

“3-a-day” A-Level Exam Practice Unit 2 (006)

Question 1

(b) The list of positive even numbers up to and including 1000 is

2, 4, 6,... 500, 502,... 998, 1000

An attempt is to be made to find the number 607 in this list.

Use the values given to show the first three steps for:

(i) a binary search

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..... [3]

Question 2

(ii) a serial search

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..... [3]

Question 3

(iii) Explain the difference between binary searching and serial searching.

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..... [2]

(iv) State **one** advantage and **one** disadvantage of a binary search compared with a serial search.

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..... [2]

Answer 1

	b	i	Compare 607 with 500 Compare 607 with 750 Compare 607 with 625+/-1 <i>or</i> go to middle value <u>500 / 502</u> compare value with <u>607</u> discard first half / repeat in second half of set	3	Must use values given
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Answer 2

		ii	Compare 607 with 2 Compare 607 with 4 Compare 607 with 6 <i>or</i> Start at <u>2</u> Compare with <u>607</u> Go to 4 (& repeat comparison... etc)	3	Must use values given
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Answer 3

		iii	Binary search discards half data at each step Serial search discards one data item at each step/each item in turn	2
		iv	<i>Advantage:</i> Generally faster (in large set of data) <i>Disadvantage:</i> Values must have been sorted/values must be in order	2