**SET 5**

FORM THREE

MATHS 2

**MARKING SCHEME**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **WORKING** | **MARKS** | **REMARKS** |
| 1. |

|  |  |  |  |
| --- | --- | --- | --- |
| S | 60 | 100 | 840 |
| 2 | 30 | 50 | 420 |
| 2 | 15 | 25 | 210 |
| 5 | 3 | 5 | 42 |

22 x 5 = 20 | B1B1 |  |
|  |  | 02 |  |
| 2. |  = ==   5204203 520=  |  M1M1A1 |  |
|  |  | 03 |  |
| 3. | a = 2n = 10Tn = T10 = ? = 2 *x* (0.5)10-1= 2 *x* (0.5)9= 3.90625 x 10-3Sn = S10 = ? = = 2 x 0.999023437= 3.99609375 | M1A1M1A1 |  |
|  |  | 04 |  |
| 4. |  | M1A1 |  |
|  |  | 02 |  |
| 5. | 4, 16, 28, 40, …………………. 2260cm.a = 4d = 12n = ?Tn = 2260Tn = a + (n - 1) dT10 = 22602260 = 4 + (n - 1) 12= 4 + 12n – 122260 = 12n – 122260 = 12n – 812n = 2260 + 812n = 2268n = =  | B1M1A1 |  |
|  |  | 03 |  |
| 6. |

|  |  |  |  |
| --- | --- | --- | --- |
| Bus service number | 4 | 8 | 3 |
| Time intervals | 15 | 20 | 30minutes |

15 = 3 *x* 520 = 2 *x* 2 *x* 5 = 22 *x* 530 = 2 *x* 3 *x* 5L.C.M = 22 *x* 3 *x* 5 60 minutes = 1hour06.00 1.00 7.00 Am | B1B1B1 |  |
|  |  | 03 |  |
| 7. |  Maximum length = 2.55cmLength = 2.50 ± 0.05  Minimum length = 2.24cm Maximum width = 1.25 cm Width = 1.20 ± 0.05  Minimum width = 1.15cm Actual area = 2.5 x 1.2 = 3.00cm2Maximum Area = 2.55 x 1.25 = 3.1875cm2Maximum Area = 2.45 x 1.15 = 2.8175 cm2 [Maximum Area = Actual] + [Actual - Minimum] 2[3.1875 - 3] + [3 – 2.8175] 2= 0.1875 + 0.1825 2= 0.185 | B1B1B1B1 |  |
|  |  | 04 |  |
| 8. | a = -7d = 3n = 8Tn = a + (n - 1)d T8 = ? = -7 + [8 - 1]3= -7 + 21= 14 Ans SIS = ? Sn = = = = = = 210 | M1A1 |  |
|  |  | 04 |  |
| 9. | Arc AB = x 2πr= = 13.964  | M1A1 |  |
|  | **A****B****C****D** **A = 40****5cm** | 02 |  |
| 10. | A = = = = = = = = = =  | B1B1 |  |
|  | **E****A****20cm****D****F****C****9cm****B****9cm****9cm** | 03 |  |
| 11. | V = X- Area x 20= = = = 701.5cm2AlternativelyV = = = 701.5cm2 | M1A1M1A1 |  |
|  |  | 04 |  |
| 12. | = = = = = = =         | B1M1A1 |  |
|  |  | 03 |  |
| 13. |  [Let          | M1A1B1 |  |
|  |  | 03 |  |
| 14. |    =  =  1= =  | M1M1A1 |  |
|  |  | 03 |  |
| 15. |  1  1 1 1 2 1 1 3 3 1 1 4 6 4 1 15 10 10 5 1  1 6 15 20 15 6 1

|  |
| --- |
| 1, 7, 21, 35, 35, 21, 7, 1 |

   = = = = 1.14868  | M1A1M1A1 | √ Expansion up to 4th term√ Simplification Subst. of 0.04 up to 4th termAccuracy |
|  |  | 04 |  |
| 16. | = = = 100% = x100% = = 100% = z80% = = 0.8z=    =  ~~=~~ = = = 37.5% | B1B1M1A1 |  |
| 17. | (a) (i)  (ii)           (b)    | B1B1B1M1M1M1A1B1M1A1 |  |
|  |  | 10 |  |
| 18. | (a) 90% = 450= = (b) P = 1000R = 18T = ? I = 2000 1000= 10001000 =  100T = = 5.56yrs(c) p = 10000n = 2r = 12% p.aa = P= = = 12544CI = 12544 – 10000= 2544 Ans(d) A = P = =  | M1A1B1M1A1M1M1A1M1A1 |  |
|  |  | 10 |  |
| 19. | (a) 1 min 270 000 cm3 270 litres  1890 270 70 mins(b) (i) 270 x 25 = 6750 270 – 20  = 25018 900 – 8750 250= 12150 250= 48. 6 mins48.6 + 25= 73.6 mins(ii) 542 x 25 + 6300= 19850 litres270 x 73.6 – 1985019872 – 1985022 | B1M1A1M1M1A1B1M1A1 |  |
|  |  | 10 |  |
| 20 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| CLASS | MID POINT x | FREQUENCYf | cf | fx |
| 30-39 | 34.5 | 2 | 2 | 69 |
| 40-49 | 44.5 | 3 | 5 | 133.5 |
| 50 -59  | 54.5 | 10 | 15 | 545 |
| 60 -69  | 64.5 | 12 | 27 | 774 |
| 70 – 79 | 74.5 | 8 | 35 | 596 |
| 80 – 89  | 84.5 | 3 | 38 | 253.5 |
| 90 – 99  | 94.5 | 2 | 40 | 189 |
|  |  | ∑f = 40 |  | ∑fx = 2560 |

1. Modal mark = [60 - 69]
2. Mean mark =

 ∑f = 2560 40 = 64 2= 2= = 64.083 | B1B1 B1B1M1A1M1 M1M1A1 | All √ Mid mksAll √ (fx) values√ ∑fx= 2560 |
|  |  | 10 |  |
| 21. | (a) Seat = 200 Adult = Kshs. 150 Students = Kshs. 75 DayI 100% = 200 80% = 200 x 80 100 = 160 seats occupied 20 occupied by students =  [140 x 150] + [20 x 75] = 21000 + 1500 = Kshs. 22 500(b) (i) [200 –x ]adults. (x) Students 150 [200 – x ] + 75(x) = 25 350 √  30 000 – 150 x + 75x = 25 350 30 000 – 75x = 25 350 √  (ii) -75x = 25350 – 30000 -75x = -4650 x = 62 Students(c) 1. Cost of hosting 2. Allowances for Adjudicators 3. Electricity Bill 7 : 3 : 2 Allowances = 126 000  = = 504 000 Ksh  (ii)  = 84 000 Kshs. | M1M1A1B1B1M1A1B1M1A1B1 |  |
|  |  | 10 |  |
| 22. | (a) B1 ΔPQR √ drawn(b) B1 Anticlockwise 90o B1 √ PI QI RI plotted B1 √ PI QI RI drawn (c) B1 √ identification for line x + y = 0 B1 √ plotting of PII QII RII B1 √ ly drawn Δ B1 (i) PI QI RI and PII QII RII(d) B1 PQR and PIIQIIRII are oppoitely congruent (ii) PQR and PI QI RI are directly congruent |  |  |
| 23. | (a) PS =  =  = 30(b) PS2 = 172 + 172 -2 x 17 x 17cos900 = 578 – 578cosCos(c) = = 289(1.08 – 0.42)= 289 x 0.66= 192.13cm2 | M1M1A1M1M1A1M1M1A1 |  |
|  |  | 10 |  |
| 24. | (a) , 3.375, 4.096(b) (i)  m =  3.4 – 1.9 = 3.0 1.5 = 2*a* as a gradient b as y –intercept*a* = 2*b* = 2.9(ii)  | B2S1P1L1M1A1B1B1B1 | All values √ B1 more than half √√ scale√ plotting√ line  |