GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

PREPARATORY EXAMINATION

2022

10601

MATHEMATICAL LITERACY

PAPER 1

TIME: **3 hours**

MARKS: **150**

9 pages + 1 answer sheet and an addendum of 7 pages

10601E

X05

This question paper consists of 9 pages and 1 answer sheet.
An addendum of 7 pages is included in the question paper.

INSTRUCTIONS AND INFORMATION

1. This question paper consists of FOUR questions. Answer ALL the questions.

2. Write your name in the spaces provided on the ANSWER SHEET and hand this in with your ANSWER BOOK.

3. Use the ADDENDUM as follows:

    - Use ANNEXURE A to answer Question 1.2
    - Use ANNEXURE B to answer Question 3.1
    - Use ANNEXURE C to answer Question 3.2
    - Use ANNEXURE D to answer Question 3.3
    - Use ANNEXURE E to answer Question 4.1
    - Use ANNEXURE F to answer Question 4.3

4. Number your answers correctly according to the numbering system used in this question paper.

5. An approved calculator (non-programmable and non-graphical) may be used, 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. Start EACH question on a NEW page.

10. Write neatly and legibly.

QUESTION 1

1.1 Thato has a bank account with Capitec Bank. Study the bank statement in the table below, and answer the questions that follow.

Table 1: Thato's bank statement

Date	Description	Debit (R)	Credit (R)	Balance (R)
19/04	Balance brought forward			26 935,48
20/04	Cash Deposit		2 450	29 385,48
	Service fee	12,25		29 373,23
21/04	Debit order: King Price Insurance	1 250		**A**
	Service fee	5,00		28 118,23
23/04	Stop order: Discovery Medical Aid	5 927		22 191,23
	Service fee	5,00		22 186,23
25/04	Deposit: Salary		**B**	54 708,48
	Service fee	32,52		54 675,96
29/04	Debit card: Checkers	7 332,45		47 343,51
	Service fee	3,50		47 340,01
01/05	Bond payment	14 500		32 840,01
	Service fee	21,75		32 818,26
01/05	Wesbank: Car payment	6 500		26 318,26
	Service fee	7,00		26 311,26
01/05	Truworths account	2 250		24 061,26
	Service fee	2,75		24 058,51

1.1.1 Calculate the value of **A** in the bank statement. (2)

1.1.2 Calculate the value of **B** in the bank statement. (2)

1.1.3 Write down Thato's bank balance on 19 April in words. (2)

1.1.4 Identify the service fee that was charged on the bond payment. (2)

1.1.5 Calculate the number of days from 15 April until 14 May. (2)

1.1.6 Define the term *debit order.* (2)

1.1.7 Show how the balance of R29 385,48 (on 20 April) was calculated. (2)

1.1.8 With which bank does Thato conduct his banking? (2)

1.2 Load shedding has affected many households and businesses in our country. Some of the businesses in the country were asked how they were impacted by electricity shortages during this time. Refer to ANNEXURE A, which has responses to questions asked to business owners, and answer the questions that follow.

1.2.1 State the difference between *discrete data* and *continuous data*. (2)

1.2.2 Determine the mode of the data provided in QUESTION A (Annexure A). (2)

1.2.3 Determine the difference between the percentages of businesses that remained neutral for QUESTION A and for QUESTION B (Annexure A). (2)

1.2.4 Identify the highest percentage from the data in QUESTION A (Annexure A). (2)

1.2.5 Name the city where this survey was conducted. (2)

1.2.6 What percentage strongly agreed that their businesses are heavily dependent on a stable and secure electricity supply? (2)

1.2.7 Arrange the data in QUESTION A (Annexure A) in descending order. (2)

[30]

QUESTION 2

2.1 Mr. Nkosi intends to buy his first house for R1 450 000. He approached two financial institutions to compare loan amounts between the two. Refer to Table 2 below and answer the questions that follow.

Table 2: Bond options for Mr Nkosi (first time home loan)

ITEM	INVESTEC	FNB
Loan amount	**B**	R1 520 172
*Initiation fee	R6 037,50	0
*Bond registration fee	R29 280,00	R27 211,00
*Bond transfer fee	R20 432,50	R42 961,00
Total set up costs	**A**	R70 172,00
Monthly repayments	R11 489,79	R11 577,17
Monthly service fees	R69,00	R69,00
	Not applicable if loan is paid from personal account	
Term agreement	20 years	240 months

2.1.1 The bank recommends that your bond monthly repayment not exceed 30% of your gross monthly salary. What will Mr. Nkosi's gross salary have to be to get a loan from Investec? Round-off your answer to the nearest ten thousand. (4)

2.1.2 Determine the total set-up costs, **A**, for the Investec option. (2)

2.1.3 When buying a property, you may add all the set-up costs to the purchase price of the house to get the loan amount. Determine **B**, the loan amount for Investec, if the house is listed for R1 450 000. (2)

2.1.4 The service fee of R69,00 is not charged by Investec to Mr. Nkosi if his loan is paid from his personal account.

(a) How much money will he save at Investec over the total period of the loan? (3)

(b) If Mr. Nkosi does not pay his loan from his personal account, how would this impact him financially? (2)

2.1.5 Mr. Nkosi states that if he buys his house through Investec and pays from his personal account, he will save money on interest and monthly service fees by the time the loan is paid in full.
Determine, showing ALL calculations, how much Mr. Nkosi will save if he chooses the Investec option. (9)

2.2 The value of a currency fluctuates on a daily basis based on supply and demand. Refer to the table below and answer the questions that follow.

Table 3: Currency and rand value

Currency	Rand Value
US Dollar	R13,82
Canadian Dollar	R10,35
British Pound	R18,06
Euro	R15,73
Australian Dollar	R9,82

2.2.1 (a) Which currency, from the table above, is the weakest? (2)
(b) Explain what this would mean to a South African travelling overseas. (2)

2.2.2 Mrs Nkosi receives £1 200 from her aunt in Britain. Use the table above to calculate the rand value of £1 200. (2)

2.2.3 After Mrs Nkosi exchanged the money, she was charged R200,80. Exchanging money in South Africa consists of an administration fee of R125 and a commission fee of 2,28% of the amount exchanged.
Verify, showing all calculations, whether she was charged the correct amount. (4)

2.2.4 Exchange rates fluctuate all the time. List ONE reason why this happens. (2)

2.3 Electricity can be purchased from Eskom in two ways, prepaid and postpaid.
Refer to the comparative table below to answer the questions that follow.

Table 4: Fixed monthly cost against cost per unit

System name	Fixed monthly cost	Cost per unit (R/kWh)	
Prepaid	R200,00	R0,7085	
Post-Paid	nil	0 – 50	R0,69
		50,1 – 350	R0,81
		350,1 – 600	R1,27
Prices exclude VAT of 15%			

2.3.1 Write down the fixed monthly cost for the prepaid system. (2)

2.3.2 The Smith's household, consisting of 3 people, used 349,9 kWh of electricity on the post-paid system. How much would they be expected to pay (excluding VAT) for their electricity consumption? (4)

2.3.3 Mrs Smith worked out that when her daughter goes to university her bill will be two-thirds of the amount calculated in QUESTION 2.3.2. Verify, showing all calculations, if her assumption is correct. (6)
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PLEASE DETACH THIS ADDENDUM OF 7 PAGES.

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PAPER 1

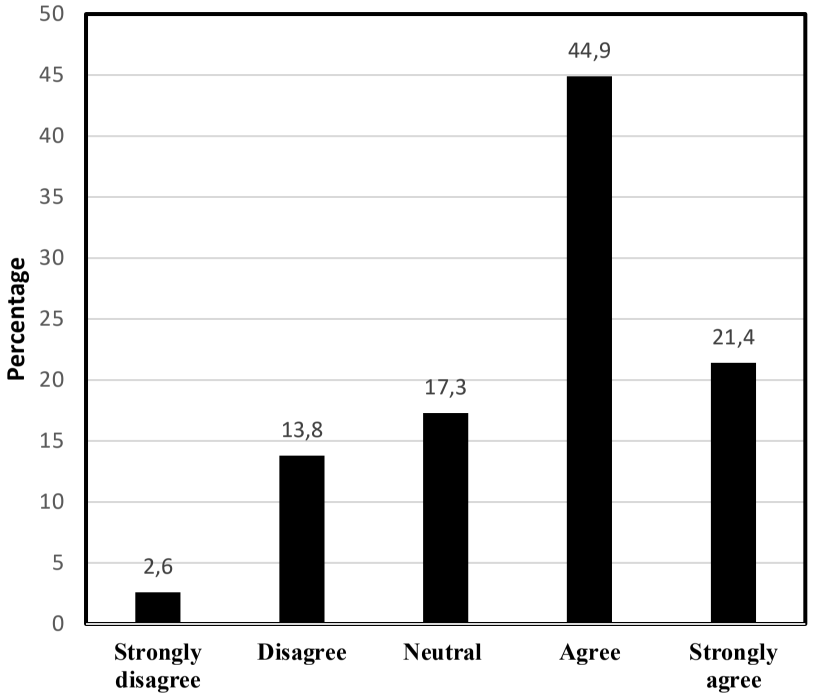
ADDENDUM

7 pages

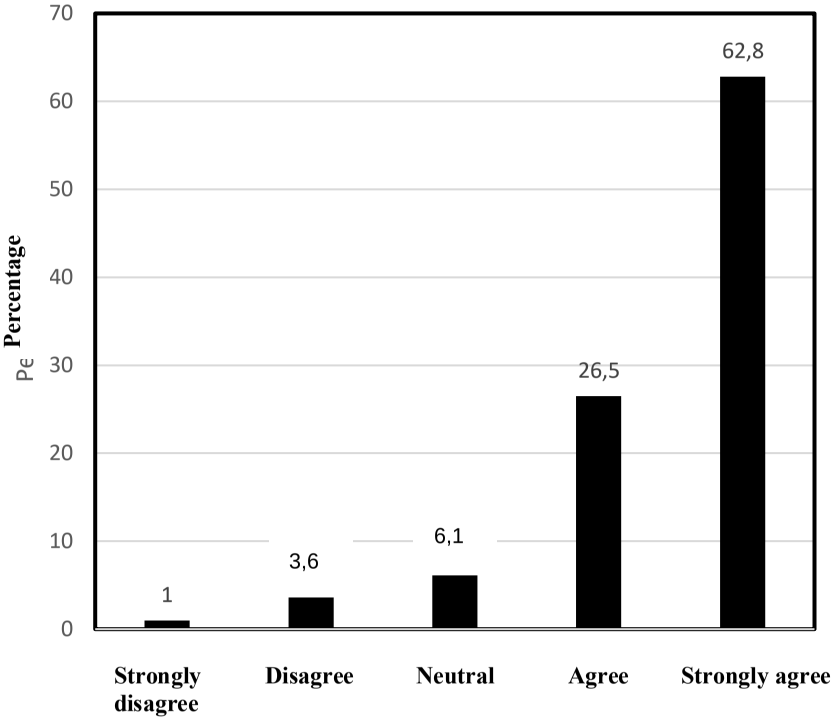
ANNEXURE A

QUESTION 1.2

Question A:
My business suffered severe financial impact from the recent energy crisis in Cape Town



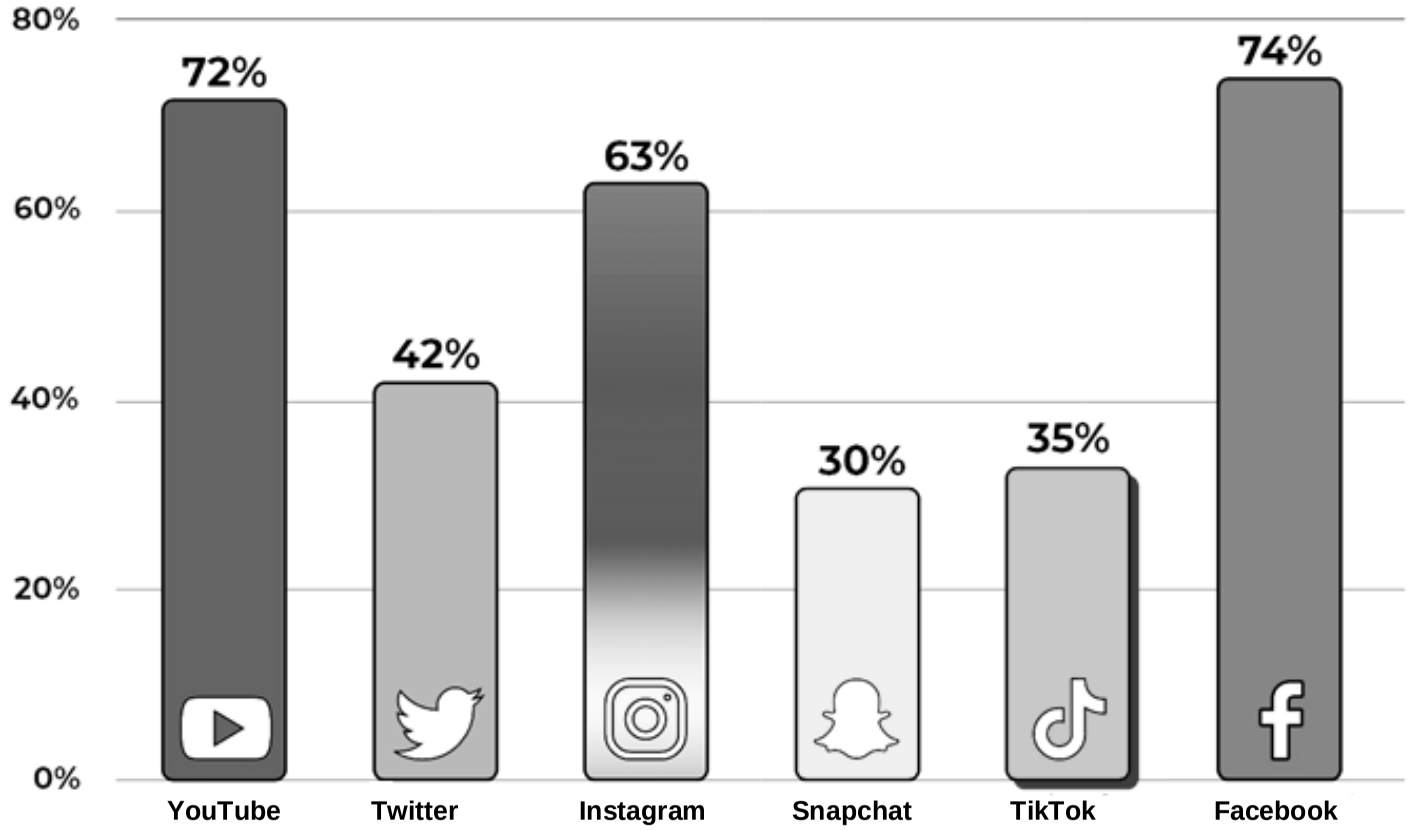
Question B:
My business is heavily dependent on a stable and secure electricity supply



ANNEXURE B

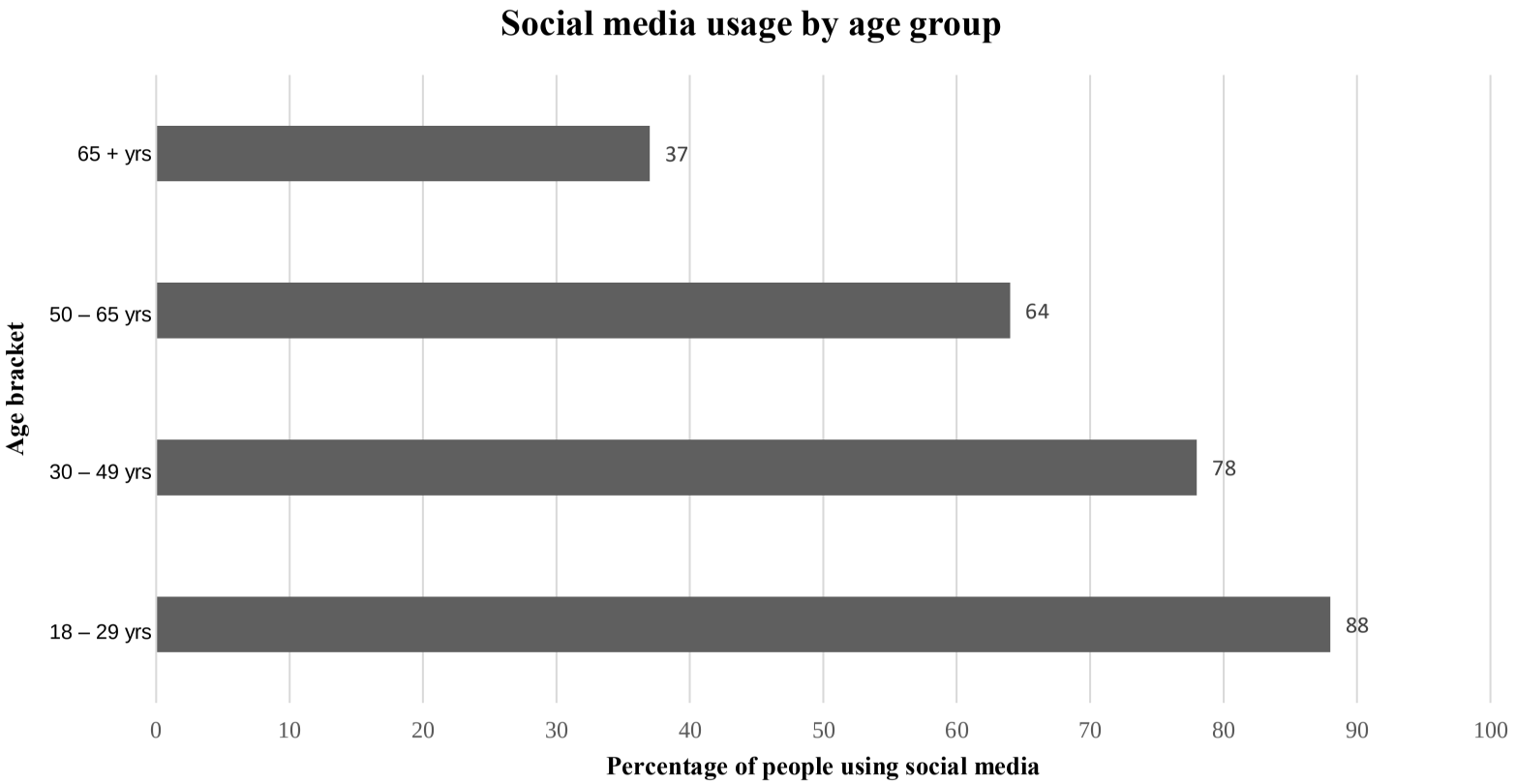
QUESTION 3.1

Percentage of people using social media on a daily basis



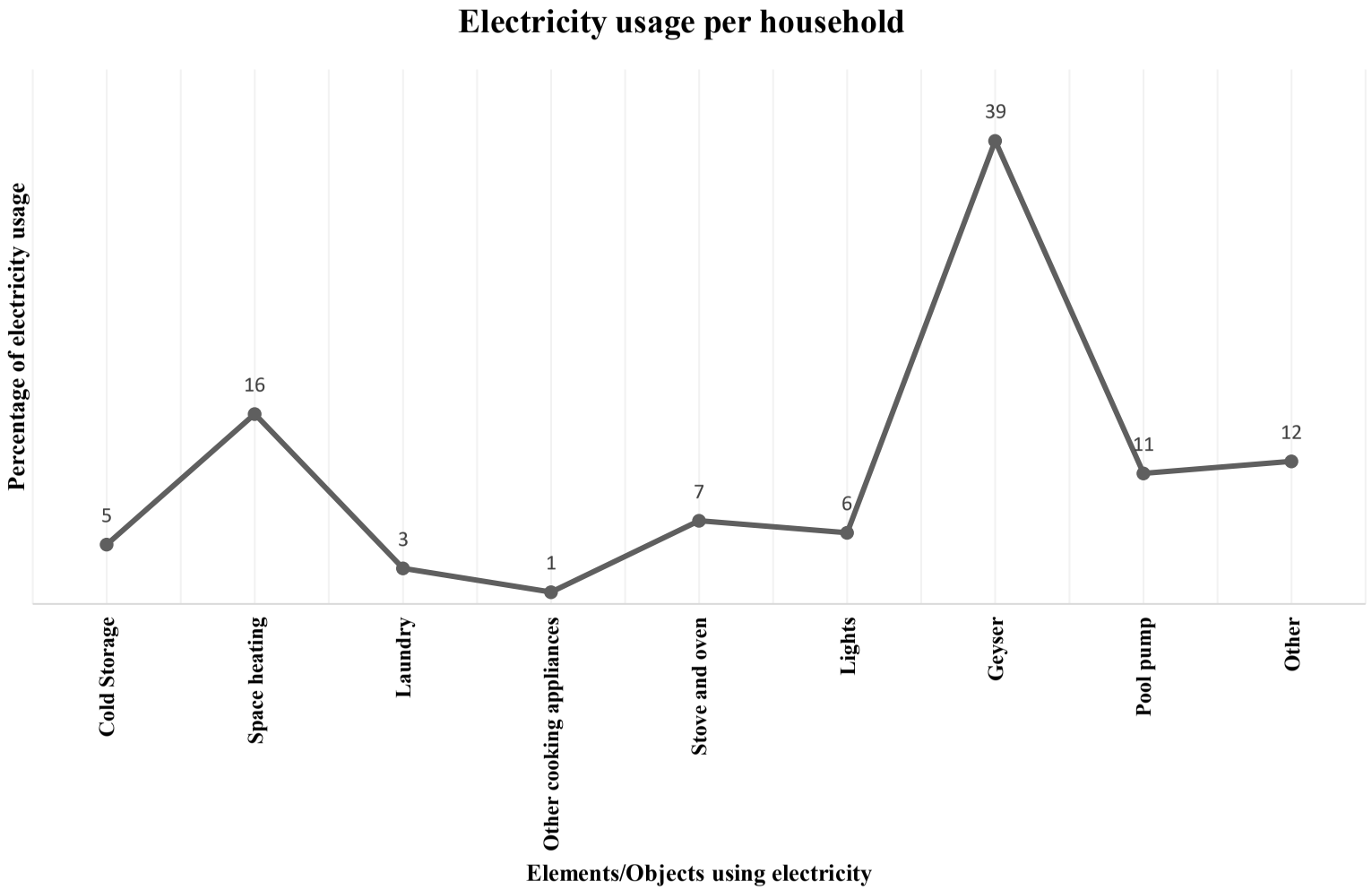
ANNEXURE C

QUESTION 3.2



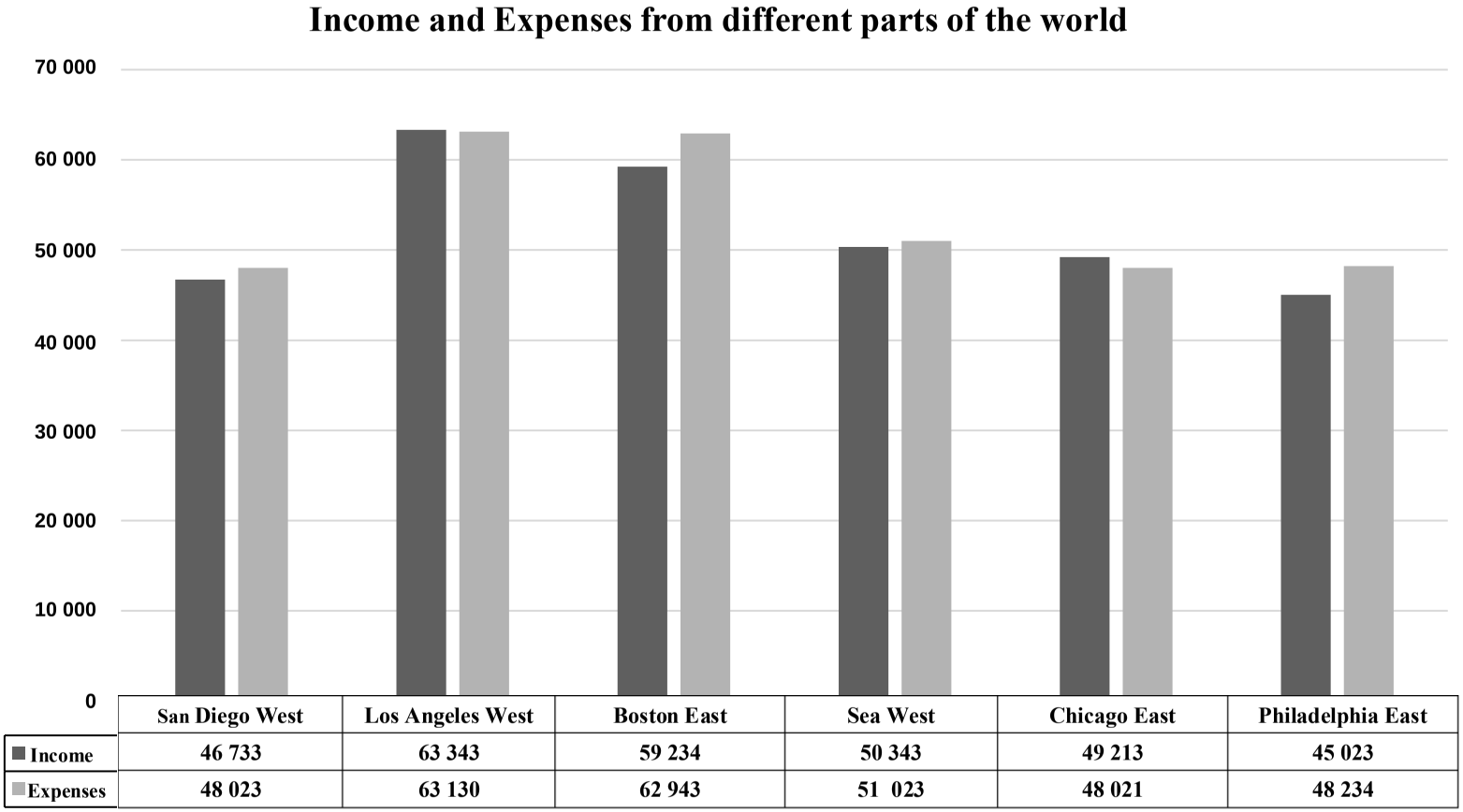
ANNEXURE D

QUESTION 3.3



ANNEXURE E

Question 4.1



	San Diego West	Los Angeles West	Boston East	Sea West	Chicago East	Philadelphia East
Income	46 733	63 343	59 234	50 343	49 213	45 023
Expenses	48 023	63 130	62 943	51 023	48 021	48 234

ANNEXURE F

QUESTION 4.3

2022 TAX YEAR (1 March 2021 – 28 February 2022)

Tax income (R)	Rates of tax (R)
1 – 216 200	18 % of taxable income above 216 200
216 201 – 337 800	38 916 + 26% of taxable income above 216 200
337 801 – 467 500	70 532 + 31% of taxable income above 337 800
467 501 – 613 600	110 739 + 35% of taxable income above 467 500
613 601 – 782 200	163 335 + 39% of taxable income above 613 600
782 201 – 1 656 600	229 089 + 41% of taxable income above 782 200
1 656 601 and above	587 593 + 45% of taxable income above 1 656 600

Tax Rebates – see changes from previous year

Tax Rebate	Tax Year							
	2022	2021	2020	2019	2018	2017	2016	2015
Primary (age below 65)	R15 714	R14 958	R14 220	R14 067	R13 635	R13 500	R13 257	R12 726
Secondary (65 to 74)	R8 613	R8 199	R7 794	R7 713	R7 479	R7 407	R7 407	R7 110
Tertiary (75 and older)	R2 871	R2 736	R2 601	R2 574	R2 493	R2 466	R2 466	R2 367

Tax Thresholds – see changes from previous year

Age	Tax Year							
	2022	2021	2020	2019	2018	2017	2016	2015
Under 65	R87 300	R83 100	R79 000	R78 150	R75 750	R75 000	R73 650	R70 700
65 to 74	R135 150	R128 650	R122 300	R121 000	R117 300	R116 150	R114 800	R110 200
75 and older	R151 100	R143 850	R136 750	R135 300	R131 150	R129 850	R128 500	R123 350

END

QUESTION 3

3.1 Over the past few years, people have relied more on social media platforms to facilitate the creation and sharing of information, ideas and other forms of expression through virtual communities and networks. Study ANNEXURE B and answer the questions that follow.

3.1.1 Which social media platform is used the most on a daily basis? (2)

3.1.2 Calculate the range of the social media platforms. (2)

3.1.3 Name ONE other type of graph that could represent the information about social media platforms. (2)

3.1.4 Determine the median of the data provided for social media platforms. (3)

3.1.5 Do you think learners should be sheltered (protected) from technology? Give a reason for your answer. (2)

3.2 Social media is being used by all ages. Refer to ANNEXURE C and answer the questions that follow.

3.2.1 Which age bracket uses social media the least? (2)

3.2.2 Why do you think the younger age bracket uses social media the most? (2)

3.2.3 Determine the mean percentage of age groups using social media. (2)

3.3 In order to use social media, electricity is essential. Currently, there are different types of energy being used: renewable energy, coal, solar energy, wind energy, natural gas energy, oil energy etc. Different activities require different amounts of energy usage. Refer to ANNEXURE D, regarding household usage of energy, and answer the questions that follow.

3.3.1 Which household activity requires the least amount of energy? (2)

3.3.2 Determine the inter-quartile range of the percentage of electricity usage per household. (5)

3.3.3 Suggest TWO ways in which electricity usage can be reduced. (4)

3.3.4 Write down, as a decimal, the probability of the geyser and space heating using the most electricity. (3)

3.3.5 Complete the graph on the ANSWER SHEET provided, regarding household usage of electricity. Detach your ANSWER SHEET from the question paper and insert it in your ANSWER BOOK. (4)

[35]

QUESTION 4

4.1 The cost of living has increased significantly in all countries. Income received from employers does not cover expenses. Refer to ANNEXURE E and answer the questions that follow.

4.1.1 Determine the difference in income between the people living in Los Angeles West and the people living in Boston East. (2)

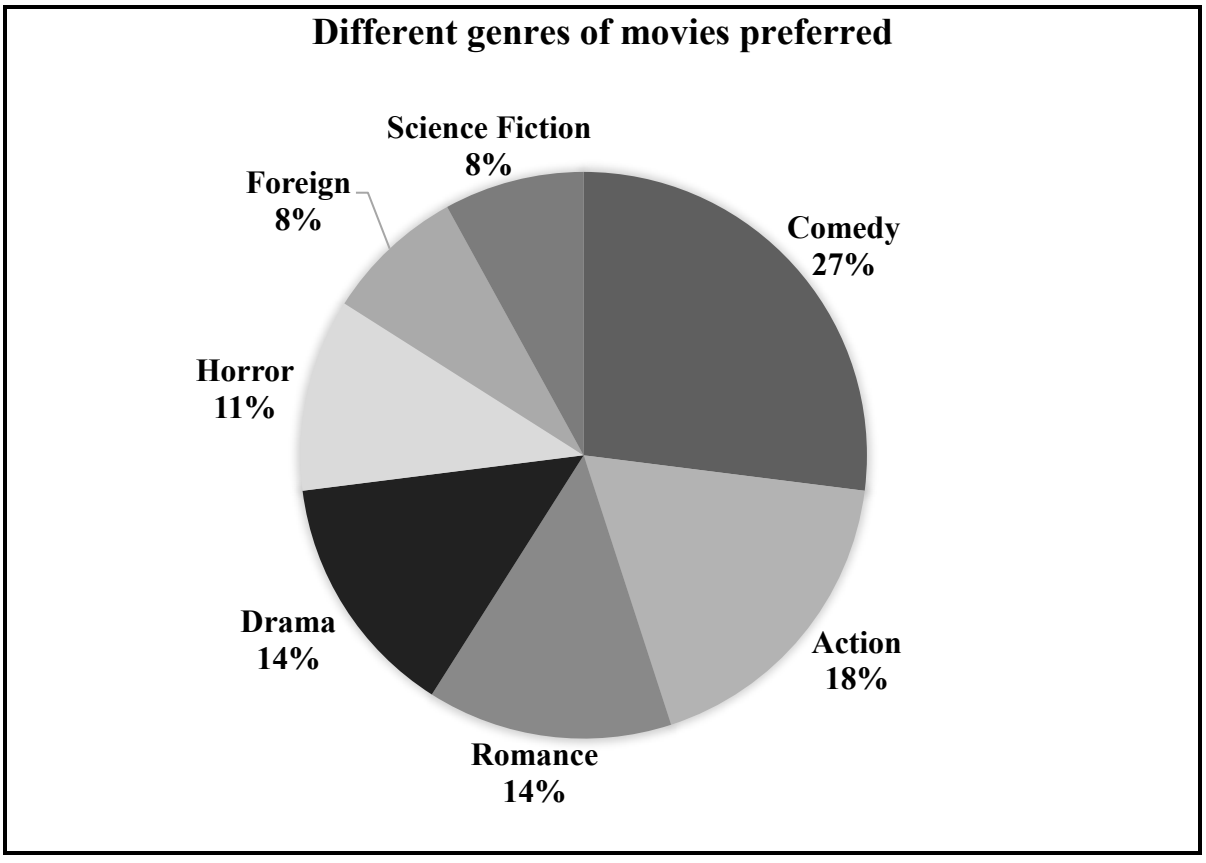
4.1.2 Which city had the lowest expenses? (2)

4.1.3 Determine the implications of expenses exceeding income. (2)

4.1.4 Would an increase in salary have an impact on tax payments? Explain your answer. (3)

4.1.5 Determine the percentage difference between the income and expenses of people living in Chicago East. (4)

4.2 The Grade 12s of High School Rouge decided to host a movie night as a fundraiser for their matric farewell. They interviewed some learners and educators at school about the different genres of movies they would prefer. Refer to the pie chart below and answer the questions that follow.



4.2.1 If 180 learners and 20 educators were interviewed, how many people preferred science fiction movies? (3)

4.2.2 Determine the mode for the data provided on movie genres. (2)

4.2.3 Determine the probability of randomly selecting a person who prefers the horror genre. (2)

4.2.4 What is the probability of randomly selecting a person who prefers the comedy genre? (2)

4.2.5 Determine Quartile 1 (Q1) if the Interquartile range (IQR) is 10% and Quartile 3 (Q3) is 18%. (3)

4.2.6 Write, as a ratio, the percentage of people preferring action movies to those who prefer horror movies. Write your answer in unit form. (3)

4.3 The individual tax rates for the tax year 2022 is shown on ANNEXURE F.
Use ANNEXURE F to answer the following questions.

4.3.1 Trevor is a 67-year-old plumber who earned an annual taxable income of R126 500 in 2021. Did he meet the tax threshold requirements for 2021?
Explain what this means. (2)

4.3.2 What information is needed to determine a person's rebate? (2)

4.3.3 Mr Naidoo is a 72-year-old who earns a taxable income of R55 250 per month, after deductions in the 2022 tax year. He claims that more than $\frac{1}{4}$ (one quarter) of his annual taxable income is paid to SARS. Verify, showing all calculations, whether his claim is correct. (7)

[39]

TOTAL: 150

END

ANSWER SHEET

Name: _____ GR 12 - ____

QUESTION 3.3.5

