

SECTIONAL GROUP:

(1 to 8)

DISCUSSION GROUP:

(1 to 23)

MATRICULATION NO:

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(Write your matriculation number legibly using a **PEN**.)

TOTAL
MARKS

SECTION A [1 mark each]

- | | | | | |
|--|--|--|--|---|
| 1. <div style="border: 1px solid black; padding: 2px 10px; display: inline-block;">A</div> | 2. <div style="border: 1px solid black; padding: 2px 10px; display: inline-block;">B</div> | 3. <div style="border: 1px solid black; padding: 2px 10px; display: inline-block;">E</div> | 4. <div style="border: 1px solid black; padding: 2px 10px; display: inline-block;">B</div> | 5. <div style="border: 1px solid black; padding: 2px 10px; display: inline-block;">B</div> |
| 6. <div style="border: 1px solid black; padding: 2px 10px; display: inline-block;">C</div> | 7. <div style="border: 1px solid black; padding: 2px 10px; display: inline-block;">D</div> | 8. <div style="border: 1px solid black; padding: 2px 10px; display: inline-block;">E</div> | 9. <div style="border: 1px solid black; padding: 2px 10px; display: inline-block;">D</div> | 10. <div style="border: 1px solid black; padding: 2px 10px; display: inline-block;">B</div> |

SECTION B (Total: 10 marks)

11. Circle your answer and provide the correct statement. [3 marks]

i). <code>int arr[5] = {0.0, 1.1, 2.2, 3.3, 4.4, 5.5};</code> <code>float arr[6] = {0.0, 1.1, 2.2, 3.3, 4.4, 5.5};</code>	<div style="border: 1px solid black; border-radius: 10px; padding: 2px; display: inline-block; margin-right: 5px;">warning</div> / syntax error / none
ii). <code>int p*; int *p;</code>	<div style="border: 1px solid black; border-radius: 10px; padding: 2px; display: inline-block; margin-right: 5px;">warning</div> / <div style="border: 1px solid black; border-radius: 10px; padding: 2px; display: inline-block;">syntax error</div> / none
iii). <code>char c = "A"; char c = 'A';</code>	<div style="border: 1px solid black; border-radius: 10px; padding: 2px; display: inline-block; margin-right: 5px;">warning</div> / syntax error / none

12. [2 marks]
 no output, infinite loop.

13. [2 marks]
 5 0 0 0 0

14. [3 marks]
 10 20 31
 (MANY students wrote answer 32 instead of 31 for the last number.)

SECTION C (Total: 10 marks)

15. [4 marks]

```
double babylonian(int n)
{
    double guess = n/2.0, diff = 1;
    double prev, r;
    while (diff > 0.01)
    {
        prev = guess;
        r = n/guess;
        guess = (guess+r)/2;
        diff = fabs((guess-prev)/prev);
    }
    return guess;
}
```

16. [2 marks]

It returns 1 if there are duplicate integers, 0 otherwise.

[4 marks]

Write your improved version here:

```
int do_something_better(int arr[], int n)
{
    int i, j;
    for (i = 0; i < n - 1; i++)
        for (j = i + 1; j < n; j++)
            if (arr[i] == arr[j])
                return 1;
    return 0;
}
```

Most people take $i < n$ instead of $i < n-1$ (-½ on this).

Sorting is not acceptable as it is even more costly in most cases.