**121/1**

**MATHS**

**PAPER 1**

**MARKING SCHEME TRAIL 2 2019**

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| 1 | Num = LCM = 1085  Den = 31    = | M1  A1 |  |
|  |  | 02 |  |
| 2 | (  +  0.2901 x 0.1 + 9.233 x 0.1 + 814.8 x 0.001  0.02901 + 0.9233 + 0.8148  = 1.76711 | M1  M1  A1 |  |
|  |  | 03 |  |
| 3 | 23(2y – 1 ) x 25y = 24(y + 1)  2(6y – 3 + 5y) = 24y + 4  ∴ 11y -3 = 4y + 4  7y = 7  y = 1 |  |  |
| 4 | x 120,000 = 117,000  x 117000 = 5850  9000 + 5850  = Sh.14,850 | M1  M1  A1 |  |
|  |  | 03 |  |
| 5 | **x = y +**  x – y =  (x – y)2 x2 + a2  (x – y)2 x2 = a2  + = a  + = a  + = a |  |  |
| 6 | Interior angle be x  Interior angle = 120o + x  120o + x + x = 180o  120o + 2x = 180o  2x = 60o  x = 30o  n =  n = 12 sides | M1  A1  B1 |  |
|  |  | 03 |  |
| 7 | C:\Users\Main\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\001.jpg  OK =  =  =  Co-ord = (-5.5, -2.4)  C:\Users\Main\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\001.jpg  OK =  =  =  Co-ord = (0.5, -16) | M1  A1  M1  A1 |  |
|  |  | 04 |  |
| 8 | GCD = 3  LCM = 1008 = 24X32X7  48= 24X3  72= 23X32  X = 3X7 = 21 |  |  |
|  |  | 03 |  |
| 9 | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | + | 1 | 2 | 3 | 4 | 5 | 6 | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | 5 | 6 | 7 | 8 | 9 | 10 | 11 | | 6 | 7 | 8 | 9 | 10 | 11 | 12 |   P(7 and above) =  = | M1  M1  A1 |  |
|  |  | 03 |  |
| 10 | x =  4 + 25y2 = 41  y = or -1 | M1  M1  A1 | Express x interms of y  Form quadratic function and solve |
|  |  | 03 |  |
| 11 |  |  |  |
| 11 | x + x + 10o + 120o + 130o = 360 o  2x + 260 o = 360 o  2x = 100 o  x = 50o  Total no of animals = y    = y = 90  = 15 camels | B1  M1  A1  B1 |  |
|  |  | 04 |  |
| 12 | x + x + 10o + 120o + 130o = 360 o  2x + 260 o = 360 o  2x = 100 o  x = 50o  Total no of animals = y    = y = 90  = 15 camels | B1  M1  A1  B1 |  |
|  |  | 02 |  |
| 13 | 3x – (-4x + 5) = 0  3x + 4x – 5 = 0  7x = 5  x = | M1  A1 |  |
|  |  | 03 |  |
| 14 | Max value of = 4.25  Min value of  = 2.1667  Actual value of = 3  Absolute error = = 1.0417  Percentage error =  = 34.72% | M1  M1  M1  A1 | ✓ max and min values  ✓ actual values  ✓ absolute error  ✓ answ |
|  |  | 03 |  |
| 15 |  |  |  |
|  |  |  |  |
| 16 | 2x – 1 < x + 3  x < 4  x + 3 < 12(x + 4)  x + 3 < 12x + 48    x > - 4  Range of values  - 4 | M1  M1  A1 |  |
|  |  | 03 |  |
| 17 | Let the number of sh.100 tickets be x  Let the number of sh. 50 tickets be y  Total amount collected = 100x + 50y = 100,000  If 30% more of y were sold, the amount = x 50y  If 40% less of x were sold, the amount = x 100x  (65y + 60x = 112500) x 10……….(i)  (50y + 100x = 100,000) x 13……..(ii)  650y + 600x = 1125000…………(iii)  650y + 1300x = 1300000………..(iv)  Subtract eqn (iv) from eqn (ii)  700x = 175000  x = 250  50y + 100 x 250 = 100,000  50y 25000 = 100,000  50y = 100000 – 2500  50y = 75000  y = 1500  Number of tickets costing sh.50= 1500  Number of tickets costing sh.100 = 250 | M1  M1  M1  M1  A1  M1  M1  A1  B1  B1 | For both expansions |
|  |  | 10 |  |

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| 18 | C:\Users\Main\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\006.jpg  c) WM = 6.4 cm (0.1)  Area of ΔXZW  ½ b x h = ½ x 96 x 6.4  = 30.72 cm2 | B1  B1  B1  B1  B1  B1  B1  B1  M1  A1 | For 120o construction  Complete construction of ΔXYZ  Length  Angle YXZ  Perp bisec of XZ to M  Correct location of W  Complete ΔXZW  Length WM  ½ x 6.4 x 9.6  For 30.72 cm2 |
|  |  | 10 |  |
| 19 | a)   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | x | f | d = X - A | fd | d2 | d2f | | 2.2  2.7  3.2  3.7  4.2  4.7  5.2 | 5  15  24  40  10  4  2 | -1.5  -1.0  -0.5  0  0.5  1.0  1.5 | -7.5  -15  -12  0  5  4  3 | 2.25  1  0.25  0  0.25  1  2.25 | 11.25  15  6  0  2.5  4  4.5 | |  |  |  |  |  |  |   b) i) Mean = 3.7 + = 3.475  = 3.48  ii) Standard deviation  = 0.3819  = 0.617980 | M1  M1  M1  M1  M1  M1  M1  A1  M1  A1 | d = X – A  fd  d2  d2f |
|  |  | 10 |  |

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|  |  | 10 |  |
| 20 | a) Area of the carpet (x + 4) (x – 1)  C:\Users\Main\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\008.jpg  (x + 4) (x – 1) = 36  x2 – x + 4x – 4 = 36  x2 + 3x – 40 = 0  x2 + 8x – 5x – 40 = 0  x(x + 8) – 5(x + 8) = 0  (x + 8) (x – 5) = 0  x = 5 or x = 8  x = 5m  Area of uncarpeted floor  2x2 – {(x + 4) (x – 1)  2 x 25 – (9 x 4)  50 – 36 = 14m2  b) No. of tiles =  = 350 tiles  Cost: (350 x 100) + (36 x 300)  = sh.45,800 | M1  M1  M1  A1  M1  A1  M1  A1  M1  A1 |  |
|  |  | 10 |  |

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| 21 | a)   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | x | -3 | -2 | -1 | 0 | 1 | 2 | | 2x2 | 18 | 8 | 2 | 0 | 2 | 8 | | +3x | -9 | -6 | -3 | 0 | 3 | 6 | | -6 | -6 | -6 | -6 | -6 | -6 | -6 | | y | 3 | -4 | -7 | -6 | -1 | 8 |   C:\Users\Main\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\001.jpg  b) i) x = 2.6 and 2.1  ii) y = 2x2 + 3x – 6  0 = 2x + 3x – 36  y = -3  x = 0.7 and -2.2  c) y = 2x2 + 3x – 6  0 = 2x + x – 7  y = 2x + 1  x -3 0  y -5 1  x = 1.6 and x = -2.1 | B2  S1  P1  C1  L1  B1  B1  B1  B1 |  |
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| 22 | a)  C:\Users\Main\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\Mush 001.jpg  b) 1cm represents 20m  Drawing lengths      D  F  C:\Users\Main\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\Mush 001.jpg  Area in m2  A1 = ½ x 40 x 50 = 1000m2  A2 = ½ x (50 + 60)60 = 3900 m2  A3 = ½ x (80 + 70)100 = 7500 m2  A4 = ½ x 70 x 50 = 1750 m2  A5 = ½ x 120 x 60 = 3600 m2  A6 = ½ x (60 + 40)70 = 3500 m2  A7 = ½ x 60 x 40 = 1200 m2  Total area = (1000 + 3900 + 7500 + 1750 + 1750 + 3600 + 3500 + 1200) m2  = 22450 m2  1 ha = 10000 m2  22450  10000  2.245 ha | B1  B1  B1  B2  G  M1  M1  M1  M1  A1 |
|  |  | 10 |
| 23 | 1. Acute ∠ROS = 2∠RTS   (∠ at centre)  2 x 35 = 70o   1. ∠RQS = ∠RTS   ∠s in the same segment  = 35o   1. ∠PQS = 90o (∠ made by a tangent and radius)   ∠PQR = ∠PQS + ∠RQS  = 90o + 35o  = 125o     1. ∠QOT = ∠ROS = 35o   (vertically opposite angles)  In ΔPOQ, ∠QPT = 180o – (90 – 70)o  = 20o (Sum of ∠s in a Δ)   1. In ΔPQR, ∠PRQ = 180o – (125 + 20)o   = 35o (∠ sum of Δ)  ∠PQT = ∠PRQ (∠s in alternate segment)  = 35o | B1  B  B1  B1  B1  B1  B1  B1  B1  B1 |
|  |  | 10 |
| 24 | 1. Distance travelled   = Area of trapezium OAPC  = ½ x (AB + OC)V  920 = ½ (35 + 80)V  1840 = 115V  V =   1. Acceleration during first 15 sec   = gradient of OA  =  = 1 m/s2   1. Distance travelled during the last 40 seconds   C:\Users\Main\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\003.jpg  Area under DBC  = ½ x (DB + EC) 16  = ½ (10 + 40)16  = 400m | M1  M1  M1  A1  M1  M1  A1  B1  M1  M1  A1 |