Province of the

**EASTERN CAPE**

EDUCATION

**NATIONAL**

**SENIOR CERTIFICATE**

**GRADE 11**

**NOVEMBER 2010**

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| **MATHEMATICAL LITERACY − PAPER 1** |

**MARKS: 100**

**TIME: 2½ hours**

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| This question paper consists of 10 pages and a 2-page annexure. |

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| **INSTRUCTIONS AND INFORMATION** | |
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| 1. | This question paper consists of SIX questions. Answer ALL the questions. |
|  |  |
| 2. | Number the answers correctly according to the numbering system used in this question paper. |
|  |  |
| 3. | The table for QUESTION 5.5, the graph paper for QUESTION 5.6 and the map for QUESTION 6 can be found in ANNEXURE A, B and C respectively at the end of this paper. |
|  |  |
| 4. | An approved calculator (non-programmable and non-graphical) may be used, unless stated otherwise. |
|  |  |
| 5. | ALL the calculations and steps must be shown clearly. |
|  |  |
| 6. | ALL the final answers must be rounded off to TWO decimal places, unless stated otherwise. Do NOT round off until you get to the answer. |
|  |  |
| 7. | Start EACH question on a NEW page. |
|  |  |
| 8. | Write neatly and legibly. |

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| **QUESTION 1** | | | |
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| pool.jpgSome swimming-pools are built  in such a manner that  one part is deeper than  the other part.  A sketch drawing of  a similar swimming-  pool is given below.  The dimensions are  clearly marked on the figure.  ABHG, DCEF and BCEH are  rectangles. | | |  |
|  | C  E  F  G  A  1,5 m  3 m  4 m  B  10 m  H  D  D  H | |  |
| 1.1 | In the diagram ***AB // DC***.  What special shape is ABCD? | | (2) |
|  |  | |  |
| 1.2 | Calculate the area of ABCD  ***Area of*** ABCD ***= ½ (AD)(AB + DC)*** | | (4) |
|  |  | |  |
| 1.3 | Name another side of the pool with the same shape and size as that of ABCD. | | (1) |
|  |  | |  |
| 1.4 | Calculate the area of the following sides of the pool.  ***Use the Formula: Area = length* x *breadth*** | |  |
|  |  | |  |
|  | 1.4.1 | ABHG | (2) |
|  |  | |  |
|  | 1.4.2 | CEFD | (2) |

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| 1.5 | All 4 side walls of the swimming-pool are to be tiled. The length and width of each tile is 20 cm and 10 cm respectively. | |  |
|  |  | |  |
|  | 1.5.1 | Calculate the total area of all 4 side walls of the swimming-pool. | (3) |
|  |  |  |  |
|  | 1.5.2 | Calculate the area of on one tile in square metres (m2).  ***1 m2 = 10 000 cm2*** | (4) |
|  |  |  |  |
|  | 1.5.3 | Calculate the number of tiles needed to finish the tiling of the 4 side walls? (***Ignore the waste in cutting.***) | (2) |
|  |  |  |  |
|  | 1.5.4 | The shop sells tiles in boxes of 24. How many boxes of tiles are to be bought?  Give your answer to nearest **whole number**. | (3) |
|  |  |  |  |
|  | 1.5.5 | A box of tiles cost R127,75. What is the total cost of the tiles for the above job? | (2) |
|  |  |  |  |
| 1.6 | The swimming-pool is to be filled with water.  ***The formula to determine the volume is:***  ***Volume = Area of ABCD* x *AG*** | |  |
|  |  | |  |
|  | Calculate the capacity (volume) of the swimming-pool. | |  |
|  |  | |  |
|  | 1.6.1 | In cubic metres (m3) | (2) |
|  |  |  |  |
|  | 1.6.2 | In kilolitres (*kℓ*)  **[*1 m3 = 1 kℓ*]** | (1) |
|  |  |  |  |
| 1.7 | The local municipality charges R11,89 per kilolitre (***kℓ***). Calculate the cost of water needed to fill the pool. | | (2) |
|  |  | |  |
| 1.8 | What is the depth at the centre of the pool?  ***Use the formula: Depth = ½ (AB + DC)*** | | (2) |
|  |  | | **[32]** |

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| **QUESTION 2** | | |  |
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| painter.jpgThato received a contract to paint  the administration block  of Naladi Primary school.  He plans to complete  the work in 6 days and devises  2 plans, plan A and plan B.  The graph below show  how his two plans work. | | |  |
|  |  | |  |
|  | Plan A  **Days**  Plan B  Plan B  Plan A  **Hours** | | |
| 2.1 | How many hours does he work on Monday as per: | |  |
|  |  |  |  |
|  | 2.1.1 | plan A? | (1) |
|  |  |  |  |
|  | 2.1.2 | plan B? | (1) |
|  |  |  |  |
| 2.2 | How many hours does he work in total (Monday – Saturday) if: | |  |
|  |  |  |  |
|  | 2.2.1 | he followed plan A? | (2) |
|  |  |  |  |
|  | 2.2.2 | he followed plan B? | (2) |

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| 2.3 | Which are the days he works for the same number of hours, as per: | |  |
|  |  |  |  |
|  | 2.3.1 | plan A? | (2) |
|  |  |  |  |
|  | 2.3.2 | plan B? | (2) |
|  |  |  |  |
|  | 2.3.3 | plan A and plan B? | (1) |
|  |  |  |  |
| 2.4 | Calculate his average working hours, from Monday to Saturday, per day.  ***Use the formula: Average working hours =***  ***Give your answer in hours and minutes.*** | | (3) |
|  |  |  | **[14]** |
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| **QUESTION 3** | | | |  |
|  |  | | |  |
| The pie chart below represents the population groups of the 25 teachers in  BV Secondary School. | | | |  |
|  |  | | |  |
| 3.1 | Use the information in the pie chart to answer the following questions. | | |  |
|  |  |  | |  |
|  | 3.1.1 | | Calculate the number of Black teachers in the school. | (3) |
|  |  | |  |  |
|  | 3.1.2 | | What is the percentage of Coloured teachers in the school? | (2) |
|  |  | |  |  |
|  | 3.1.3 | | Calculate the number of Chinese teachers in the school. | (2) |
|  |  | | |  |
| 3.2 | Find the ratio of **Black teachers** to **White teachers** in simplified form. | | | (2) |
|  |  | | |  |
| 3.3 | The school has 950 learners. Write the ratio, **teacher : learners** in the form  **1 : ................** | | | (2) |
|  |  | | |  |
| 3.4 | For improving the previous year’s matric results, parents gave a total of  R5 000 to the teachers as a bonus. This amount was to be divided equally amongst the teachers. | | |  |
|  |  | | |  |
|  | 3.4.1 | How much money was received by each teacher? | | (2) |
|  |  |  | |  |
|  | 3.4.2 | Calculate the percentage share of each teacher. | | (3) |
|  |  |  | | **[16]** |

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| **QUESTION 4** | | |  |
|  |  | |  |
| Gidimi decides to start a  MiniBus.jpgtaxi business.  He has R50 000 in his  bank account.  His wife agreed to assist  him with R40 000.  A 14 seat minibus costs  R230 000.  His bank has agreed to  give him a loan and  suggested two options.  ***Option one***  15% compound interest per annum for 4 years  ***Option two***  18% simple interest per annum for 4 years | | |  |
|  |  | |  |
| 4.1 | If Gidimi uses all the money in his bank account and his wife’s money, how much is he short of to buy the minibus? | | (2) |
|  |  | |  |
| 4.2 | Gidimi opts for the bank loan for the money he is short of. | |  |
|  |  | ***Notes: A = Total amount, P = Principal amount, I = interest received,***  ***i = and n = number of years*** |  |
|  |  |  |  |
|  | 4.2.1 | Calculate how much interest he will have to pay if he agrees  to option one. **[*Use : A = P(1 + i)n*]** | (5) |
|  |  |  |  |
|  | 4.2.2 | Calculate how much interest he will have to pay if he agrees  to option two. **[*Use: I = P* x *n* x *i* ]** | (3) |
|  |  |  |  |
|  | 4.2.3 | Which option is the best for Gidimi? Give a reason for your answer. | (2) |
|  |  |  | **[12]** |

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| **QUESTION 5** | |  |
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| Given below are the marks obtained by 25 learners in a Maths Literacy  Controlled test. The marks are out of 50.    14 18 12 9 10  24 16 8 15 7  21 15 3 6 20  15 19 14 9 5  13 11 4 18 17 | |  |
|  |  |  |
| 5.1 | Find the mean. | (3) |
|  |  |  |
| 5.2 | Write the marks in ascending order. | (2) |
|  |  |  |
| 5.3 | Find the median. | (1) |
|  |  |  |
| 5.4 | Write down the mode. | (1) |
|  |  |  |
| 5.5 | Use the marks of the controlled test and fill in the frequency table in **ANNEXURE A.** | (5) |
|  |  |  |
| 5.6 | Use the table in **ANNEXURE A** to draw a **bar diagram** in **ANNEXURE B.** | (5) |
|  |  | **[17]** |

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| **QUESTION 6** | | |  |
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| The area map of Selborne suburb in East London is given in **ANNEXURE C**. Study the map and answers the following questions. The entrance of Selborne College is in Dawson Road. | | |  |
|  |  | |  |
| 6.1 | Write down the grid reference for St Georges Park. | | (1) |
|  |  | |  |
| 6.2 | Vinod lives at 35 Tindale Road in Berea. He drops his daughter at Selborne College every morning before he goes to work. He takes 12 minutes and drives at a speed of 20 km/h, due to morning traffic. Calculate the distance between Vinod’s house and Selborne College.  ***Use formula: distance = speed* x *time*** | | (3) |
|  |  |  |  |
| 6.3 | Anil lives at 25 Azalea Street in Braelyn Heights. His daughter also studies at Selborne College. Describe a possible route that he could use to get to Selborne College from his house. | | (5) |
|  |  | | **[9]** |
|  |  | |  |
|  | **TOTAL:** | | **100** |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| *frequency*  0  1  2  3  4  5  6  7  8  9  0 – 5  *Marks*  6 – 10  11 – 15  16 – 20  21 – 25 | **ANNEXURE A**   |  |  |  | | --- | --- | --- | | **Interval** | **Tally Marks** | **Frequency** | | 0 – 5 |  |  | | 6 – 10 |  |  | | 11 – 15 |  |  | | 16 – 20 |  |  | | 21 – 25 |  |  |   **ANNEXURE B**   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  |  |  |  |  |  | |  |  |  |  |  |  | |  |  |  |  |  |  | |  |  |  |  |  |  | |  |  |  |  |  |  | |  |  |  |  |  |  | |  |  |  |  |  |  | |  |  |  |  |  |  | |  |  |  |  |  |  | |  |  |  |  |  |  |   **ANNEXURE C**  **SELBORNE (EAST LONDON)**  B  D  C  A  Selbourne.JPG  Selborne College  4  3  2  1 |  |