**Practice Tests Set 7 – Paper 1H mark scheme – Spring 2018**

| **Qn** | **Working** | **Answer** | **Mark** | **Notes** |
| --- | --- | --- | --- | --- |
| **1** | (a)(i) |  | 78 | 1 | B1 |
|  | (ii) |  | 414 | 1 | B1 |
|  | (b) |  **or**   **or  or**  | 7 | 2 | M1 or a correct equation in *n*, e.g. *n* + 3 = 10 **or** *n* + 3 − 6 = 4A1 cao |
| **2** |  |  | 21 | 2 | M1 3 or 7 identified as a common factor A1 cao |
| **3** |  | 525 ÷ 3 | 875 | 2 | M1A1 cao |
| **4** |  | 3 + 5 + 7 or 15 | 42 | 3 | M1 15 may be denominator of fraction or coefficient in an equation such as 15*x* = 90 |
|  |  | 90 ÷ (3 + 5 + 7) or 90 ÷ 15 or 6 or oe |  |  | M1 dep |
|  |  |  |  |  | A1  |
| **5** | (i) |  | 3*x* + 7 | 2 | M1 for *x* + *x* + 3 + *x* + 4A1 cao |
|  | (ii) |  | 21 | 3 | M1 for 3*x* = 54M1 for *x* = 18A1 cao |
| **6** | (a) |  | 7.5 × 104 | 1 | B1 cao |
|  | (b) |  | 7.5 × 10–8 | 2 | M1 for 7.5 7.5 × 104 × 10–12A1 cao |
| **7** |  |  | Maths with correct comparative figure(s) | 2 | M1 for correct method to find figure(s) to compare, e.g.  (= 40) oe **or** 0.38×80 oe (= 30.4)C1 for maths with 40% or 30.4 or  $\frac{40}{100}$and  $\frac{38}{100}$oe. |
| **8** |  | 72 ÷ 1 oe | 54 | 3 | B1M1 accept 72 ÷ 1.33 (2dp or better) or 0.9 × 60(B1 M0 for 72 ÷ 1.2(0){= 60} or 72 ÷ 80 {= 0.9} or 72 ÷ 1.3 {=55.4 or better}) or 72000 ÷ 1.33( or better)A1 cao |
| **9** |  | 240 **OR** 6 × 40 **OR** 48 (can be implied)3*x* + 102 + 60 + 30 = 240**OR** | 16 | 3 | M1A1B1  |
| **10** |  | 24 =  | 192 | 4 | M1A1 |
|  |  | *x* =  | –4 |  | M1A1 |
| **11** |  |  **OR**  | 108° | 2 | M1A1 |
|  |  | Either  or  *Note: Angle(s) may be marked on the diagram*  **and** obtuse = 180 –“38” – “23”reflex  = 360 – “119”reflex  = 241 | 241° | 4 | M1A1M1A1 |
| **12** | (a) | 1 +7 or 8 |  |  | M1 for sight of 8. 8 may be denominator of fraction or coefficient in an equation such as 8*x* = 32 |
|  |  |  = 4, 4 × 7 = 28 | 28 | 2 | A1 cao |
|  | (b) | 32 × 45 = 1440 or 14.4(0)m |  | 3 | M1  |
|  |  | “1440” $÷$ 48 |  |  | M1 dep |
|  |  |  | 30 |  | A1 cao |
| **13** |  | 1% of 7500 = 75 |  | 3 | M2 for 1.01² x 7500 |
|  |  | 1% of 7575 = 75.75 |  |  |  |
|  |  | Total = 75.75 + 75 = 150.75 | 150.75 |  | A1 cao |
| **14** | (a) | *a*, *b*, *a* + *b*, *a* + 2*b*, 2*a* + 3*b* | Shown | 2 | M1 Adding pairs of successive termsC1 |
|  | (b) | 3*a* + 5*b* = 29*a* + *b* = 73*a* + 3*b* = 21*b* = 4, *a* = 3 | *a* = 3, *b* = 4 | 3 | P1 Process to set up two equationsP1 Process to solve equationsA1 cao |
| **15** |  |  | Events independent | C1 | Statement that events are independent |
| **16** |  |  | −2 | M1 | 81 = 34 or   |
|  |  |  |  | A1 | cao |
| **17** | (a) | (20, 4) (40, 16) (60, 42) (80, 84) (100, 96) (120, 100) |  | 2 | M1 (ft from sensible table i.e. clear attempt at addition)for at least 4 points plotted correctly at end of interval **or** for all 6 points plotted consistently within each interval in the **freq table** at the correct height |
|  |  |  | correct cf graph |  | A1 accept curve or line segments accept curve that is not joined to (0,0) |
|  | (b) | Reading from graph at *t* = 70  |  | 2 | M1 for evidence of using graph at *t* = 70ft from a cumulative frequency graph provided method is shown |
|  |  |  | 36 – 38  |  | A1 100 – ‘63’ ft from a cf graphft from a cumulative frequency graph provided method is shown |
| **18** |  | 540/5 (108)“108” × 12 (o.e.)£ 1296 | 1296 | 3 | B1M1A1 |
| **19** |  | √(8 × 6) + √(18 × 6) (2√2 × √6) +(3√2 × √6) |  | 3 | M1 √(16 × 3) +√(36 × 3) (= 10√3)M1 10 √3 ×  $\frac{√2}{√2}$ or  $\frac{10√3}{√6}$A1 (dep on at least one M1) |
| **20** | (i) |  | 18 | 3 | M1 Uses frequency density for under 80 bar eg 7÷10  |
|  |  |  |  |  | M1 Completes method to find over 95 minutes frequency eg 1.2 × 20 and 2.2 × 5 |
|  |  |  |  |  | A1 35 cao |
|  | (ii) |  | Reasoning | 1 | C1 Correct explanation about grouped data so actual values between 95 and 120 unknown |
| **21** |  | When *x* = 4, *y* = 4When *x* = 2, *y* = 04 − 2 = 24− 0 = 422 + 42 | √20 | 6 | P1 for a process to eliminate *y*, e.g.  followed by reduction to 3 term quadraticP1 for factorisation or formula for a 3 term quadratic = 0P1 for a process to find the values of *y* A1 all 4 values ( *x* = 4 *y =* 4, and *x* = 2, *y =* 0)P1 for a correct process to find the distance2  or distance between the 2 points, e.g. ('4' − '2')2 + ('4' − '0')2A1 √20 |
| **22** |  |  |  | 3 | M1 |
|  |  |  |  |  | A1 for oeA1  oe |
| **23** |  |  | 35° | 4 | M1 for *ABC* = 90 M1 for (*ACB* =) 180 – 90 – 25 (= 65)M1 for (*DBC* =) 180 – ‘65’ – 80 (=35)A1 cao supported by working **OR**M1 for (*AOB* =) 180 – 2 × 25 (= 130)M1 for (*ADB* =) 130 ÷ 2 (=65)M1 for (*DAC* =) 180 – 65 – 80A1 cao supported by working. |

**Suggested grade boundaries**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **9** | **8** | **7** | **6** | **5** | **4** |
| **Paper 1H** | **68** | **60** | **52** | **44** | **35** | **26** |
| **Paper 2H** | **72** | **62** | **52** | **42** | **32** | **22** |
| **Paper 3H** | **58** | **50** | **42** | **34** | **26** | **18** |
| **Total** | **198** | **172** | **146** | **120** | **93** | **66** |