



General Certificate of Education

Computing 6510

CPT3 Practical Systems Development

Mark Scheme

2008 examination - June series

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

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Instructions to Examiners

As CPT 3 is a practical exercise, accept other answers if reasonable.

The following forms of notation should be used on candidates' scripts.

- Ticks - To indicate what is accepted as correct or creditworthy, placed in the body of the answer, and on diagrams;
- Underscoring - To identify errors/irrelevance in written answers;
- Crosses - to indicate a wrong answer;
- Very brief comments - placed in at suitable points in the body of the text to amplify the marking;
- BOD - means benefit of the doubt and is used where the candidate's answer has been given a mark on the balance of probabilities that the candidate's answer has met the requirements of the mark scheme even though it could be interpreted differently;
- NE - means not enough and is applied to an answer that falls short of what is required; NB if NE is given for evidence then the dependent marks can be awarded
- O/S - means outside the mark scheme. The candidate's answer is creditworthy but the answer does not match any of the answers on the mark scheme for the particular question. Nevertheless a mark is awarded;
- C/F - means carried forward. This arises when a candidate offers an answer, which is not creditworthy in one question but is creditworthy in a later question. The mark is carried forward to the question, which is creditworthy;
- C/B - means carried back. This is similar to a carry forward but the mark is carried back to an earlier question.
- T/O - means talked out. The candidate's answer is contradictory.
- F/T - means followed through. If the candidate made a mistake in the earlier part of an answer, mark the answer using the correct method on their answer from the earlier part.

The following notation is used in the mark scheme

- ; - means a single mark;
- // - means alternative response;
- / - means an alternative word or sub-phrase;
- A - means acceptable creditworthy answer;
- R - means reject answer as not creditworthy;
- I - means ignore;
- * - means the marks are dependent upon the reference to evidence.

1	(a)	(i)	Page reference showing definition of variable used to record amount of petrol sold;	1	
		(ii)	Data Type real/fixed point/float/floating point/single/decimal; A Integer, Why need to record values correct to (1) d.p.// perform calculations// not a whole number;	2*	
	(b)	(i)	Page reference showing definition of variable used to record amount to be ;	1	
		(ii)	Data Type real/fixed point/float/floating point/single/decimal/ currency; A Integer Why need to record values correct to (2) d.p. // perform calculations// not a whole number;;	2*	
	(c)	(i)	Page reference showing definition of variable used to show pump in use (NB allow identified items in code);	1	
		(ii)	Data Type Boolean/char/integer // may see other explanations; Why flag//only two (or three – cannot be Boolean) possible values to be stored// yes/no.;	2*	
	(d)	(i)	Page reference of algorithm for pump operation;	1	
		(ii)	Set totals to zero at start of day then; Repeat; If nozzle replaced / pump display zeroed then//each time a transaction is completed; perform any necessary conversion; add number of litres dispensed to running total for litres; and add amount to pay to running total for payments; until end of day ; Display both totals;	Max 4*	14
2	(a)	(i)	Page reference for screenshot;	1	
		(ii)	reference to ‘amount to pay’ being stored in a variable; calculates amount to pay; = price per litre x number of litres dispensed; every time the ‘amount to pay’ changes; select individual character(s)/to be displayed on pump/in LCD form; in format XXX.XX; repeated whilst nozzle is squeezed; until nozzle is replaced;		

			ALLOW ANY POINTS FROM (b) IF NOT GIVEN B (b) identify tick with 'b'	Max 4*	
	(b)	(i)	Page reference for coding;	1	
		(ii)	use of procedure/subroutine; with parameter passing; extraction of a single character; positioning of that character; make up of character e.g. use of picture/Icon/ lines;	Max 3*	
	(c)	(i)	Page reference for coding;	1	
		(ii)	Tested//Event process for; button press/click on icon/keystroke/mouse click; record change of status; display new status on console; and on pump//enable and/or disable pump objects; to set the pump to simulate dispense of petrol; allow the customer to squeeze the nozzle;	Max 4*	
	(d)	(i)	Page reference for coding;	1	
		(ii)	Check for state/event; display state as in use/ out of use/ and ready for use;; description of method of display;	Max 3*	18
3	(a)	(i)	Page reference for coding;	1	
		(ii)	Use of indentation; Use of meaningful identifier/routine/variable names; Use of modular approach//start and end of routines clearly identified; Use of comments add to understanding ; Use of white space;	Max 3*	4
4	(a)	(i)	Selection of routine via (console); zero counter for litres; Zero LCD displays for litres and amount taken;	Max 2	
		(ii)	Page reference for test;	1	
	(b)	(i)	Page reference for test plan;(NE if tests referenced)	1	
		(ii)	Start the program/ set totals to zero;		

			perform at least seven tests; for the operation of the pump; (before) checking the calculations/totals;	Max 3*	
	(c)	(i)	Calculated total by another method; compared answer; with one provided by program;	Max 2	
		(ii)	Page reference for test or test plan;	1	10
5	(a)	(i)	Page reference console display;	1	
		(ii)	Criterion e.g. use of colour, space, interpretation aids, adherence to brief; Reference to candidate's display;	1 1	
	(b)	(i)	Page reference petrol pump display;	1	
		(ii)	Criterion must be different to a(ii); Reference to candidate's display;	1 1	6
6			Observation; would be appropriate for viewing the daily running of the console; e.g. because it would be difficult to construct a sufficiently detailed interview/questionnaire to cover all circumstances; Interview; would be suitable for Peter; e.g. as follow up questions may need to be asked; Questionnaire; would be suitable for the customers; e.g. because many views need to be taken into consideration/quicker to complete than an interview/can be posted; Document search; Evidence of current operation; e.g. looking at program listing;	3 + 3	6
7			Printer (1) for receipts/ totals (1); Modem/Router(1) for connection to Internet orders/credit card payments etc (1) Any other suitable hardware (1) reason in context(1)	2	2
8	(a)		Identify type of fuel requested/use of 2 nozzles; set variable to identify fuel chosen; display the type of fuel being dispensed; choose correct price per litre for calculations; keep separate totals for both petrol and diesel; change display to show both prices for a litre;	Max 3	

	(b)	Program listing; user guide; maintenance documentation; test plan and test results; A any examples of content	Max 2	5
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