**FORM FOUR END OF TERM TWO 2018 EXAMINITION**

**121 /1**

**MATHEMATICS MARKING SCHEME**

**PAPER 1**

|  |  |  |  |
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| 1. | = = = 1 ½  | M1M1A1 | numeratordenominatorC .A.O |
|  |  | 3 |  |
| 2. | Grad AB = M1 = =  M2  = Mid point M = (1 0)-5x + 5 = 2y2y + 5x – 5 = 0 | B1🗸B1🗸B1 | Both M1,&& M2Mid point |
|  |  | 3 |  |
| 3. | = = 0.1783+ 3 ( 0.1373x 10-1)= 0.1783 + 3 ( 0.01373)= 0.1783 + 0.04119= 0.21949= 0.2195 | M1🗸M1🗸M1🗸A1 | Use square root tablesUse square tablesUse rec. tables |
|  |  | 4 |  |

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| 4. | -6= -9 = -314-3x>2-3x>-12x<4 | B1B1B1 |  |
|  |  | 3 |  |
| 5. | Fraction of water emptied per hour.For A=  B= C= All working for 1 hour =  All working for 30 minutesRemaining fractionB & C working for one hour =1h ?= | B1M1A1 |  |

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| 6. |  =  =4+8×23 =12×8 =96 | M1M1A1 | NumeratorDenominator  |
|  |  | 3 |  |
| 7. |  PQ = 564.22 – 270.12 = 294.10m  | M1M1A13 | For tan 48º = For tan Correct distance PQ |
|  |  | 3 |  |
| 8. | Distance =72+78 =150MRelative speed =72+108 =180km/ht==8.333×10-4=2.9993 seconds | B1B1M1A1 |  |
|  |  | 4 |  |
| 9. | <DBC= 510 Alternate angles<EAD= 510 Alternate segment(51+51) = 780 | B1M1A1 |  |
|  |  | 3 |  |

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| 10. | A.S.F. = L.S.F.= = V.S.F = = 8cm3  ?  = = 373.248 =373.2 cm3 | B1B1B1 |  |
|  |  | 3 |  |
| 11. | 32χ x 3y = 3³2χ - y x 2χ = 35 2χ + y = 3 χ = 22(2) + y = 3 y = -1 | M1M1B1B1 |  For correct eqn’s  Both.For adding correct for correct answer.For correct answer. |
|  |  | 4 |  |
| 12. | Let x = 1.05050505 =1a= 5, b= 99 | M1A1B1✓ | a and b |
|  |  | 3 |  |

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| 13. | 5000×86.25=ksh431250 Spend = Remaining =100 Japanese yen=67.26 ?=141400 Japanese yens |  B1M1A1 |  |
|  |  | 3 |  |
| 14. | (a) 11, 13, 17 and 19 Number = 19,1 71, 3111. hundreds total value= 3×100

 = 300 | B1B1 |  |
|  |  | 2 |  |
| 15. | log 36 =log (4x9) = log4 + log9= log 22 + log 32= 2log2 + 2log3= 2(0.30103 + 0.47712)= 1.556 | M1M1A1 |  |
|  |  | 3 |  |

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| 16. | c) Height = 3.7cm 0.1cm | B2B1 |  |
|  |  | 3 |  |
| 17. | (a) ∠PAQ = 2PAM/2QAM   θ = 25.38 x 2 ∠PAQ = 50.76° | M1A1 | Each A plottedNB: there are four triangles drawnA1B1C1 coordinates |
|  | (b) PBQ = 2PBM/2QBM   χ = 32.39 x 2 PBQ = 64.78° | M1A1 |  |

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| (c) Segment 1 A = A sec1 - AD1  6.162 Segment 2  39.9045 – 31.9171 7.9874 Total shaded = 6.162 + 7.9874 = 14.1494cm² | M1A1M1A1M1A1 |  |
|  | 10 |  |

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| 18. | b) i) bearing of B from D 2120 10 Bearing of A from C 2690  10  ii)Distance AC and BD AC= 8.4cm 0.1 cm = 168  2 BD = 4.8cm 0.1cm =96 2 | B1B1B1B1B1B1B1B1B1B1**B1****B1** |  |
|  |  | 10 |  |

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| 19. | (a) let group members no.=x Each original =   Contribution After 40 withdrawn Each contribution= 2000000x-80000000=2000000x-2500x2 +100000x25x2 -1000x -800000= 0x2 -40x-32000=0 = = =  = =200 or -160 Original number.of members=x=200(b) Fund from CDF = = 900000 Remaining to be contributed.= 2000000- 900000 = 1,100000 Each remaining membersn contribution=  =  = 6875 | B1M1M1✓A1B1B1B1B1M1A1 | BtwSimpl. |

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|  | 1. total amount

 contribution by members= =836,000 |  |  |
|  |  | 10 |  |
| 20. | (a) (i) relative speed = 81+72 = 153km/h After 40 minutes distance covered = =54km Distance left = 360-54 = 306 km t= =2 hrs (ii) after meeting relative speed=153km/h = 102km **ALTERNATIVE:**  =48+54 =102 (b) (i) Relative speed =90-81 = 9km/h 20 min, distance covered= t= =3 =3 hrs 20min 9.50 3.20 13.101.10 p.m.1. 13.10

9.30 4. 40 =4 = | M1M1A1M1A1B1M1A1M1A1 |  |

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|  | D =360 – =360-108 = 252km | M1A1 |  |
|  |  | 10 |  |
| 21. |  |   B1B1B1B1B1 BIBI | Constructing ∠75ºComplete triangleDropping the perpendicular Complete parallelogramCentre of the circle– Dropping ⊥ from centre of circle to BC.– For described circle. |

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|  | (iv) h = 3.2cm ± 0.1 ②   = 19.2cm² (v) R = 1.6cm ± 0.1    | - M1- A1 - A1 |  |
|  |  | 10 |  |
| 22. | (a) | B4M1M1M1M1A1B1 | For each area✓ |

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|  | (b) Area = =0.5775 ha |  |  |
|  |  | 10 |  |
| 23. | (a) (i) 88% 100%  =5454.55 (ii)  100%  =3310.35(b)%profit= =64.77%(c) 100% 87.5%  =2896.55 | M1M1A1M1A1M1M1A1M1A1 |  |
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| 24. | (a) s=t3-6t2+9t+5  at t=0.5,  = 0.75-6+9 =3.75m/s1. 3t2-12t+9=0

t2-4t+3=0t2-t-3t+3=0t(t-1)-3(t-1)=0(t-3)(t-1)=0t-3=0 or t-1=0t=3 or t=1when t=3s =t3-6t2+9t+5 =(3)3-6(3)2+9(3)+5 =27-54+27+5 =59-54 =5mWhen t =1S =13-6(1)2+9(1)+5 =1-6+9+5 =9m1. s=t3-6t2 + 9t + 5

turning points (3, 5)and (1, 9)

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| x | 2 | 3 | 4 |
|  | -3 | 0 | 9 |
|  |  |  |  |

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| x | 0 | 1 | 2 |

 | M1M1A1M1A1B1B1B1 |  |

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|  | 9 | 0 | -3 |
|  |  |  |  |

 Sketch | B3✓ | For sketch |
|  |  | 10 |  |