380	395	540	76	149	266	15	3	2 828
STAFF WITH DISABILITIES											
Top management	0	0	0	1	0	0	1	0	0	0	2
Senior management	1	0	2	0	1	0	0	0	0	0	4
Professionally qualified and experienced specialists	1	0	1	4	0	0	0	1	0	0	7
Skilled technically and academically qualified	3	0	0	0	0	0	0	2	0	0	5
Semi-skilled	0	1	1	0	1	0	1	0	0	0	4
Unskilled	2	0	3	3	1	0	0	3	0	0	12
Total August 2020	**7**	**1**	**7**	**8**	**3**	**0**	**2**	**6**	**0**	**0**	**34**
Total August 2019	9	1	10	9	6	1	4	6	0	0	46

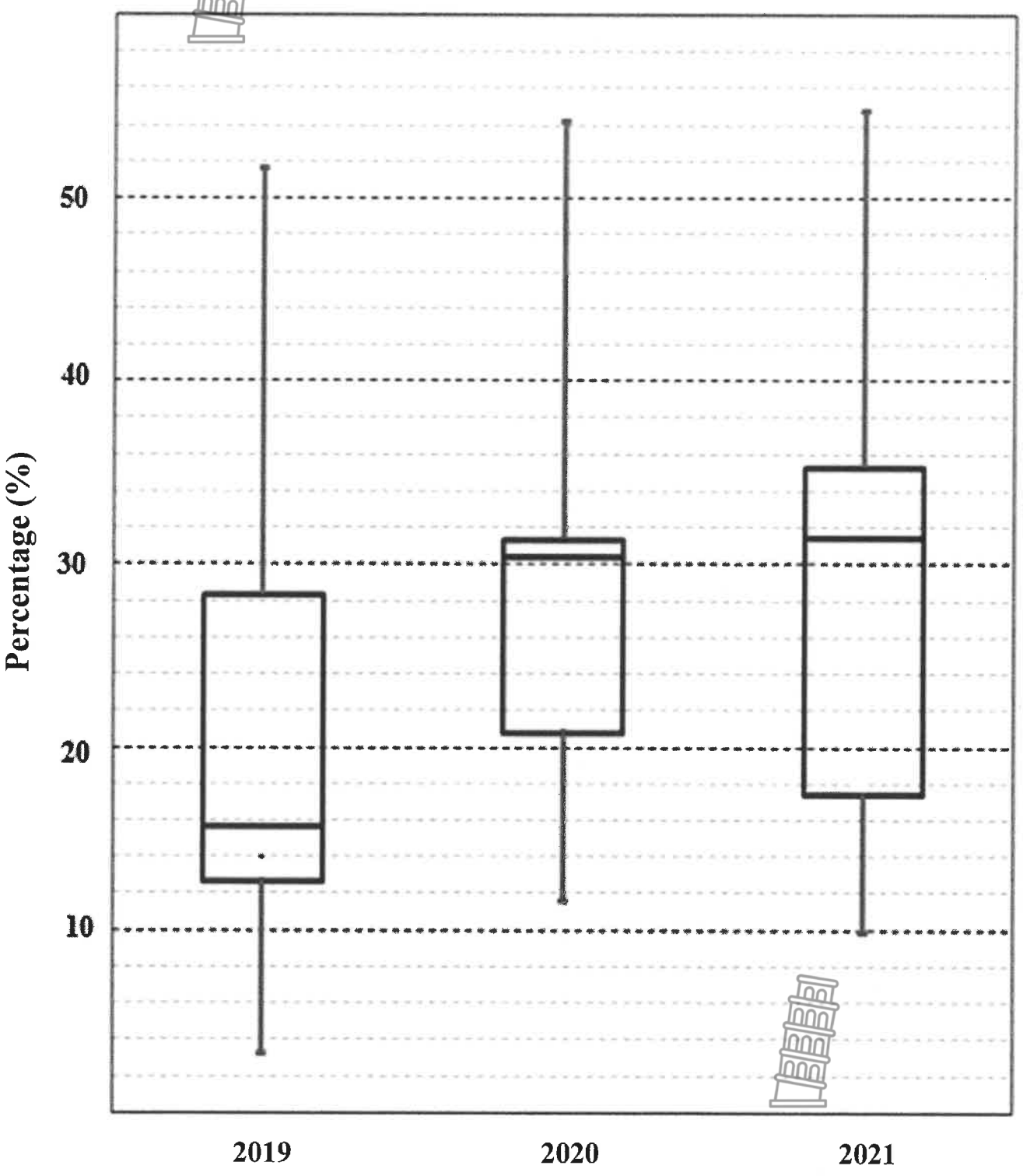
[Adapted from www.cmh.co.za]

KEY:

B = Black C = Coloured I = Indian W = White M = Male F = Female

ANNEXURE C

QUESTION 3.2: BOX AND WHISKER PLOTS SHOWING THE UNEMPLOYMENT RATE IN PERCENTAGES FOR ALL THE PROVINCES IN SOUTH AFRICA FROM 2019 TO 2021



[Adapted from www.statssa.gov.za]

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