**SCHOOL BASED EXAMINATION 2019**

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

**JULY/AUGUST FORM FOUR**

**MARKING SCHEME**

|  |  |  |  |
| --- | --- | --- | --- |
| **No** |  |  |  |
| **1.** |  | M1M1 |  |
| **02** |
| **2.** | No. Log34.33 1.5357 1.5357 5.25 0.7292 0.042 2.6232 $\overline{1}$.3434 $\overline{1}$.3434 = 2 + 1.3434 2 2 $\overline{1}$.67177.311 x 101 1.86.40= 73.11  | M1M1M1 A1 | 🗸 all log correct |
|  |  | **04** |  |
| **3.** |   | M1M1A1 **03** |  |
| **4.** $\sqrt{3}$ | 90 - a2Sin (90 – a) = ½ Cos a = ½  | B1B1 | ✓ ✓ |
|  |  | **02** |  |
| **5.** | 3 – 2x < x – 3 and 3x < -6 x > 2x – 3 < 4x < 72< x < 7Integers {3,4,5,6,7} | B1B1B1 | 🗸🗸  |
|  |  | **03** |  |
| **6.** | 27 = 33}30 = 2 x 3 x 545 = 32 x 5L.C.M = 2 x 33 x 5 = 270The smallest value of n is 273 | M1M1A1 |  🗸 🗸  |
|  |  | **03** |  |
| **7.** | Exterior angle = 1800 – 1350 = 450Number of sides = 360 45 n = 8 sides | M1M1A1 |  |
|  |  | **03** |  |
| **8.** |  | M1M1A1 | (Numerator factorized)(Denominator factorized) |
|  |
|  |
|  |  | **03** |  |
| **9.** |   | M1M1A1 |  |
|  |  | **03** |  |
| **10.** | a) b)  | M1M1A1M1A1 |  |
|  |  | **04** |  |
| **11.** |  | M1M1A1 | (accept 3.8) |
|  |  | **03** |  |
| **12.** | a)b)  | M1A1M1A1 |  |
|  |  | **04** |  |
| **13.** |  | M1M1A1 |  |
| **03** |
| **14.** |  | B1M1M1A1 |  |
|  |  | **04** |  |
| **15.** |  |  | M1 M1A1 |  |
|  |
|  |  | **03** |  |
| **16.** | C:\Documents and Settings\Maina\Local Settings\Temporary Internet Files\Content.Word\scan0059.jpg | B1B1B1 | Ares to be seenDivisions of ABPoint P correctly indicated |
|  |  | **03** |  |
|  **17.** | (a)  (b)   (c)  | M1A1M1A1M1A1M1M1 |  |
| M1A1**10** |
| **18.** | a)  | M1M1A1M1M1M1M1A1**10** |  |
| **19.** | ~ ~ ~ ~ ~~ ~~ ~ ~  ~ ~ ~ ~ ~~ ~~ ~~ ~~  ~ ~ ~ ~ ~ ~  ~ ~ ~ ~  | B1B1M1M1A1M1M1M1B1B1 |  |
|  |  | **10** |  |
| **20.**  |  NNN400800km600600PN θ400JUsing cosine Rule(PJ)2 = (800)2 + (1200)2 – 2(800) (1200) cos1000 = 640000 + 1440000 – 1920000 cos1000 PJ = 1553.51 kmii) From Sine Rule b)  | B1M1A1A1M1M1A1M1M1A1 |  |
|  |  | 10 |  |
| **21.** |  | B1B1B1B1M1M1A1M1M1A1 | For both |
|  |  | **10** |  |
| **22.** | a) <ACD = <DAT = 480 (Angles in alternate segment)b) <ABD <ABD = <ACD = 480  (Angles substended by the same chord)  <OBD = 180 – 116 = 320 2 (base <s of isosless ΔBOD) Thus <ABO = 48 – 32 = 160 c) <ADO <ADT = 180 – (48 + 26) = 1060  (Sum of angles of ΔADT. <ADO = 180 – (32 + 106) = 420  (Angles in a straight line)d) <ACB <ADB = <ADO + <ODB = 420 + 320 = 740 <ACB = <ADB = 740 (Angles substended by chord AB)e) Angle ATD = 1800 = 1060 = 260 = Sum of angles in a triangle. | B1B1B1B1B1B1B1B1B1B1B1B1 |  |
| 23. | (a) C:\Documents and Settings\Maina\Local Settings\Temporary Internet Files\Content.Word\scan0070.jpgb) Mid-ordinates at

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| x | 0.5 | 1.5 | 2.5 | 3.5 | 4.5 | 5.5 |
| y | 2.1 | 5.1 | 9.1 | 14.1 | 20.1 | 27.1 |

Areas = (2.1 + 5.1 + 9.1 + 14.1 + 20.1 + 27.1) x 1 = 77.6cm2ii)   | 10B1B1B1B1B2B1M1 | Allow B1 for 4 ordinates |
| M1M1A1 |
| 24. | a) at x = 2 y = (2)3 – 3(2) + 2  = 8 – 6 + 2  = 4b) Gradient dy = 3x2 – 3 dx at x = 3 gradient = 3(3)2-3 = 27 – 3 = 24c) dy = 3x2 – 3 dx 3x2 – 3 = 0 x2 – 1 = 10 (x + 1) (x – 1) = 0 x = 1 or x = -1y = (1)3 -(1) + 2 y = (-1)3 – 3(-1) + 2 (1,0) = 4 (-1, 4)x 0.5 1 1.5 x -1.5 -1 -.05dy/dx -2.25 0 3.75 dy/dx 3.75 0 -2.25Sign Sign(1,0) minimum point(1,4) maximum point | M1A1B1M1A1M1A1B1M1A1 | For bothEvidence of investigation |
|  |  | 10 |  |