MARK SCHEME
Maximum Mark: 50

## Published

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Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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| Question | Answer | Marks |
| :---: | :---: | :---: |
| 1(a)(i) | 1 mark for appropriate variable name, 1 mark for appropriate data type, 1 mark for appropriate use. <br> Many correct answers, they must be meaningful. These are examples only. <br> - HireTotal, integer, running total of money taken (for the day) <br> - HoursHired, real, running total of hours hired for the day <br> - Returned, real, hour and fraction of hour when next returned | 3 |
| 1(a)(ii) | 1 mark for appropriate constant name, 1 mark for appropriate value. <br> Many correct answers, they must be meaningful. These are examples only. <br> - HourPrice, 20.00 <br> - HalfHourPrice 12.00 | 2 |
| 1(b) | 1 mark for validation check, all checks must be different, 1 mark for the reason and 1 mark for the test data. The only inputs for task 1 can be length of hire, money taken, time of hire and time of return. <br> There are many possible correct answers these are examples only. | 6 |


| Question | Answer | Marks |
| :---: | :---: | :---: |
| 1(c) | - any loop for 10 boats <br> Four from: <br> - Initialisation <br> - check HoursHired against MaxHoursHired... <br> ... store the BoatNumber <br> ... update MaxHoursHired if greater <br> - check if HoursHired = 0 ... <br> ... if so add 1 to NumberBoatsUnused <br> - update daily totals (for hours and money) <br> - output report with messages (including totals for hours and money, and number of boats unused and the most used boat). <br> Example: ```MaxHoursHired < 0 TotalHoursHired < 0 TotalMoney < 0 NumberBoatsUnused < 0 FOR BoatNumber < 1 to 10 TotalMoney < TotalMoney + Money(BoatNumber) TotalHoursHired & TotalHoursHired + HoursHired(BoatNumber) IF HoursHired(BoatNumber) = 0 THEN NumberBoatsUnused < NumberBoatsUnused + 1 ENDIF IF HoursHired(BoatNumber) > MaxHoursHired THEN MostUsed \leftarrow BoatNumber MaxHoursHired < HoursHired(BoatNumber) ENDIF NEXT BoatNumber PRINT "Boats were hired for ", TotalHoursHired, " hours" PRINT "Total amount of money taken was ", TotalMoney PRINT NumberBoatsUnused, " boats were not used" Print "Boat number ", MostUsed, " was used most"``` | 5 |


| Question | Answer | Marks |
| :---: | :---: | :---: |
| 1(d) | Maximum 4 marks in total for question part <br> e.g. <br> Explanation (may include reference to program statements) <br> - check all boats for... <br> - ... return time < current time // current booking slot available or return time > current time// current booking slot not available <br> - keep a running total of those available <br> - display number of boats <br> Example: <br> FOR BoatNumber $\leftarrow 1$ to 10 loop to check for all boats <br> IF ReturnTime (BoatNumber) <= CurrentTime check return time against current time <br> THEN BoatsAvailable $\leftarrow$ BoatsAvailable +1 keep a running total <br> ENDIF <br> NEXT BoatNumber <br> PRINT "Number of boats available ", BoatsAvailable display number of boats | 4 |


| Question | Answer | Marks |
| :---: | :---: | :---: |
| 2 | 1 mark for each, there may be other solutions, award full marks for any working solution <br> any six from: <br> initialise total (outside loop) <br> Input number of numbers (outside loop with validation) <br> Loop using input value <br> Input number (inside loop) <br> Update Total (inside loop) <br> Calculate average <br> Print average and total (outside loop) <br> Sample algorithm: <br> INPUT NumberCount <br> Total $\leftarrow 0$ <br> FOR Count $\leftarrow 1$ TO NumberCount <br> INPUT Number <br> Total $\leftarrow$ Total + Number <br> NEXT <br> Average $\leftarrow$ Total/NumberCount <br> PRINT Total, Average | 6 |

Question $\quad$ A mark for each correct line, max 3 marks.

| Question | Answer | Marks |
| :---: | :---: | :---: |
| 4 | 2 marks for identification, 1 mark for description, 1 mark for reason. <br> Identification: <br> CASE ... <br> ... OF ... OTHERWISE ... (ENDCASE) Or <br> ... OF ... (OTHERWISE) ... ENDCASE <br> Description: <br> - a statement that allows for multiple selections // not any of the above <br> Reason: <br> - to simplify pseudocode/ make pseudocode more understandable etc. | 4 |


| Question | Answer |  |  |  |  |  |  | Marks |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 5(a) | Accept | Reject | Count | Sack |  | OUTPUT |  | 5 |
|  | 0 | 0 | 0 |  |  |  |  |  |
|  | 1 |  | 1 | 50.4 |  |  |  |  |
|  | 2 |  | 2 | 50.3 |  |  |  |  |
|  |  | 1 | 3 | 49.1 |  |  |  |  |
|  | 3 |  | 4 | 50.3 |  |  |  |  |
|  | 4 |  | 5 | 50.0 |  |  |  |  |
|  | 5 |  | 6 | 49.5 |  |  |  |  |
|  | 6 |  | 7 | 50.2 |  |  |  |  |
|  | 7 |  | 8 | 50.3 |  |  |  |  |
|  | 8 |  | 9 | 50.5 |  |  |  |  |
|  |  | 2 | 10 | 50.6 |  | 82 |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  | $\leftarrow$ (1 mark) | (1 mark) | (1 mark) | (1 mark) | $\rightarrow \leftarrow$ | (1 mark) | $\rightarrow$ |  |
| 5(b) | - change to <br> - remove I | $\begin{aligned} & \text { unt }= \\ & x>50 . \end{aligned}$ |  |  |  |  |  | 2 |


| Question | Answer |  |  |  |  | Marks |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 6(a) | - 1 mark for each field suitable name, 1 mark for appropriate data type and appropriate data sample <br> The following are examples there are many different correct answers. <br> - Engine Number, text, 21012 <br> - Class, text, P6 <br> - Service Date, date, 4/3/2017 |  |  |  |  | 6 |
| 6(b) | - Engine Number // Correct field number |  |  |  |  | 1 |
| 6(c) | Field: <br> Table: <br> Sort: <br> Show: <br> Criteria: <br> or: | Engine Number | Class | Service Date |  | 3 |
|  |  | TRAIN | TRAIN | TRAIN |  |  |
|  |  |  |  |  |  |  |
|  |  | V | $\square$ | $\square$ | $\square$ |  |
|  |  |  | Like 'P*' // Like 'P?' | <10/11/2016 |  |  |
|  |  |  |  |  |  |  |
|  |  | (1 mark) | (1 mark) | (1 mark) |  |  |

