Grade 11 Mathematical Literacy: Question Paper 1

MARKS: 100   **TIME: $2\frac{1}{2}$ hours**

SECTION A

QUESTION 1

1.1   Notice that this examination paper is 2 and a half hours long and is out of a total of 100 marks.

          1.1.1   How many minutes do you have in which to complete the paper?   (1)
          1.1.2   At what rate must you work to ensure that you finish the examination within the time allowed?   (2)
          1.1.3   Using your answer to 1.1.2 above, which question should you be working on 15 minutes after the examination has started?   (2)

1.2   Calculate each of the following (you need only write down the answer):

          1.2.1   260 75×2 (1)
          1.2.2 $6 \quad \dfrac{2}{3} \quad 15 \times + \times \dfrac{1}{3}$ (2)
          1.2.3 $(2,3 \quad 3,7 \div 0,6$ (1)

1.3   There are 11 people in a soccer team. If there are 49 boys in Grade 11 at your school who play soccer.
          1.3.1   What is the maximum number of soccer teams that can be made?   (2)
          1.3.2   The ratio of soccer players to non-soccer players in Grade 11 is 1:3. What is the total number of learners in Grade 11?   (2)

1.4   A soccer team practices for 4 hours a week. Their coach increases their practice time by 8 %. For how long will they practice now?   (2)

1.5   Express 50 as a percentage of 196.   (2)

1.6   Your favourite shop is offering a discount of 20% on an item of clothing which costs R180. How much does it cost now?   (2)

1.7   Bananas are sold at R5,95 per kilogram. How much would you have to pay 0,4kg of bananas?   (2)

1.8   What is the mass (weight), in *kg*, shown on the dial alongside.
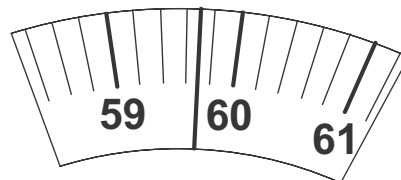
                                                           (2)

                                                             [24]

QUESTION 2

Refer to the till slip below to answer the questions which follow:

WELCOME TO ZWAANSWYK SPAR

TEL: 021 713 3779

FAX: 021 713 3997

VAT NO.: 4140235797

COMPLETE MEAL

0.342 Kg @ R69.99/Kg   R23.94

B/CAT BOOSTER BAR 2×R2.99   R5.98

QUALI JCE ORANGE 2×R2.29   R4.58

ALBANY SUP LOAF   *R5.29

6 BALANCE DUE   R39.79

Rounding   R0,04 -

Cash   R50.00

TAX-CODE	TAXABLE-VALUE	TAX-VALUE
VAT	R34.50	R4.83
Zero VAT	R5.29	R0.00

TOTAL TAX   R4.83

CHANGE   R10.25

CASHIER NAME: SAMANTHA

C0017   #7616   13:06:11   13JUL2007

2.1   On what date and at what time did this transaction take place? (2)

2.2   How does the till slip indicate items that are zero rated with respect to VAT? (1)

2.3   What does the "6" on the left of "BALANCE DUE" refer to? (1)

2.4   What does the "Rounding" entry indicate? Why is this necessary? (2)

2.5   How much does the customer actually pay for these goods? Justify your answer. (2)

[8]

QUESTION 3

The table below is an extract from the Vodacom tariff tables for the 4U and Top Up 135 packages. Use the information in the table to answer the questions which follow:

| Package	4U	TopUp 135
Domestic Calls		
Vodacom to MTN / Cell C (Off Peak)	1,30	1,05
Vodacom to MTN / Cell C (Peak)	2,99	2,75
Vodacom to Telkom (Peak)	2,85	2,20
Vodacom to Vodacom (Peak)	2,85	1,80
Vodacom to Vodacom / Telkom (Off-Peak)	1,12	0,97

http://www.vodacom.co.za/

3.1   What is the charge for a Vodacom to Telkom call during *Off Peak* time if you have a Vodacom 4U package?   (1)

3.2   Elsie has a TopUp 135 package. She makes a call to her mother's MTN cell-phone during *Peak* time. If the call lasts 3 minutes, how much does it cost?   (2)

3.3   A Vodacom TopUp 135 customer is shocked to find that a single call has cost her R24,40. The call was made during *Peak* time to a Telkom number. How long was this call?   (3)

3.4   How much would the customer in question 3.3 have saved by making the same call during *Off Peak* time?   (3)

[9]

QUESTION 4

Below is a diagram of a tin of Italian tomatoes. The label is pasted around the tin but does not overlap at all. The radius of the tin is 3,5*cm* and the height is 10,5*cm*.
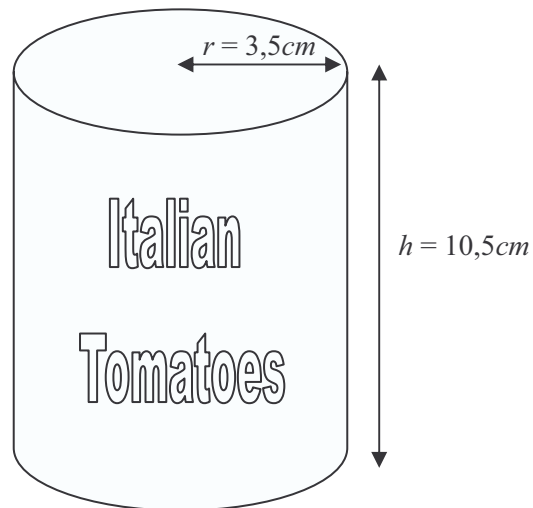
Use the following to answering the questions below:
$\pi = 3,14$
volume cylinder $= \pi \times r^2 \times h$.
circumference of a circle $= 2 \times \pi \times r$

4.1   Calculate the volume of the tin?   (3)

4.2   Determine the length and breadth of the label.   (3)

4.3   If the dimensions of a sheet of printing paper are 75*cm* by 65*cm*, determine the maximum number of labels that can be printed on one sheet.   (5)
                                                                                      [11]

QUESTION 5

In a survey of 2435 people in 2005, researchers tested participants' HIV status.
The graph below shows the results.
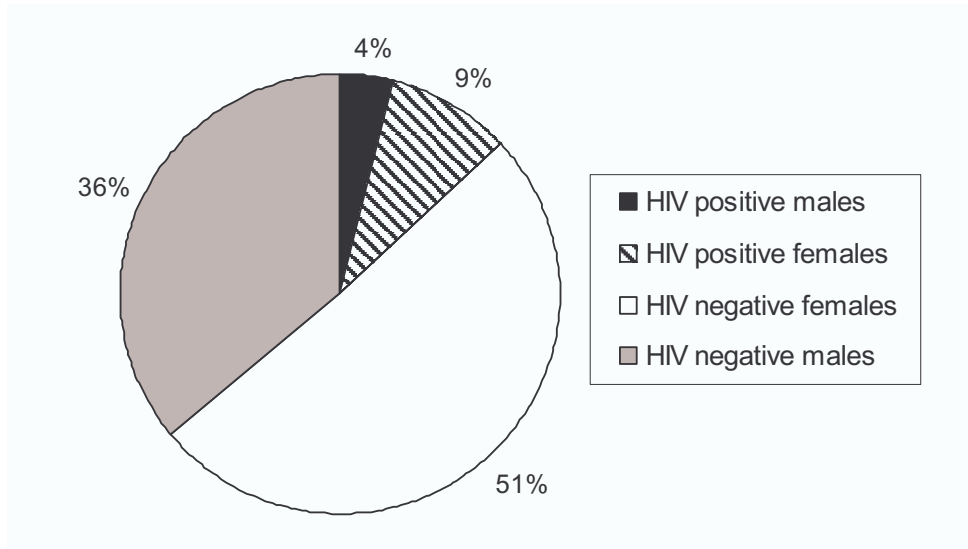
5.1   What percentage of the total number of participants were male and HIV positive?   (1)

5.2   Calculate the number of females who participated in the survey.   (3)

5.3   What percentage of the men who participated in the survey were HIV positive?   (4)
          [8]

SECTION B

QUESTION 6

The monthly income and costs of a company which produces soccer balls can be
calculated using the formulae:
$$\text{Income} = 4 \times x \text{ and Costs} = x + 1200$$
where x is the number of soccer balls sold.

6.1   On the same system of axes, plot graphs showing the company's monthly costs
          and income for values of x from 0 to 500. You may first complete a table of
          values if this helps.   (5)

6.2   Hence, or otherwise, determine how many soccer balls the company needs to sell
          if it is to break even?   (3)

6.3   Indicate your answer to 6.2 on the graph you have drawn in 6.1.   (1)

6.4   If the company produces 905 soccer balls in January, what is the profit at the end
          of January?   (2)
          [11]

QUESTION 7

A number of people from each age group listed below were tested for HIV in 2005. Use the information contained in the bar chart below to answer the questions that follow:
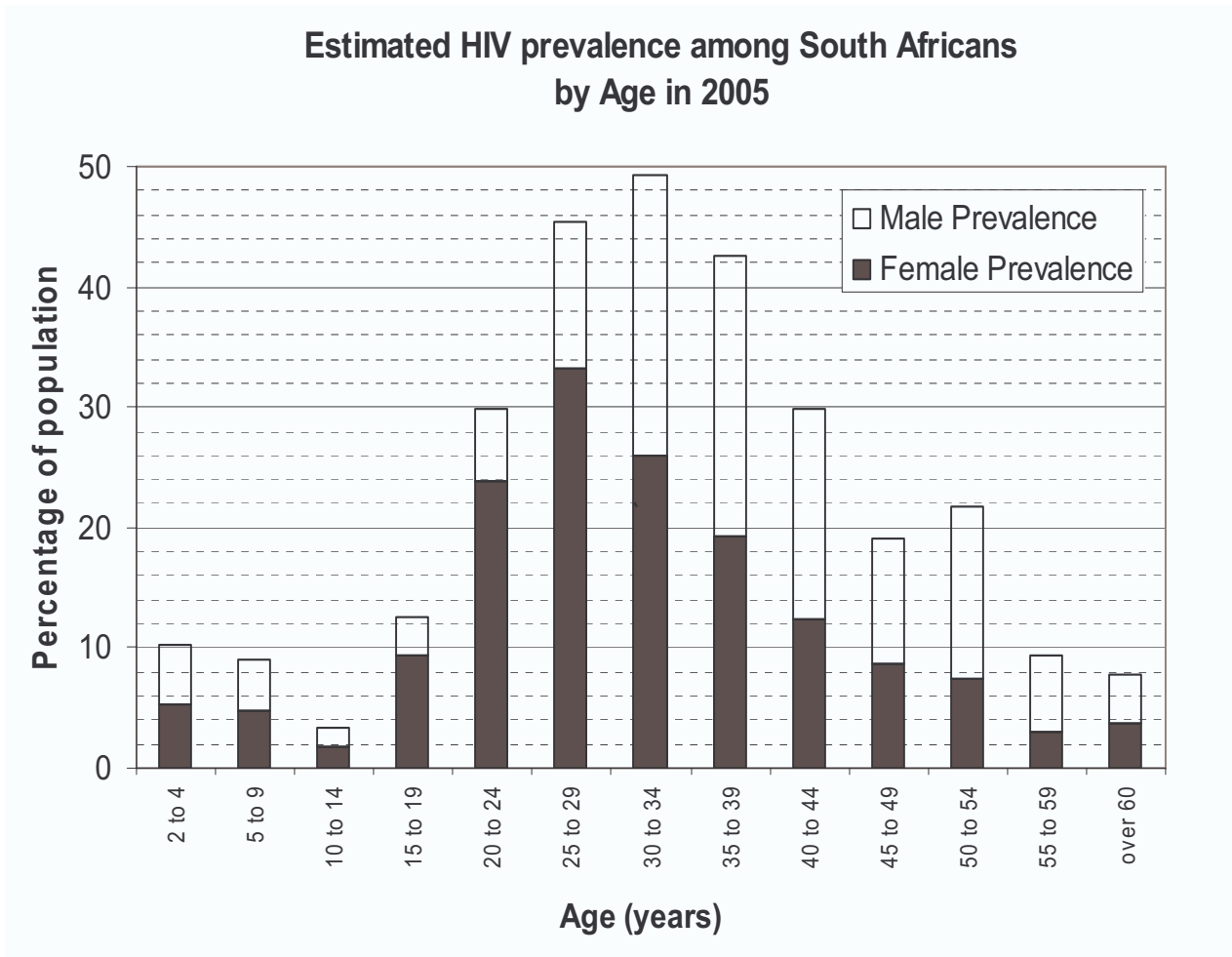

SOUTH AFRICAN NATIONAL HIV SURVEY, 2005. http://www.avert.org/safricastats.htm

7.1   Which age group had the highest prevalence of HIV in 2005?   (1)

7.2   Amongst which two age groups was the HIV prevalence the same?   (2)

7.3   Amongst which age group was HIV most prevalent in women?   (2)

7.4   If 132 people were tested in the age group; between 15 and 19 years, calculate how many people in this age group were HIV positive in 2005, according to this survey.   (3)

7.5   Compare the prevalence of HIV in men and women aged between 25 and 29.   (4)

[12]

QUESTION 8

The front and side elevations of a house are shown below.
Use them to answer the questions which follow:
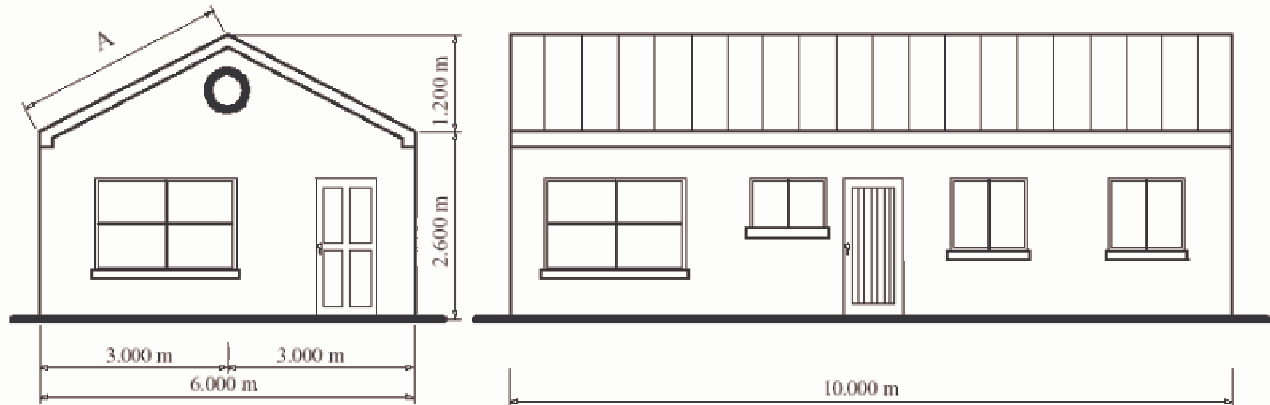
8.1   The roof of this house is made of corrugated iron sheets.
       Use the Theorem of Pythagoras $c^2 = a^2 + b^2$ to calculate the length of the roof
       sheets, indicated by A in the diagram.   (3)

8.2   Suggest a reason why all the measurements are given to three decimal places.   (2)

8.3   The floor slab of a house is a block of cement which sits directly beneath the
       house. For this particular house, the floor slab is 150mm thick.
       8.3.1   Determine the surface area of the top of the floor slab.   (3)
       8.3.2   Convert 150mm to a measurement in meters.   (1)
       8.3.3   Calculate the volume of the floor slab.   (3)
       8.3.4   Once mixed with sand and water, five bags of cement will produce
                enough cement to fill a volume of $1m^3$. Calculate how many bags of
                cement would be needed to produce the floor slab for this house.   (2)
       8.3.5   It costs R55,99 for a bag of cement. Calculate the cost of the cement
                needed for this floor slab.   (2)
                                                                                          [16]

– End of Paper –