**MATHEMATICS**

**PAPER 1**

**JUNE 2022**

**MARKING SCHEME**

**SECTION 1**

|  |  |  |
| --- | --- | --- |
| METHOD | MARKS | COMMENTS |
|  | M1  M1  A1 |  |
| February salary  School fees | M1  A1  B1 |  |
| 1. L.CM     =46 Minutes 12 seconds  9.03+46.12= 9:46:12 a.m | B1  M1  A1 |  |
|  | M1  M1  A1 |  |
|  | M1  M1  A1 |  |
|  | M1  M1  A1 |  |
|  | M1  M1  A1 |  |
|  |  |  |
|  | M1  M1  A1 |  |
|  | M1  M1  M1  A1 |  |
| Gradient of PQ=  Gradient of perpendicular line | M1  B1  M1  A1 |  |
| 1. -B1 for any one correct shaded region   -B2 for all correct shaded regions |  |  |
| 1. L.S.F=     H=100cm or 1m | M1  M1  A1 |  |
|  | M1  M1  M1  A1 |  |
|  | B1  B1  B1 |  |
| 1. R.S=110-80=3OKmh-1       60 seconds or 1 minute | B1  M1  A1 |  |

**SECTION 1I**

|  |  |
| --- | --- |
| 1. (ii)   Positive quarter turn about the origin  (iii) Multiplication by the scale factor  Correct image | i) **B1** forPlotting object  **B1** for Correct reflection using the line  **B2** for Correct image  M1B1  B1 Correct image  B1  M1  B1 |
| 1. a)         b)        c) Area of sector=  Area of triangle AOB    Common region  Shaded region=     1. ***(B1 For @correct answer and B1 For the correct reason(s))*** 2. - Angles in alternate segments are equal. 3. - Diameter of a circle subtends right angles at any point on the circumference. 4. The reflex angle- Angles at a point add up to 3600 5. - Angles in alternate segments are equal  * The radius and tangent of a circle are perpendicular at the point of contact.  1. Opposite angles in cyclic quadrilateral are supplementary. 2. a) i) **AB** = **b**-**a**   ii) **ON** = **a** + **b**  iii) **BM** = **a** – **b**  b) **a**k+**b**h  also,  **a**h+(1-h)**b**h  Comparing the above equations  **a**k=**a**h  k=h  **b**k=(1-h)**b**  2-2h=h  Therefore h= and k=  c) 4:1 | M1  M1  A1  M1  M1  A1  M1  M1  M1  A1  B1  B1  B1  B1  B1  M1  M1  M1  A1 for correct h and k  B1 |
| 1. a)     b) i) True bearing N400W  (ii) 2120  (ii) 7.7 cm x 10= 77km  (iii) 80+75+100+77+80=412 km | B1 for @ correct position.  Total =4marks  B1  B1  M1A1  M1A1 |
| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Class | x | f | fx | fd | cf | | 1 - 5 | 3 | 4 | 12 | 0.8 | 4 | | 6 - 10 | 8 | 12 | 96 | 2.4 | 16 | | 11 - 20 | 15.5 | 9 | 139.5 | 0.9 | 25 | | 21 - 30 | 25.5 | 6 | 153 | 0.6 | 31 | | 31 - 50 | 40.5 | 18 | 729 | 0.9 | 49 | | 51 - 55 | 53 | 4 | 106 | 0.8 | 53 | | 56 - 65 | 60.5 | 2 | 121 | 0.2 | 55 | |  |  |  | ∑fx  1356.5 |  |  | |  |  |  |  |  |  | |  |  |  |  |  |  |  1. (i)   (ii).    b.)  F:\HISTOGRAM.jpg  B1 -Good scale  B1 -x-axis upper class boundaries well labeled and y-axis, cf well labeled.  B1-Correct frequency polygon | B1 for correct column of *FX*  B1 for correct column of *Fd(frequency density)*  *B1 for correct column of cumulative frequency*  M1  A1  M1  A1 |
| 1. a)  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | Log x | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1.0 | | Log V | 1 | 2 | 3 | 4 | 5 | 6 |   b.)    c) *n is the gradient of the line*  *i.e the y –intercept* | B1  B2  Plotting **P1**  Scale **S1**  Straight line **L1**  **M1A1**  M1  A1 |
| 1. (a)   when ,  Therefore,      2. The particle is at rest when ,         or  Therefore | M1  M1  A1  B1  M1  M1  A1  M1  M1  A1 |