Province of the

**EASTERN CAPE**

EDUCATION

**NATIONAL**

**SENIOR CERTIFICATE**

**GRADE 11**

**NOVEMBER 2010**

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| **MATHEMATICS – PAPER 3**  **MEMORANDUM** |

**MARKS: 100**

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| This memorandum consists of 8 pages. |

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| **QUESTION 1** | | |  |  |
|  |  |  |  |  |
| 1.1 | P(I or J) = P(I) + P(J)  0,41 = 0,25 + P(J)  P(J) = 0,16 | | (2) | **🗸** Formula or  substitution  **🗸** answer |
|  |  |  |  |  |
| 1.2 | P(A and B) = P(A) x P(B) | | (2) | **🗸** Formula or  substitution  **🗸** answer |
|  |  | **MM**  Engineer  Manager  Lawyer  Male  Female  Male  Female  Male  Female |  |  |
| 1.3 | 1.3.1 | **MF**  **EM**  **EF**  **LM**  **LF** | (5) | **🗸** first branch  **🗸** values  **🗸** second branch  **🗸** values  **🗸** outcomes |
|  |  |  |  |  |
|  | 1.3.2 | P(Engineer) = | (2) | **🗸🗸** answer |
|  |  |  |  |  |
|  | 1.3.3 | P(Male) = | (2) | **🗸🗸** answer |
|  |  |  |  |  |
|  | 1.3.4 | P( Not Male Engineer) = 1 – P(Male Engineer)  = 1 –  = | (2) | **🗸** method  **🗸** answer  (answer only |
|  |  |  | **[15]** |  |

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| **QUESTION 2** | | | | |
|  |  |  |  |  |
| 2.1 | a = 350 ; b = 450 ; c = 600 and d = 1250 | | (4) | **🗸 🗸🗸🗸** One mark per answer |
|  |  |  |  |  |
| 2.2 | P(Used) =  P(Male) =  P(Used) x P(Male) = 0,52 x 0,60 = 0,31  P(Male & Used) =  ⟹ P(U) x P(M) ≠ P(M & U)  ∴ Choice not independent of gender. | | (6) | **🗸** P(Used)  **🗸** P(Male)  **🗸** Product  **🗸** P(M & U)  **🗸** deduction  **🗸** conclusion |
|  |  |  |  |  |
| 2.3 |  | | (2) | **🗸** calculation  **🗸** answer |
|  |  |  |  |  |
| 2.4 | No. The sample size is very small, only 2,5% of a very large crowd population.  Yes. The sample was chosen at random which should be a good representation of the crowd population. | | (2) | **🗸** No / Yes  **🗸** valid explanation |
|  |  |  | **[15]** |  |
|  |  |  |  |  |
| **QUESTION 3** | |  | | |
|  | |  | | |
| 3.1 | 25 people | | (1) | **🗸** answer |
|  |  |  |  |  |
| 3.2 | 155 + *x* + 50 + 115 + 75 + 90 + 240 + 25 = 800  ***x*** = 50 | | (2) | **🗸** equation  **🗸** answer |
|  |  |  |  |  |
| 3.3 | No. The sample size is far too small. The sample might have been biased in one way or the other. | | (2) | **🗸** No  **🗸** reason |
|  |  |  |  |  |
| 3.4 | P(Bus) = = 0,38 | | (3) | **🗸** 305  **🗸** 800  **🗸** answer |
|  |  |  |  |  |
| 3.5 |  | | (3) | **🗸** numerator  **🗸** denominator  **🗸** answer |
|  |  |  |  |  |
| 3.6 | P(C′ ∩ T ∩ B) = | | (3) | **🗸** 50  **🗸** 800  **🗸** answer |
|  |  |  | **[14]** |  |

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| **QUESTION 4** | | |  |  |
|  |  | |  |  |
| 4.1 | Percentage of tickets sold = | | (2) | **🗸** method  **🗸** answer |
|  |  | |  |  |
| 4.2 | The reason for this is the scale used on the y-axis.  A smaller scale is used with graph A and this causes a steeper gradient. | | (2) | **🗸** explanation  **🗸** explanation |
|  |  | |  |  |
| 4.3 | Graph A, because it definite gives the impression that there is a steep increase in ticket sales. | | (2) | **🗸** Graph A  **🗸** reason |
|  |  | | **[6]** |  |
|  |  | |  |  |
| **QUESTION 5** | |  |  |  |
|  |  | |  |  |
| 5.1 | Option D | | (2) | **🗸🗸** answer |
|  |  |  |  |  |
| 5.2 | The corresponding sides of the figures are proportional. | | (1) | **🗸** answer |
|  |  | | **[3]** |  |
|  |  | |  |  |
|  | **\* FOR QUESTIONS 6 TO 8 FOLLOW**  **CANDIDATES REASONING \*** | |  |  |
|  |  |  |  |  |
| **QUESTION 6** | |  | | |
|  |  | **S**  **P**  **T**  **U**  **Q**  **R**  **14**  **10**  **6**  **12** |  |  |
| 6.1 |  |  | (3) | **🗸** first angle  **🗸** second angle  **🗸** third angle or  reason |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 6.2 | 6.2.1 |  | (2) | **🗸** statement or  substitution  **🗸** answer |
|  |  |  |  |  |
|  | 6.2.2 | In ∆PQR : | (3) | **🗸** statement or  substitution  **🗸** answer (PQ)  **🗸** answer (SQ) |
|  |  |  |  |  |
| 6.3 | ⇒ | | (2) | **🗸** statement  **🗸** conclusion |
|  |  |  |  |  |
| 6.4 | (Pythagoras)  ⇒ | | (5) | **🗸** statement or  substitution  **🗸** answer (TU)  **🗸** Pythagoras  **🗸** LHS = RHS  **🗸** conclusion |
|  |  |  | **[15]** |  |

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| **QUESTION 7** | | | | |
|  | | **P**  **R**  **T**  **Q**  **S**  **4** |  |  |
| 7.1 |  |  |  |  |
|  |  |  |  |  |
|  | 7.1.1 | /// | (3) | **🗸** reasoning  **🗸** statement  **🗸** statement |
|  |  |  |  |  |
|  | 7.1.2 |  | (4) | **🗸** statement  **🗸** QR2  **🗸** substitution  **🗸** answer |
|  |  |  |  |  |
|  | 7.1.3 |  | (4) | **🗸** TQ  **🗸** statement  **🗸** substitution  **🗸** answer |

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| 7.2 | **F**  **J**  **N**  **G**  **H**  **K**  **20**  ***x***  **10** | | |  |
|  |  | | |  |
|  | 7.2.1 | /// | (3) | **🗸** statement  **🗸** statement  **🗸** third angle or  reason |
|  |  |  |  |  |
|  | 7.2.2 |  | (2) | **🗸** statement  **🗸** answer |
|  |  |  |  |  |
|  | 7.2.3 |  |  | **🗸** formula  **🗸** KF  **🗸** substitution  **NB** – no mark for  answer. |
|  |  |  |  |  |
|  | 7.2.4 |  | (5) | **🗸** formula or  substitution  **🗸** x = 5  **🗸** formulae  **🗸** substitution  **🗸** answer |
|  |  | | **[24]** |  |

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| **QUESTION 8** | | | | |
| **C**  **A**  **E**  **B**  **F**  **D** | |  |  |  |
|  |  | | |  |
|  |  |  |  |  |
| 8.1 |  | | (1) | **🗸** answer |
|  |  |  |  |  |
| 8.2 | 8.2.1 |  | (1) | **🗸** answer |
|  |  |  |  |  |
|  | 8.2.2 |  | (2) | **🗸** statement  **🗸** answer |
|  |  |  |  |  |
|  | 8.2.3 | = | (4) | **🗸** statement    **🗸** first fraction  **🗸** second fraction  **🗸** answer |
|  |  |  | **[8]** |  |
|  |  |  |  |  |
|  |  | **TOTAL:** | **100** |  |