| **Question** | **Scheme** | **Marks** |
| --- | --- | --- |
| **1(a)** |  | M1A1 |
|  |  | **(2)** |
| **1(b)** |  | M1A1M1 A1A1 |
|  |  | **(5)**  |
| **1(c)** | triangle, *drawn on the diagram*, with base coinciding with base of  | B1 |
| trapezium, top vertex above line *v* = 30 and meeting trapezium at least once | dB1 |
|  |  | **(2)** |
| **1(d)** |  *V* marked correctly   | M1 A1  A1 M1 A1 A1 |
|  (oe) or 42 (or better) |  |
|  |  |  **(6)** |
|  |  | **(15 marks)** |
| **2(a)** |   | M1 M(A)1 |
|  *u =* 17 ½ 🞸 |  A1  |
|  |  | **(3)** |
| **2(b)** |   | M1 |
|    | A1 |
|  |  | **(2)** |
| **2(c)** |   | M1 |
|   | A1 |
|   | dM1 |
|  *t* = 3.142.. (22/7) or 0.428…(3/7)  | A1 |
|    | dM1A1 |
|  |  | **(6)** |
|  |  | **(11 marks)** |
| **3(a)(i)** |  | 1st section correct | B1 |
| 2nd & 3rd sections correct | B1 |
| Numbers and *v* marked correctly on the axes | dB1 |
|  |  | **(3)** |
| **3(a)(ii)** |  | 1st section correct | B1 |
| 2nd section correct | B1 |
| 3rd section correct and no “extras” on the sketch | B1 |
|  |  | **(3)** |
| **3(b)** |  | M1A1 |
|  | dM1A1 |
|  |  | **(4)** |
|  |  | **(10 marks)** |
| **4(a)** |  | M1A2A1 |
|  |  | **(4)** |
| **4(b)** |  Finding *u* ( = 6 ) | M1M1A1DM1A1 |
|  |  | **(5)** |
|  |  | **(9 marks)** |
| **5(a)** |   | M1 |
|   | A1 |
|  |  | **(2)** |
| **5(b)** |  |  |
|  Shape | B1 |
|  15, *T* | B1 |
|  |  | **(2)** |
| **5(c)** |   ft their 6 | M1 A1ft |
|   |  |
|   | M1 A1 |
|  |  | **(4)** |
| **5(d)** |  ,0.9375, 0.938, 0.94 | M1 A1 |
|  |  | **(2)** |
| **5(e)** |  3 horizontal lines | B1 |
|  Correctly placed;no cts vert line | B1 |
|  , ft their  | B1 |
|  |  |  **(3)** |
|  |  | **(13 marks)** |
| **6(a)** |   *V* | B1 (shape)B1 (*V*) |
|  |  | **(2)** |
| **6(b)** |  | M1A1A1M1A1 |
|  |  | **(5)** |
| **6(c)** |  | M1 A1 ftA1M1 A1A1  |
|  |  | **(6)** |
|  |  | **(13 marks)** |
| **7(a)** |  | M1 A1 |
|  Leading to  🞹 cso | A1  |
|  |  | **(3)** |
| **7(b)** |  | M1A1 |
|   |  |
|  *t* = 2.99 or 3.0 *t* = 1.30 or 1.3 | dM1A1 A1 |
|  |  | **(5)** |
| **7(c)** |  N2L  | M1A1 |
|   |  |
|   |  |
|  Leading to  or 0.32 | M1A1 |
|  |  | **(4)** |
|  |  | **(12 marks)** |
|  |  |  |
| **8(a)** | 4 N1 N2 N*T* N*T* N |  |
| For system N2L  | M1 A1 |
|   , 1.3 | A1 |
|  |  | **(3)** |
| **8(b)** |   | M1 A1  |
|  |  | **(2)** |
| **8(c)** | For *P* N2L  ft their *a* | M1 A1ft |
|   1.38, 1.4 | A1  |
| **OR** For *Q* N2L 4 – 2 – *T* = 0.5 × 1.25 |  |
| 1 N2 N |  |
|  |  | **(3)** |
| **8(d)** | For system N2L  | M1 A1 |
|   | M1 |
|   | A1  |
|  |  | **(4)** |
| **8(e)** | For *P* N2L  | M1 A1 |
|  , 0.13 | A1 |
|  |  | **(3)** |
|  |  | **(15 marks)** |

|  |  |  |  |  |  |
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|  | **Source paper** | **Question number** | **New spec references** | **Question description** | **New AOs** |
| 1 | M1 Jan 2013 | 5 |   | Kinematics of a particle moving in a straight line | 1.1a, 1.1b, 2.2a, 3.1b |
| 2 | M1 Jan 2012 | 5 |   | Kinematics of a particle moving in a straight line | 1.1b, 2.2a, 3.1b |
| 3 | M1 Jan 2011 | 5 |   | Kinematics of a particle moving in a straight line | 1.1a, 1.1b, 2.2a, 3.1b |
| 4 | M1 2017 | 6 |   | Kinematics of a particle moving in a straight line | 1.1b, 3.1b |
| 5 | M1 Jan 2012 | 6 |   | Kinematics of a particle moving in a straight line | 1.1b, 2.2a, 3.1b |
| 6 | M1 2015 | 7 |   | Kinematics of a particle moving in a straight line | 1.1a, 1.1b, 2.1a, 2.2, 3.1b, 3.3 |
| 7 | M1 2012 | 5 |   | Kinematics of a particle moving in a straight line, Dynamics of a particle moving in a straight line or plane | 1.1b, 3.1b, 3.3, 3.4 |
| 8 | M1 2012 | 7 |   | Kinematics of a particle moving in a straight line, Dynamics of a particle moving in a straight line or plane | 1.1b, 2.2a, 3.1b, 3.4 |