**MOKASA II EXAMINATIONS - 2018**

**121/2**

**MATHEMATICS**

**PAPER 2**

**JULY 2018**

**MARKING SCHEME**

|  |  |  |  |
| --- | --- | --- | --- |
| Qn | Working | Marks | COMMENTS |
| 1. |  | M1  M1  A1 |  |
| 2. | -0.5x+1.25  Point ( 2.5,0)  Gradient = 2  Equation: y=2x-5 | 03  B1  B1  B1 |  |
|  |  | 03 |  |
| 3. | Corresponding angles are equal and corresponding sides are proportional  AC = 10 cm  MN = 10 cm | B1  B1  B1 |  |
| 4. | Act.=153.7  Max.=154.9575  Min.=152.4475  AE=0.39 | M1  M1  A1  03 | Alternative |
| 5. | 6cos2t+cost-1=0  (2cost+1)(3cost-1)=0  cost=0.5,cost=  t=70.53o,120o,240o,289.5o | M1  A1  B1  B1  04 |  |
| 6. | =4  x4=16  x4=24  x=2 | M1  M1  A1 |  |
|  |  | 03 |  |
| 7. |  | M1  M1  A1  03 |  |
| 8. | a) | M1  M1  A1 | Cubing both sides  Collecting terms with t on both sides.  CAO |

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|  |  | 03 |  |
| 9. |  | M1  M1  A1 |  |
|  |  | 03 |  |
| 10 | 2a +13d=85  2a+7d=55  d=5  a=10 | M1  M1  A1 | Forming  Solving  For both values. |
|  |  | 03 |  |
| 11. |  | B1  M1  A1 |  |
|  |  | 03 |  |

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| 12. | (a) XSx4=8x3  XS= 6 cm  (b) PQ2=18X8  PQ= 12 cm | B1  M1  A1 |  |
|  |  | 03 |  |
| 13. |  | M1  M1  A1 |  |
|  |  | 03 |  |

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| 14. |  | B1  B1  B1 |  |
|  |  | 03 |  |
| 15. |  | B1  B1  B1 |  |
|  |  | 03 |  |
| 16. | b) 1.05=1-0.5, x=-0.1  (1.05)5 =1-2.5(-0.1)+2.5(-0.1)2  = 1.275 | B1  B1  M1  A1 |  |
|  |  | 04 |  |

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| **SECTION II (50 MARKS)** | | | |
| 17 | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | x | 0 | 30 | 60 | 90 | 120 | 150 | 180 | 210 | 240 | 270 | 300 | 330 | 360 | | 2cosx-1 | 1 | 1.73 |  | -1 |  | -2.73 |  | -2.73 |  |  |  | 0.73 | 1 | | sinx |  | 0.50 | 0.87 |  | 0.87 |  |  | -0.50 | -0.87 |  | -.087 | 0.50 | 0 | | T2  S1  P1  C1  C1  B1  B1  B1  B1 | Table  Scale  Plotting for both  Smooth curve | |

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| 18. | *a) i)* ***PN*** *=*      B1  B1  M1  M1  M1  A1  B2 | B1  B1 |  |
|  |  | 10 |  |

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| --- | --- | --- | --- |
| 19. | a) i)    ii)  b)i)    ii) | B1  M1  A1  B1  M1  M1  M1  A1  M1  M1  A1 | Tree diagram draw with probabilities indicates  ✓1 probability  Addition of the probability  ✓ probability  Addition |

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| 20. | (a)(i)  Distance =  =longitude difference  =40+140=1800    =17,337.8Km  b) =60🞩2  =1200  Distance =  =  =13,346.7km  (c) A(300N,400N)  B(300W,1400E)  Difference in longitude=140+40  =1800  10=4min  180=?  180🞩4=720minutes    8.00+12.00=20.00  =12.00hrs/8.00pm | 10  B1  M1  A1  M1  A1  M1  A1  M1  M1  A1 | For 180o |
|  |  | 10 |  |

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| 21. | Upper class limits 12.5, 15.5, 18.5, 21.5 24.5  Cumulative frequency 3, 19 55, 86,100    b) i) Q.D =  M1  M1  A1  M1  A1  ± 0.15    ii) Leaves below 13 =4 leaves  leaves below 17 =35 leaves  leaves between 13 and 17 = 35-4=31 | B1  B1  S1  P1  C1 | May be implied. |
|  |  | 10 |  |

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| 23.a)  b)  c) | |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | x | 0 | 1 | 2 | 3 | 4 | 5 | 6 | | y | 3 | 3.5 | 5 | 7.5 | 11 | 15.5 | 21 |       Error: 54.5-54=0.5  = | B2  M1  A1  M1  M1  A1  B1  M1  A1 |  |

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| 24. | a)    b)    **300**  **250**  **200**  **150**  **100**  **50**  **0**  **300**  **250**  **200**  **150**  **100**  **50**   1. Objective function | 10  B1  B1  B1  B1  B1  B1  B1  B1  B1  B1 | | For each correct inequality  For each correct line drawn |
|  |  | 10 |  | | |