**FORM THREE**

**END TERM 2 EXAM 2024**

**MATHEMATICS 121/1**

**MARKING SCHEME**

|  |  |  |  |
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| No.. | **SECTION 1** |  |  |
| 1. |  | M1  M1  A1 |  |
| 2. |  | M1  M1  M1  A1 |  |
| 3 | |  |  | | --- | --- | |  | **1400** | | **2**  **2**  **2**  **5**  **5**  **7** | **700**  **350**  **175**  **35**  **7**  **1** |   **L.C. M**   |  |  | | --- | --- | |  | **1960** | | **2**  **2**  **2**  **5**  **7**  **7** | **980**  **490**  **245**  **47**  **7**  **1** |   **N=**   |  |  | | --- | --- | |  | **70** | | **2**  **5** | **35**  **7** |   **L.C.M** | M1  M1  A1 |  |
| 4 | At 9.50am , the bus has travelled    The distance between the two vehicles at 9.50am    Rel . speed = 140 km/ h.  It will take them since  Leaving Kitale.  Distance covered at the time Matatu  Met the bus  = | B1  B1  A1 |  |
| 5 | M  Gradient = | M1  M1  B1 |  |
| 6. |  | M1  M1  A1 |  |
| 7. |  | B1  M1  A1 |  |
| 8. | Let | M1  M1  M1  A1 |  |
| 9. |  | B1  B1  B1 | angle 37.5o  Division of BD  Division of BC |
| 10. |  | B1  B1  2 |  |
| 11. | Exterior angle =  No of sides of the polygon | M1  B1  B1  3 |  |
| 12. | Area of quadrilateral ABCD    In hectares = | M1  M1  A1  4 |  |
| 13. | External volume =  Internal volume =  Volume of material =  Metre used = 2460cm3  Density = | M1  M1  A1  3 |  |
| 14. |  | M1  M1  A1 |  |
|  | The integral values are 0 and 1) | 3 |  |
| 15. | Remaining amount =  Amount speed =ksh  The Balance = ksh 1,140,000- 855,000  =ksh285,000  Amount in dollars = | M1  M1  A1 |  |
| 16 |  | M1  A1  A1 |  |
| 17 | Cos B  Cos B =  B =Cos  (b) 2R=  ( c)  Sin A=  A=sin  =87.80  Area =  =19.5316- 12.7313  =6.800 cm | M1  M1  A1  M1  A1  M1  1  M1  A1 |  |
| 18 | 1. (i) AB =b – a         (ii) CD = -3b +a   1. CM =   AM = -h a + h b    CM = CA + AM  = K a – 3 b    = a  K = 3 -3h and K = 1 – h  h=  k=     1. OM= a+  b       ON=  a +  b      OM =  ON  Hence parallel, and point O is common  O, M and N are collinear | B1  B1  M1  M1  M1  B1  B1  B1  B1  B1 |  |
| 19 | a)  p ∞ q  r2  p = kq  r2  18 = 24 x k  42  K = 18 x 16  2  K = 12  Equation: p = 12q  r2  when q = 30, r = 10  P = (12 x 30)  100  = 18 or 3.6  5   1. P = 12q   r2  12q = pr2  q = pr2  12   1. New value of P = 1.2P   New r = 0.9r  q = pr2  12  = 1.2p x (0.9r)2  12  Δin q = 1.2 x 0.81 pr2 – pr2  12 12  = pr2 (1.2 x 0.81 – 1)  12  = -0.028 pr2  12   1. 0.028 pr2 x 12 x 100   12 pr  = 2.8% | B1  B1  B1  B1  M1  A1  M1  A1  M1  A1 | For d  For df  For df2  For cf |
| 20 | (a)  R = r + 7  R = 1.2r  R + 7 = 1.1 r  7 = 1.1 r – r  7 = 0.1 r  R = 70m  (b) Inner radius = 70m  2 x 70 = 400m    Outer radius r = 77m  2  Total number of posts = 88  (c) total cost  88 x 105 = sh 9240 | B1  B1  M1  A1  B1  B1  B1 |  |
| 21 |  | B1  B1  B1  B1  B1  B1  B1  B1 | Diagram  positions |

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| 22 | (a) Tan 11.3 =  BP =  (b) Time Taken in hrs =  Distance between P and Q    tan =  =7.59  ( c) (i) CD= 50.9- 49.91= 99.8019  CD=  = 9.99m  (ii) tan =  = tan  = 2.865  = 3.00 | M1  A1  M1  M1  A1  M1  A1  M1  M1  A1  B1 |  |
|  | 1. B:G   11:7 | M1  M1  A1  M1  A1  10 |  |
| 23. | (a) Let the constant amount be x  Jane – (3/8x) /=  Jepchoge’s – 2/5 (5/8x) /=  = ¼ x /=  Remaining 3/5x – 18,000  x = 48,000/=  Therefore the original amount is 48,000.  (b) Jepchoge received  ( ¼ x 48,000)  = 12,000/=  (c) Business maintenance  = (1/3 x 12,000)  = 4,000/=  Balance = 8,000/=  Ratios: Jane = (3/8 x 48,000)  = Kshs. 18,000/=  Jepchoge – ( ¼ x 48,000/=)  = Kshs. 12,000/=  Chepkemboi – (1/3 x 18,000/=)  = Kshs. 6,000/=  Ratio: 18,000 : 12,000 : 6,000  3 : 2 : 1  Jane got 3/6 x 8,000 + 18,000  = Kshs. 22,000/=  Jepchoge got 2/6 x 8,000  = Kshs. 2,677/=  Chepkemboi got 1/6 x 8,000 + 18,000  = Kshs. 1,337/= |  |  |
| 24 | 1. 15km 185km   J  7.00am 7.30am 7.30a.m  30km/hr 40km/hr  R.S = 30km/hr + 40km/hr  = 70km/hr √m1  T = D  R.S  = 185km  70km/hr  = 2 ½ hours √m1  Time they met = 7.30am √m1  2.30  10.00am √m1   1. Distance from Onyango’s house where the two met:   Distance = 30km/hr x 5/2 hours  = 75km  = 75 + 15  = 90km √m1   1. Distance from Onyango to Juma’s house when they met:   200km – 90km √m1  = 110km √A1  (b) Meeting time = 10.00a.m  + 15  10.15am  T = 110km = 5 ½ hours√m1  20km/hr  Time of arrival to Jumas house  = 10.15am  +5.30√m1  = 15.45pm or 3.45pm |  |  |