

## **GENERAL EDUCATION AND TRAINING CERTIFICATE**

## **NQF LEVEL 1**

## **AET LEVEL 4 SITE-BASED ASSESSMENT**

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| **LEARNING AREA** | **:** | **MATHEMATICS AND MATHEMATICAL SCIENCES** |
| **CODE** | **:** | **MMSC4** |
| **TASK** | **:** | **TEST** |
| **TIME** | **:** | **2 HOURS** |
| **MARKS** | **:** | **50** |

**This assessment task consists of 5 pages.**

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| **INSTRUCTIONS AND INFORMATION** |  |  |

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| 1. | Answer ALL the questions in ANSWER BOOK. |  |  |

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| 2. | Calculators may be used, but you must show ALL calculations. |  |  |

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| 3. | Number the answers according to the numbering system used in this question paper. |  |  |

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| **QUESTION 1** |  |  |

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| 1.1 | Study the number pattern 12; 21; 30; ...; ... and answer the following questions: |  |  |

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|  | 1.1.1 | Complete the number pattern by adding TWO more terms. |  | (2) |

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|  | 1.1.2 | Is the pattern formed in QUESTION 1.1.1 a linear or a nonlinear pattern?  Motivate your answer. |  | (2) |

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|  | 1.1.3 | Describe the pattern formed in QUESTION 1.1.1 in your own words. |  | (1) |

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| 1.2 | Use the formula to calculate the TWO missing numbers in the pattern 3; 9; 19; ...; ...; 73. |  | (4) |

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| 1.3 | Study the patterns below made by using black and white marbles. |  |  |

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| |  |  |  | | --- | --- | --- | | **STAGE 1**  **1 black**  **3 white** | **STAGE 2**  **2 black**  **6 white** | **STAGE 3** | |  |  |

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|  | 1.3.1 | Draw the pattern for the third stage. |  | (2) |

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|  | 1.3.2 | Show that the rule to determine the number of white marbles () at a given stage () can be given by |  | (2) |

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|  | 1.3.3 | How many white marbles are there in a pattern with: |  |  |

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|  |  | (a) | 12 black marbles |  |  |

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|  |  | (b) | 102 black marbles  (2 x 1) |  | (2) |

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|  | 1.3.4 | Determine the number of white marbles needed for the 30th stage. |  | (2)  **[17]** |

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| **QUESTION 2** |  |  |

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| 2.1 | From subtract |  | (3) |

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| 2.2 | Find the products and simplify the following where necessary: |  |  |

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|  | 2.2.1 |  |  | (3) |

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|  | 2.2.2 |  |  | (2) |

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| 2.3 | Factorise completely: |  |  |

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|  | 2.3.1 |  |  |  |

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|  | 2.3.2 | (2 x2) |  | (4) |

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| 2.4 | Solve for *y* if |  | (2)  **[14]** |

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| **QUESTION 3** |  |  |

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| 3.1 | The table below shows the number of spectator tickets which were sold at the Olympics games. |  |  |

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|  | |  |  | | --- | --- | | Sport | Number of tickets sold | | Swimming | 1770239 | | Weightlifting | 68945 | | Gymnastics | 1 707 239 | | Athletics | 2165001 | |  |  |

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|  | 3.1.1 | Which sport was the most popular? |  | (1) |

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|  | 3.1.2 | How many spectator tickets were sold at the Olympics? |  | (1) |

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|  | 3.1.3 | Calculate the percentage of tickets sold for swimming. |  | (2) |

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| 3.2 | In the equation : |

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|  | 3.2.1 | Rewrite the equation in the form of. |  | (1) |

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|  | 3.2.2 | Calculate the *y***-**intercept and *x***-**intercept. |  | (4) |

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|  | 3.2.3 | Calculate the gradient. |  | (1) |

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|  | 3.2.4 | Is the graph increasing or decreasing? |  | (1)  **[11]** |

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| **QUESTION 4** |  |  |

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| 4.1 | State the theorem of Pythagoras. |  | (2) |

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| 4.2 | The diagram of the mirror below is measured along the diagonal. The front part of this mirror has a diagonal of and a width of Calculate the length of the mirror. |  |  |

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|  | 36cm  Description: D:\A401P_SP259_06_3UQ9P[1].jpg  45 cm |  | (4) |

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| 4.3 | Which ONE of the following diagrams illustrates rotation of the triangle MNO counter**-**clockwise about the origin? |  |  |

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|  | B  A  N  M  O  M′  N′  O′  N  N′  ′  M′  O′  O  M    C  ′  N  M′  M  O  ′  N′  D  O′  O  N  M′  M  N′    O′ |  | (1) |

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| 4.4 | What type of transformation has been applied to shape ABC to get shape ? |  |  |

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|  | B  C  A  A′  B′  C′ |  | (1) |
|  | |  | **[8]** |

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| **TOTAL:** |  | **50** |