

Oxford Revise | OCR Computer Science | Answers

Chapter 32 Sort algorithms

| Question | Answer | Extra information | Marks | AO / Specification reference |
|----------|--|---|------------------|------------------------------|
| 1 | Bubble sort. | Correct answer. | 1 | AO1 2.1.3 |
| 2 | <p>Loop through the array <code>names</code> beginning with the first element.</p> <p>Compare the first two adjacent pair of elements, and if the first element is not larger than the second element, swap them around.</p> <p>Compare each subsequent pair of elements, until the end of the array has been reached, swapping elements that are not in descending order.</p> <p>Repeat the process until no swaps have taken place for a complete pass of the array.</p> | <p>1 mark for each correct step up to 4 marks.</p> <p>The answer must include checking each adjacent pair of elements through the whole array and swapping pairs of elements that are not in descending order. The process must continue until no swaps have been found. The array <code>names</code> must also be referenced.</p> | 1 1 1 1 | AO1/AO2 2.1.3 |

| Question | Answer | Extra information | Marks | AO / Specification reference |
|----------|---|---|-------------------------------------|------------------------------|
| 3 | <p>Loop through the array <code>payments</code> beginning with the second element.</p> <p>Compare the second element with the element to its left, and if the second element is not larger than the left-hand value, swap them.</p> <p>Compare the third element with the element to its immediate left, and if it is not larger than the element to its left, move it repeatedly left until it is larger than the value to its immediate left.</p> <p>Repeat the process starting with the fourth value and so on, until all the values in the array have been traversed once.</p> | <p>1 mark for each correct step up to 4 marks.</p> <p>The answer must include checking each element of the array, in turn, against each value to its left, until it is inserted in the position in which the array would be in ascending order. The process must continue until the whole array has been traversed once only. The array <code>payments</code> must also be referenced.</p> | <p>1</p> <p>1</p> <p>1</p> <p>1</p> | <p>AO1/AO2</p> <p>2.1.3</p> |

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|----------|--|-------------------|-------|------------------------------|------|------|------|------|------|--|-------------------------------------|----------------------|
| 4 | <table border="1" style="margin-left: 40px;"> <tr> <td>1960</td> <td>2020</td> <td>1980</td> <td>1963</td> <td>2016</td> <td>2009</td> <td>2012</td> <td>1957</td> </tr> </table> <p>[1960] [2020] [1980] [1963] [2016] [2009] [2012] [1957]</p> <p>[2020, 1960] [1980, 1963] [2016, 2009] [2012, 1957]</p> <p>[2020, 1980, 1963, 1960] [2016, 2012, 2009, 1957]</p> <p>[2020, 2016, 2012, 2009, 1980, 1963, 1960, 1957]</p> | 1960 | 2020 | 1980 | 1963 | 2016 | 2009 | 2012 | 1957 | <p>1 mark for each correct step in the process up to 4 marks.</p> <p>The first step begins with dividing the whole array into eight single element arrays.</p> <p>The second step combines each pair of arrays into two element arrays, with the contents in descending order.</p> <p>The third step combines each pair of two element arrays into four element arrays, with the contents in descending order.</p> <p>The fourth step combines the two four element arrays into a single eight element array, with the contents in descending order.</p> <p>The shaded content is given in the question.</p> | <p>1</p> <p>1</p> <p>1</p> <p>1</p> | <p>AO2 2.1.3</p> |
| 1960 | 2020 | 1980 | 1963 | 2016 | 2009 | 2012 | 1957 | | | | | |