**121/2**

**MATHS**

**PAPER 2**

**MARKING SCHEME. END TERM 1 2019**

|  |  |  |  |
| --- | --- | --- | --- |
| 1. |  | M1M1M1A1 | Accept For ✓addition and subtraction of numerator and denominator✓ multiplication by ¾  |
| 2. | L.C.M of 2,3 and 4 = 12Place all tranctions over 12 | M1M1A1 | All brackets ✓ opened |
| 3 |  | M1M1A1 | ✓ division by 3 in numerator and 2 in denominator✓ly manipulating numeratorCAO |
| 4 |  | M1A1M1A1 |  |
|  |  | 04 |  |
| 5 |  | B1B1B1 | Accept any alternative correct method |
| 6. | a)b) | M1A1M1A1 |  |
| 7 |  | M1A1 |  |
|  |  | 02 |  |
| 8 |  | B1M1A1 |  |
| 9 | a)b) | M1A1M1A1 |  |
| 10 |

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Mean Variance  | M1M1A1 |  |
| 11 |  13, 15, 17, ….,47nth term = a + d(n – 1)13 + 2(n – 1) = 472n – 2 + 13 = 472n + 11 = 472n = 36n = 18no of plants 18/2(2x13+2(18-1))= 9(26+34)= 9 x 60= 540 | **M1****A1****M1****A1** |  |
| 12 |  | **M1****M1****A1** | ✓subt(5.916079783) |
| 13 | X = -7 y = 13  | **B1****M1****A1** | ✓mult by inver. matrix |
| 14 |  | B1B1B1 | Construct 67.50divisions |
| 15 |  | M1A1B1 | both ✓ |
|  |  |  |  |
| 16 |  | M1 M1A1 | Factorization of numerators Simplification |
| 17. | **SECTION II** | M1A1A1M1A1M1A1M1A1 | 857375 1- 15100Accept 526’700,526,600 526’500If A above is lost follow thro’ accept 658’125,….Accept 0.6927For both root ✓ly 0.9938 |
| 18. |  | M1M1M1A1 |  |
|  |  | 04 |  |
|  |  | M1A1M1M1M1A1 |  |
| 19 | EDFGHCABMN24 cm7 cm5 cma)b) | M1M1M1M1A1M1A1M1M1A1 |  |
| 20 | 1. (i) P (square No) = ⅛

 (ii) P (Prime or more than both)

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|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1 | 23456789 | 345678910 | 4567891011 | 56789101112 | 678910111213 | 7891011121314 | 89101112131415 | 910111213141516 |
| 2 |
| 3 |
| 4 |
| 5 |
| 6 |
| 7 |
| 8 |

1. (i) P (sum of 8) =

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|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1 | 01234567 | 10123456 | 21012345 | 32101234 | 43210123 | 54321012 | 65432101 | 76543210 |
| 2 |
| 3 |
| 4 |
| 5 |
| 6 |
| 7 |
| 8 |

(ii) P (diff 3)  | M1A1M1A1B2B1B2B1 | For the tableFor the table |
| 21 | EDFGHCABMN24 cm7 cm5 cm | M1A1M1A1M1A1M1A1M1A1 |  |
| 22 |

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| X | -1800 | -1500 | -900 | -60 | -30 | 0 | 30 | 60 | 90 | 180 |
| Sin(2x-30) | -0.5 | 0.5 |  |  | -1.00 | -0.5 | 0.5 |  | -0.5 |  |
| 2cos x  |  |  | 0 | 1.00 | 1.73 | 2 | 1.73 | 1 | -1 | 2 |

 B2 for all✓ B1✓1,(b) (c) x = (-820 or 60) ± 3 B1(d) Amplitude = 1 B1Period = 360/2 = 1800 B1 |  |  |
| 23 | d1 = 60 = (60 x 55) + (60 x 70) = 7500nm = 60 x 70 cos 55 + 60 x 55 = 2409.02 + 3300 = 5709.02nmtA = 5709.02 250 = 22.84hrs = 22hrs 50min 1300hr2250 + 35502400 – 1150hrs TuesdaytB = 7500 = 30hrs 250 13003000 43002400 1900hrs Tuesday | M1M1A1M1M1A1M1B1M1B1 | For 60 x 55 and 60 x 70 additionM1 subs of cos θTimeTuesdayTimeTuesday |

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| 24 |

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| v | Tablets (x) | Capsules (y) |
| Vit A (7) | 1 | 1 |
| Vit B (60) | 5 | 12 |

 Cost Ksh@ 1 2Inequalities x + y > 7 5x + 12y > 60 X > 0, y > 0Cost (c) = x + 2y(4, 4) C = 4 + 4 x 2 = 12(5, 3) C = 5 + 3 x 2 = 11(8, 2) C = 8 + 2 x 2 = 12Minimum 5 tablets, 3 capsules Min cost = Ksh11 | B1B1B1B1B1M1A1 | For x + 4 > 7For 5x + 12u > 60For x > 0For y > 0Objective function |
| ***L1 – x + y > 7******L1 -5x + 12y > 60******L1 – x > 0*** ***Y > 0*** |