**MID TERM SERIES TERM 1-2023**

**MATHEMATICS PAPER 1 (121/1)**

 **FORM FOUR (4)**

 **TIME: 2 ½ HOURS**

MARKING SCHEME

|  |  |  |  |
| --- | --- | --- | --- |
| **NO.** | **WORKING** | **MARKS** | **REMARKS** |
|  |  | M1M1A1 | Fraction saved i.e. seen |
| **Total**  | **3** |
|  | LCM of 30 and 40

|  |  |  |
| --- | --- | --- |
| 2 | 30 | 40 |
| 2 | 15 | 20 |
| 2 | 15 | 10 |
| 3 | 15 | 5 |
| 5 | 5 | 5 |
|  | 1 | 1 |

Time difference between 3 p.m. and 7.50 a.m.Hence 3 times | M1M1A1 | LCM of 30 and 40Time difference  |
| **Total** | **3** |
|  |  | B1B1B1 |  |
| **Total**  | **3** |

|  |  |  |  |
| --- | --- | --- | --- |
| **NO.** | **WORKING** | **MARKS** | **REMARKS** |
|  | Nonagon  | M1A1B1 |  |
| **Total** | **3** |
|  | Hence the inequalities  | B1B1B1 |  |
| **Total** | **3** |
|  |  | M1M1A1 | Distance Otonglo to Rabuor |
| **Total**  | **3** |
|  |  | M1M1A1 | Expansion of and Collection of like terms  |
| **Total** | **3** |
|  |  | M1M1A1 | Commission at 5% |
| **Total**  | **3** |

|  |  |  |  |
| --- | --- | --- | --- |
| **NO.** | **WORKING** | **MARKS** | **REMARKS** |
|  |  | B1M1A1 |  |
| **Total** | **3** |
|  |  | M1M1M1A1 |  |
| **Total** | **3** |
|  |  | B1B1B1, B1 | First pair, second pair |
| **Total** | **4** |
|  |  | B1B1B1 | Bisecting PRCompleting the rhombus and labeling Q and S |
| **Total** | **3** |

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | M1M1A1 | Forming two equations in and Correct attempt to solve the equations simultaneously Both values of and correct |
| **Total** | **3** |
|  |  | M1M1M1A1 | Change in volume |
| **Total** | **4** |
|  |  | B1B1B1 | Correct net drawnCorrect labeling Correct path shown |
| **Total** | **3** |
|  |

|  |  |
| --- | --- |
| 11 | 161,051 |
| 11 | 14,641 |
| 11 | 1,331 |
| 11 | 121 |
| 11 | 11 |
|  | 1 |

 | M1A1 | Expressing 161,051 in index form |
| **Total**  | **3** |

|  |  |  |  |
| --- | --- | --- | --- |
| **NO.** | **WORKING** | **MARKS** | **REMARKS** |
|  | 1. Capacity of milk
2. Number of packets
3. Number of boxes
4. Buying price
 | M1A1M1A1M1A1M1A1M1A1 |  |
|  | **Total** | **10** |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **NO.** | **WORKING** | **MARKS** | **REMARKS** |
|  | 1. Modal class
2. Frequency Distribution table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Marks |  |  |  |  |
| 35 – 44 | 6 | 39.5 | 237 | 6 |
| 45 – 54 | 14 | 49.5 | 693 | 20 |
| 55 – 64 | 18 | 59.5 | 1071 | 38 |
| 65 – 74 | 9 | 69.5 | 625.5 | 47 |
| 75 - 84 | 3 | 79.5 | 238.5 | 50 |
|  |  |  |  |  |

1. Mean
2. Median on histogram

Area of barsMedian | B1B1B1B1 M1A1M1A1B1, L1 | All the class boundaries correctAll the frequencies correctAll correct  |
|  | **Total** | **10** |  |



|  |  |  |  |
| --- | --- | --- | --- |
| **NO.** | **WORKING** | **MARKS** | **REMARKS** |
|  | 1. at

At 1. At rest instantaneously,
2. Displacement at
3. Acceleration at
 | M1M1A1M1M1A1M1A1M1A1 | Differentiating with respect to Quadratic formula or otherwise e.g. factorisation, etc.Square root of 169 or factorsA0 if not shown and discriminated |
| **Total** | **10** |

|  |  |  |  |
| --- | --- | --- | --- |
| **NO.** | **WORKING** | **MARKS** | **REMARKS** |
|  | 1. Time of meeting
2. Distance from A

Time = 11.20 a.m. – 8.15 a.m.=3 hours 5 minutes1. Motorist distance to A

  | M1M1M1A1M1A1M1M1M1A1 | Both relative distance and relative speedRelative timeArrival timeTime to arrive at A |
| **Total** | **10** |

|  |  |  |  |
| --- | --- | --- | --- |
| **NO.** | **WORKING** | **MARKS** | **REMARKS** |
|  | 1. (i)

 But   (ii)    (iii)   ) 1. Values of and
 | M1A1M1A1B1M1M1M1A1 | Equating the corresponding coefficient Correct attempt to solve for any variableBoth values correct  |
| **Total** | **10** |

|  |  |  |  |
| --- | --- | --- | --- |
| **NO.** | **WORKING** | **MARKS** | **REMARKS** |
|  | 1. Consider ΔEGF

Hence 1. Calculations
2. Let

    1. Shaded area

Area of kite EFGHArea of sector EFHShaded areaShaded areaShaded area | M1A1B1M1A1B1M1M1M1A1 |  |
| **Total** | **10** |

|  |  |  |  |
| --- | --- | --- | --- |
| **NO.** | **WORKING** | **MARKS** | **REMARKS** |
|  | 1. Table

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

1. Graph

1. Solutions

  1. Equation of line of symmetry
 | B2S1P1C1L1B1B1L1B1 | All values of y correct (B1 for at least 5 correct)Linear scale used on both axesPlottingSmooth curve drawnLine drawnLine of symmetry drawnEquation given |
| **Total** | **10** |

|  |  |  |  |
| --- | --- | --- | --- |
| **NO.** | **WORKING** | **MARKS** | **REMARKS** |
|  | 1. angles, with reasons
2. ∠DGE

Angles subtended by the same arc ED at the circumference are equal.Angles subtended by the same arc BD at the circumference are equal.Sum of angles in ΔBDE adds up to 1800Angle between a chord BG and a tangent AB equals to the angle subtended by the same chord BG on the circumference in the alternate segmentOpposite angles of cyclic quadrilateral FGDE add up to 18001. ∠DBC

Opposite angles of cyclic quadrilateral FGBE add up to 1800Sum of angles on a straight line equals 18001. Let
 | B1B1B1B1B1B1B1M1M1A1 |  |
| **Total** | **10** |