**121/1**

**MATHEMATICS PAPER 1**

**MARKING SCHEME**

|  |  |  |  |
| --- | --- | --- | --- |
| 1. | -2 | M1A1 | ✓Min &deno |
| 2. | Food = Trans = Rem = Fraction of saving= 1 – (+ + ) = 1 - = Salary = 3400 x = KSh. 17000 | M1M1A1 | ✓ Fraction  |
| 3. |  | M1M1A1 | For denFor number  |
| 4. | + 1 = 28 = 27 x = 27 x = 27 = 2x = 0x = 0 | M1A1 |  |
| 5. | S = = 8.1= = = 11.68Shaded area = 18.05 – 11.68=  | B1M1A1B1 | For 11.68 |
| 6. |  x 100,000 = 2400 x 180,000 = 7020= 9420 | M1M1A1 |  |
| 7. | (a) x(x + 4) = 96 + 4x – 96 = 0 (x-8) (x + 12) = 0 x = 8 Length = 12 Width = 8(b) Perimeter = 2 (8 + 12) = 40m | M1A1 B1  | Both |
| 8. | 112350600Sin-1 0.5 = (90 – a)600 = 900 – a a = 300Cos 300Cos a =  | M1 for a = 300B1 for CAO |  |
| 9. | (a) =  = x = 6(b) = 4.684AB = 2 x 4.684 = 9.368A = x 15 x 9.368 - x 7.5 x 4.684= 52.698 | M1A1M1A1 |  |
| 10. |  x (10 – 6) = 314.29cm3 x = 314.29r = 4.217 | M1M1A1 |  |
| 11. | C:\Users\Nzambia\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\10.jpgAM = 4.2cm, AC = 5.6cm (± 0.1cm) | B1B1B1B1 | Construction of 450ΔABC⊥ Dropped from A to BCFor AM to AC |
| 12. | 50,48,46,…………… = 50 + 7x (-2)= 36 = (2 x 50 + (20 – 1) (x – 2) = 620 | M1A1M1A1 |  |
| 13. | C:\Users\Nzambia\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\11.jpg Surface area of base = 6cm x 6cm = 36cm2Area of sides (flaps) = ( ½ x 6cm x 8cm)4 = 96cm2Total surface area = 36cm2 + 96cm2 = 132cm2 | B1M1A1 | Net |
| 14. | C:\Users\Nzambia\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\12.jpg1. 3240
2. (7.2 x 5) km

= 36km | B1B1B1B1 | Z accurately located wrt YX accurately located wrt YBearing of X from ZDistance of X from Z |
| 15. |  - 18 x - 40 = 0 - 18 x -40 = 0Let be tt2 – 18t – 40 = 0t(t – 20) + 2(t – 20) = 0(t + 2)(t-20) = 0Either t – 20 = 0 t = 20or t + 2 = 0 t = -2but t = 2xfor 2x = -2 there are no real valuesbut for 2x = 20 = x = 4.32 (2 dps) | M1A1B1 | eqn in tboth  |
| 16. | x = 180,000x = x 100= 200000y = 200000BP ⇒ x 100 = 166,666.66 | M1M1A1 |  |
| 17. | = x 90 = 210kmRemaining distance = 360 – 210 = 150kmAs = 90 + 110 = 200kmTime for meeting = = 0.75 hrs= 45 minsMeeting time = 10.35 + .45 11.20 a.m(ii) Distance from A 210 + (0.75 x 90) = 210 + 67.5 = 277.5 km(b) Time minibus arrived at B Time = = = 4 hrs= 8.15 + 4 hrs = 12.15 p.mTime taken by the tourist to arriveB = 12.15 pm – 10.30 a.m = 1 hr 45 min = 1 x 100= 175km∴ Home to B = 175kmHome to A = 360 – 175= 185km | B1B1M1A1M1A1M1M1A1B1 | ✓ Distance covered by minibus for  2 hrs✓Ans✓ CAO |
| 18. | Cosθ = θ = 100.330A = x 250 x 320 Sin 100.33= 3.9352 ha2R = R = 223.6A = x 223.62 – 39351.65= 117,781.7m2 | M1A1M1M1A1 M1A1M1M1A1 | Area of circleDifference |
| 19. | C:\Users\Nzambia\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\13.jpg(ii) 4.4 x 50 = 220km± 5(iii) 8.5 x 50 = 425±5(iv) 2000 | B1B1B1B1 B1B1B1B1B1B1  | Pst of LPst of NPst of MConstruction of bisectorMeasurement LengthMeasurementLength Measurement Angle  |
| 20. | (a) (b) + 101. = = 10

= 10 = 10 200x + 6000 = 10x2 – 50x 20x + 600 = x2 – 5x x2 + 15x – 40x – 600 = 0 x(x + 15) – 40(x + 15) = 0 (x-40)(x+15) = 0 x = 40 people 40 – 5 = 351. =

= KSh. 40 |  | B1B1B1M1M1M1A1B1M1A1 |
| 21. | C:\Users\Nzambia\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\14.jpg(b) (i) Length of ON = 3.9cm±0.1 (ii) Area = 6 x 3.9 = 23.4cm2  | B1B1B1B1B1B1B1 | Both 900& 600 at A750 at A900& 600 at B750 drawn at point BBoth AB = 6cm and BC = 4cmParrallegram completed⊥ Drawn |
| 22. | C:\Users\Nzambia\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\15.jpg Areas.A = x 60 x 60 = 1800m2B = x 200 = 16000m2C = x 60 = 6600m2D = x 120 x 80 = 4800m2E = x 160 x 220 = 17600m2F = x 20 = 2600m2G = x 60 = 6600m2H = x 120 x 100 = 6000m2Total area = 62000m2 = = 6.2ha1ha = 80,0006.2ha = 8000 x = KSh. 496,000.00 | B3M1M1M1M1M1A1 | 3 for at least 6, 2 for at least 4, 1 for at least 2 |
| 23. | (a) 6 + 14 + 24 + x + 10 + 6 + 4 = 100 x = 100 – 78 = 22(b) Modal class 35 – 44(c) median = 44.4 + x 10= 48.79(d)

|  |  |  |
| --- | --- | --- |
| Midpoint | f | xf |
| 19.5 | 6 | 117 |
| 29.5 | 14 | 413 |
| 39.5 | 24 | 948 |
| 49.5 | 14 | 693 |
| 59.5 | 22 | 1309 |
| 69.5 | 10 | 695 |
| 79.5 | 6 | 477 |
| 89.5 | 4 | 358 |

 | M1A1B1M1A1B1B1 | Mid pointsx column |
|  | Σf = 100 Σxf = 5010Mean = = = 50.10 | B1M1A1 | ✓Σf, Σxf |
| 24. | (a)C:\Users\Nzambia\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\16.jpgTriangle ABC +=A + B= A + = 49 + 576 = 625625 = 625(b) BAD = 2BACSin θ = θ = 73.740BAD = 73.74 x 2 = 147.480(c) Area of kite = x 7 x 24 x 2Area of sector ABD = x 3.14 x = 62.87cm2Area shaded = 168 – 62.87= 105.13cm2 |  | M1A1B1B1M1A1M1A1A1A1 |