SA's Leading Past Year

Exam Paper Portal

STUDY

SA EXAM PAPERS

GRADE 12

MARKS: 150

TIME: 3 hours

This question paper consists of 16 pages with 3 annexures.

September 2023

INSTRUCTIONS AND INFORMATION:

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

2. 2.1 Use the ANNEXURES to answer the following questions:

   - ANNEXURE A for QUESTION 1.1
   - ANNEXURE B for QUESTION 2.1.
   - ANNEXURE C for QUESTION 4.3

   2.2 Hand in the ANSWER SHEET with your ANSWER BOOK.

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 the calculations clearly.

7. Round off ALL final answers appropriately to the given context, unless stated otherwise.

8. Indicate units of measurement, where applicable.

9. Maps and diagrams are NOT necessarily drawn to scale, unless stated otherwise.

10. Write neatly and legibly.

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QUESTION 1

1.1

Due to inflation many South Africans are turning to house brands to help reduce their food budget. The table on ANNEXURE A compares the prices of ten food items and six non-food items at five different retailers in 2023.

Use the information in TABLE 1 in ANNEXURE A to answer the questions that follow.

1.1.1   Identify the shop with the cheapest white sugar.   (2)

1.1.2   Define the term *inflation*.   (2)

1.1.3   Arrange the frozen mixed vegetables prices of ALL the various retailers in ascending order.   (2)

1.1.4   Show how the basket total of R812,84 for Woolworths was calculated.   (2)

1.1.5   Calculate the difference in price of a bottle of Chutney at Food Lovers and Spar.   (2)

1.1.6   Write down the name of the food item that has the same price at five of the shops.   (2)

1.2

A comparison of the 2022 and 2023 basket total is listed in TABLE 2 below.

TABLE 2: A COMPARISON OF 2022 AND 2023 BASKET TOTAL PRICES AT VARIOUS RETAILERS

STORE	2022	2023	% DIFFERENCE
Premium store	R608,34	R707,01	16,21
Spar	R590,84	R732,84	24
Food Lovers	R584,74	R670,84	14,72
Checkers	R567,84	R650,84	14,62
PnP	R563,84	R650,84	15,42

[Adapted from: businesstech.co.za]

Use TABLE 2 to answer the questions that follow.

1.2.1   Classify the data above as numerical or categorical data.   (2)

1.2.2   Write down the median for the 2022 basket total prices.   (2)

1.2.3   Write down the modal basket price for 2023.   (2)

1.2.4   Identify the third highest percentage difference.   (2)

1.2.5   Write the percentage difference for Spar as a common fraction.   (2)

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1.3 | Gary is looking to start his own business and comes across the following advert for commercial property at a monthly rental fee of R20 000.

property24

R 20 000

Commercial Property

⊡ 160 m²

Office space to RENT:

Included in the rental fee:
1 × Reception Area
4 × Big offices
1 × 10-seater boardroom
1 × Kitchen
2 × Toilets
1 × Storeroom
3 × Undercover parking spaces
2 × Open parking spaces

Additional Costs:
Water and Electricity
Security Fee: R600
Refuse: R107
Deposit: 75% of monthly rent
Penalty fee: 4,25% of monthly rent if rent is not paid on time.

[Adapted from: property24.com]

Use the information above to answer the questions that follow.

1.3.1 | A penalty is charged if monthly rent is not paid on time.

Write down the above mentioned percentage. (2)

1.3.2 | Write the number of open parking spaces to the number of undercover parking spaces as a ratio. (2)

1.3.3 | Write down TWO other additional costs that are not included in the rent. (2)

1.3.4. | Calculate the annual rent that Gary will pay. (2)

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QUESTION 2

2.1

> In May 2021 Ms. Adonis bought a house. At the end of April 2023, she received communication from the Bank that her home loan repayments will increase from the first of May.
>
> ANNEXURE B shows the notification of an increase in her monthly interest rate.

Use the information on ANNEXURE B above to answer the questions that follow.

2.1.1   Explain the term *home loan* in your own words. (2)

2.1.2   Identify the loan amount. (2)

2.1.3   Calculate the increase in the interest rate on the loan from May 2021 (when the loan was initiated) to May 2023. (2)

2.1.4   Calculate the estimated total amount that will be repaid for the house at the end of the loan term. (3)

2.1.5   Explain why the amount in QUESTION 2.1.4 is more than the original purchase price of the house. (2)

2.1.6   Ms. Adonis states that her monthly repayment increased with more than the percentage increase in the interest rate between May 2021 and May 2023.

Verify showing the necessary calculations whether her statement is correct. (4)

2.2   In May 2023 Ms. Adonis decided to have her house re-evaluated by an estate agent. The agent evaluated the house for R1 800 000. The estate agent would take 6% of the selling price for agent commission when the house is sold.

Her monthly municipal rates and taxes are R800 and she made the following improvements to the house during her ownership:
- New floors in the living room: R15 000
- Changes to the garden: R6 000
- Paving: R10 000
- General maintenance: R13 000

Calculate the amount of profit she would make if she sold the house for the evaluated price. (4)

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2.3

To combat the influence of loadshedding Ms. Adonis investigates different power solutions.

She considers installing a solar power system but finds that the cost of such a system has increased drastically, so she inspects other rent-to-own options.

The advertisement below shows two options, a rent-to-own as well as an option to buy it with a once off payment, while TABLE 3 shows additional costs for installing the solar power system.

ADVERTISEMENT SHOWING TWO SOLAR POWER PAYMENT OPTIONS

Rent to own:

Deposit of R5 472,78

R1 216,17 MONTHLY

Over 18 months

Special!!!

Now only R35 999 cash

[Source: Adapted from ecosimplysolar.co.za and makro.co.za]

TABLE 3: INSTALLATION COST

ITEM	PRICE PER UNIT
Extra equipment and material	R14 300
Labour per hour or part thereof	R102,88

Please note: Rent to own refers to the option of renting a system, by paying it monthly and then having the option to buy it at the end of the loan term.

2.3.1 To determine the cost of paying back the system on the rent to own option Ms. Adonis set up the following table.

She used the following formula to complete the table:
Cost of rental = R5 472,78 + (R1 216,17 × number of months)

Month	1	5	6	G	15	18
Cost (R)	F	11 553,63	12 769,80	20 066,82	23 715,33	H

NOTE: Some Months and Cost values have been omitted.

Complete the table on ANSWER SHEET 1 by calculating the missing values F, G and H. Show all calculations. (6)

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Please turn over

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2.3.2 ANSWER SHEET 1 shows the graph of the Cash option drawn. Use the information calculated in your table to draw a graph showing her repayments over the 18-month period. (3)

2.3.3 Ms. Adonis found out that the installation will take 8 hours 45 minutes on the first day and 5 hours 56 minutes on the second day.

Calculate the total cost of installing the cash option solar power system (6)

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QUESTION 3

3.1

South Africa is a mineral-rich country and there are currently 22 types of minerals mined in South Africa.

A selected group of minerals and the classification of their mines are indicated in TABLE 4.

TABLE 4: SELECTED GROUP OF MINERALS AND THE CLASSIFICATION OF THE MINES IN SOUTH AFRICA.

MINERAL	NUMBER OF MINES	Classification of Mines			
		Operational	Various phases of development	Can return to development phases	Dormant/ Closed
Gold	89	30	35	1	23
Coal	134	59	20	8	47
Diamond	48	15	4	2	27
Platinum Group Metals	96	30	22	1	43
Copper	6	1	3	1	1
Iron Ore	22	5	4	2	11
Manganese	18	1	3	1	13
Uranium	7	1	3	1	2
TOTAL	420	142	94	17	120

[source: adapted from projectsiq.co.za]

Use the information in TABLE 4 to answer the questions that follow:

3.1.1   Identify the listed mineral with the highest number of mines in South Africa.   (2)

3.1.2   Calculate the percentage (rounded to one decimal place) of the number of operational mines within the Platinum Group Metals mines.   (4)

3.1.3   Calculate the probability, as a fraction, of randomly selecting a dormant/closed mine from the listed mineral mines in TABLE 4.

(2)

3.2 Mining plays an important role in the South African economy.

The information in TABLE 5 below indicates how the mining industry performed in 2021 for a selected group of the 22 metals and minerals.

TABLE 5: INFORMATION REGARDING CERTAIN SELECTED METALS AND MINERALS OF THE SOUTH AFRICAN MINING INDUSTRY IN 2021.

Metals / Minerals mined	Employees	Export Sales (R thousands)	Local Sales (R thousands)	Total Sales (R thousands)	Exports as a % of Total Sales
Chrome	18 599	10 743 835	11 230 705	21 974 540	48,9%
Coal	92 670	63 717 030	86 381 343	150 098 372	42,5%
Diamonds	12 900	13 210 210	7 928 797	21 139 007	62,5%
Gold	93 998	93 053 603	9 155 869	102 209 471	91,0%
Iron ore	21 427	115 680 173	5 101 679	120 781 852	95,8%
Manganese	13 290	34 341 810	2 757 122	37 098 932	92,6%
Non-ferrous metals	17 953	17 362 184	2 477 656	19 839 840	87,5%
Platinum	171 568	321 271 671	25 253 878	346 525 549	92,7%
TOTAL OF ALL METALS/ MINERALS IN THE SA MINING INDUSTRY	458 954	682 082 493	**A**	849 633 717	80,3%

[Source: Adapted from Minerals Council Facts and Figures 2021]

Use TABLE 5 above to answer the questions that follow:

3.2.1 Calculate the mean value for the number of employees of the listed metals and minerals. (3)

3.2.2 Calculate the range of the Total Sales, in Rands, for the selected group of metals and minerals. (2)

3.2.3 Write the amount of Export Sales for Diamonds in words. (2)

3.2.4 An analyst stated that the interquartile range (IQR) for the total sales of the selected group of metals and minerals is less than R115 000 000 000.

Verify, by showing all calculations if his statement is valid. (7)

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3.2.5 Give ONE reason why the totals of the listed information do not add up to the totals as indicated in TABLE 5. (2)

3.2.6 Calculate the total of all metals and minerals in the South African mining industry for the local sales, as indicated by **A.** (2)

3.2.7 Calculate the probability (expressed as a decimal) of selecting a listed metal or mineral with employees of more than 21 500. (2)

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QUESTION 4

4.1   The Gauteng Department of Health published their annual report for the 2020/2021 financial year containing information about allocated and actual expenditure for different medical services and sectors.

Table 6 below shows the Provincial Expenditure on different Provincial Hospital Services:

TABLE 6: EXPENDITURE OF GAUTENG PROVINCIAL HOSPITAL SERVICES IN THOUSANDS OF RANDS

Sub-Programme	2020/21			2019/20		
	Final Alloca-tion	Actual Expendi-ture	(Over)/Under Expendi-ture	Final Alloca-tion	Actual Expendi-ture	(Over)/Under Expendi-ture
TB hospitals	333 808	305 465	28 343	325 754	310 335	15 419
Mental Health Hospitals	1 585 024	1 523 443	61 581	1 461 226	1 531 428	(70 202)
Dental Training Hospitals	633 467	563 679	69 788	622 249	551 622	70 627
General Hospitals	7 279 341	7 414 991	**A**	6 768 628	6 735 022	33 606
Other Specialised Hospitals	110 641	98 272	12 369	96 548	96 051	497
TOTALS	9 942 281	9 905 850	36 431	9 274 405	9 224 458	49 947

[Source:2021-Gauteng-Health-Annual-Report]

Use the table to answer the following questions.

4.1.1   Identify the subprogramme that received the largest financial allocation in the 2020/21 financial year.   (2)

4.1.2   Determine, as a percentage, the probability of selecting a subprogramme that overspent in the 2019/20 year.   (3)

4.1.3   Calculate the missing value **A** in the table.   (2)

4.1.4   Calculate the difference in the actual expenditure between 2019/20 and 2020/21 for Other Specialised Hospitals.   (3)

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4.2 With the increasing cost in medical bills for pets more owners are taking out Pet Insurance Policies for their pets.

Sihle found the information on two options from pet health care online that is shown in TABLE 7 below.

TABLE 7: PET HEALTH CARE INSURANCE POLICY OPTIONS

PawPaw A	PawPaw B:
Monthly premium: R330 per dog* R260 per cat*	Monthly premium: R275 per dog* R215 per cat*
Fee structure for claims:	
Standard Excess:	**Standard Excess:**
1. All claims will carry 15% excess, with a minimum of R250 per claim.	1. Flat excess of R 1 000 per claim.
Additional Excess:	**Additional Excess:**
2. All claims not pre-authorized will carry an additional excess of 25%, with a minimum amount of R500.	2. All claims not pre-authorized will carry an additional excess of 20%, with a minimum amount of R500.

- Age limitation at inception – 8 weeks to 8 years
- Waiting Periods – General waiting period: 30 days from start of policy before claims will be considered.
- Accidental injuries covered from date of inception.

Note: A Pet Insurance policy is similar to medical aid, but for pets.
Excess is the additional amount you must pay when you make a claim on your policy.

[Adapted from: pethealthcare.co.za]

Use the information above to answer the following questions.

4.2.1 A dog had a medical procedure of R17 000 that was not pre-authorized.

Calculate the difference in the amount payable by a policyholder on PawPaw A compared to PawPaw B. (8)

4.2.2 Critically discuss why the company would provide a general waiting period. (2)

4.3

> In the United States of America (USA) teachers receive different salary packages depending on the phase of school that they teach.
>
> Rosa has just finished her teacher training and would like to plan her finances for her first year of work.
>
> The graph on ANNEXURE C shows information regarding the annual percentile income estimates for different teaching phases in the USA.
>
> [Source: bls.gov/oes/current/oes252022.html]

Use the information above along with ANNEXURE C to answer the following questions.

4.3.1 Name the measure of central tendency represented by the 50th percentile. (2)

4.3.2 Explain what it would mean if a teacher is in the 10th percentile of annual income in any phase. (2)

4.3.3 Rosa explained to her cousin Claire in South Africa that the difference between the income for a preschool teacher and elementary school teacher on the 50th percentile would be more than R40 000 a month.

Verify, showing all calculations whether this statement is valid.

You may use the exchange rate:

R1 = $ 0,056 (7)

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QUESTION 5

5.1

> Mr. Duze is interested in buying a piece of land. The property will be used for agricultural purposes. When buying a property, transfer duties apply.
>
> TABLE 8 below shows the transfer duty rates for the latest financial year.
>
> **TABLE 8: TRANSFER DUTIES FOR 2024 (1 March 2023 – 29 February 2024)**
>
> | Bracket | Value of the property (R) | Rate |
> |---------|---------------------------|------|
> | 1 | 1 – 1 100 000 | 0% |
> | 2 | 1 100 001 – 1 512 500 | 3% of the value above R1 100 000 |
> | 3 | 1 512 501 – 2 117 500 | R12 375 + 6% of the value above R 1 512 500 |
> | 4 | 2 117 501 – 2 722 500 | R48 675 + 8% of the value above R 2 117 500 |
> | 5 | 2 722 501 – 12 100 000 | R97 075 +11% of the value above R2 722 500 |
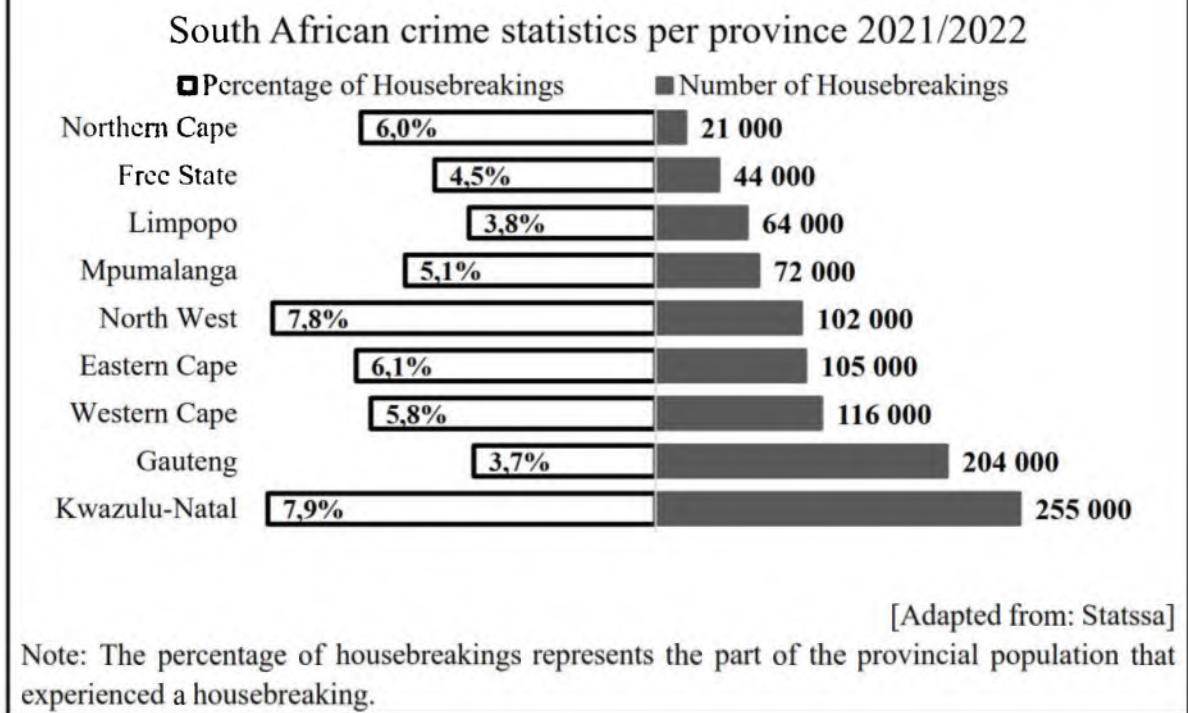> | 6 | 12 100 001 and above | R1 128 600 + 13% of the value above R12 100 000 |
>
> [Source: Adapted from sars.gov.za]
>
> Please note: Transfer duties are the fees associated with the transfer of ownership of a property from the seller to the buyer.

Use the information above to answer the questions that follow

5.1.1 Identify the rate at which transfer duties will be calculated if a person buys a house that costs 1,8 million rand. (2)

5.1.2 Calculate the transfer duty that Mr. Duze will pay on his agricultural land if the selling price of the land is R 2 850 000 (3)

5.1.3 Name one factor, besides the cost of the property and transfer duty, that Mr Duze should take into consideration when deciding on buying a property for farming. (2)

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5.2 | Mr Duze decides to also study the crime statistics before buying the piece of land.
He finds the following crime statistics for 2021/2022 represented in the graph below:

South African crime statistics per province 2021/2022

□ Percentage of Housebreakings   ■ Number of Housebreakings

Province	Percentage of Housebreakings	Number of Housebreakings
Northern Cape	6,0%	21 000
Free State	4,5%	44 000
Limpopo	3,8%	64 000
Mpumalanga	5,1%	72 000
North West	7,8%	102 000
Eastern Cape	6,1%	105 000
Western Cape	5,8%	116 000
Gauteng	3,7%	204 000
Kwazulu-Natal	7,9%	255 000

[Adapted from: Statssa]

Note: The percentage of housebreakings represents the part of the provincial population that experienced a housebreaking.

Use the information in the graph above to answer the following questions

5.2.1   Calculate the median number of housebreakings. (3)

5.2.2   Calculate the range in the number of housebreakings. (2)

5.2.3   Calculate the total number of households in the Northern Cape. (3)

5.2.4   Mr Duze's cousin stated that more than four provinces had a percentage of housebreakings above the provincial average percentage.

Verify, showing all calculations whether this statement is valid. (4)

5.2.5   Mr Duze stated that the Western Cape is safer than Gauteng as there were less reported cases of housebreaking.

Critically comment on this statement by referring to all relevant information. (2)

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5.3 After looking at the crime statistics Mr Duze is considering installing electrical fencing around his property.

According to his municipality's website electricity usage is calculated as indicated in Table 9 below.

TABLE 9: ELECTRICITY TARIFFS FOR 2023

For total kWh purchased per calendar month, per kWh	c/kWh
Block 1 (0 to 100 kWh)	209,70
Block 2 (More than 100 to 400kWh)	245,41
Block 3 (More than 400 to 650 kWh)	267,38
Block 4 (More than 650 kWh)	288,24

[Adapted from tshwane.gov.za]

Please note: Electricity in Tshwane is calculated on a **fixed rate** according to the block that the usage falls into.

Use the information in TABLE 9 above to answer the following question:

Mr Duze's neighbour told him that after he installed electrical fencing his average monthly electricity usage increased from 600kWh to 900kWh.

Use the Tariff table above to calculate the potential increase (in Rand) in the cost of his electricity bill if he installs electric fencing. (6)

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TOTAL: 150

ANSWER SHEET 1

NAME_____

QUESTION 2.3.1

CALCULATING F		CALCULATING G		CALCULATING H	
Month	1	5	6		15	18
Cost (R)		11 553,63	12 769,80	20 066,82	23 715,33	

Cost of a solar system over time

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