Started on	Monday, 15 April 2024, 10:46 AM
State	Finished
Completed on	Monday, 15 April 2024, 11:51 AM
Time taken	1 hour 5 mins
Grade	**5.00** out of 5.00 (**100**%)

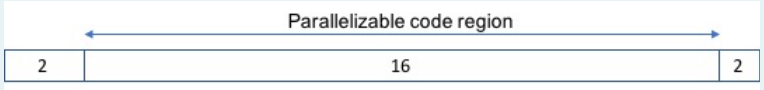
Question 1

Correct

Mark 1.00 out of 1.00

Procedures in the txt file

Let's consider the following execution timing diagram of a sequential application in which only the second execution burst can be parallelized (decomposed into parallel tasks):



where the numbers in the boxes represent the execution time for each execution burst.

Which is the *parallel fraction* (φ) of the application? (Truncate your result to at most two decimal places and use a point as the decimal mark)

Answer: 0.8 ✔

The correct answer is: 0.8

Question 2

Correct

Mark 1.00 out of 1.00

Which would be the *speed-up* that could be achieved using infinite processors ($S_{p->\infty}$), assuming that the parallelizable region can be ideally decomposed into infinite tasks)? (Truncate your result to at most two decimal places and use a point as the decimal mark)

Answer: 5 ✔

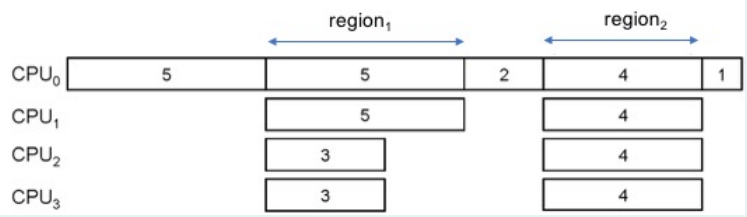
The correct answer is: 5

Question 3

Correct

Mark 1.00 out of 1.00

Given the following execution timing diagram of an application composed of two parallel regions executed on 4 processors



where the numbers in the boxes are the execution times of the different application tasks.

Which *speed-up* is achieved in the execution with 4 processors (S_4)?

Hint: We have seen two ways to compute the speed-up. However, Amdhal's law assumes parallel regions can be perfectly parallelized.

(Truncate your result to at most two decimal places and use a point as the decimal mark)

Answer: 2.35 ✔

$S_4=T_1/T_4$

Amdhal's law assumes parallel regions can be perfectly parallelized. In this case, it cannot be used because the first parallel region is not perfectly parallelized.

The correct answer is: 2.35

Question 4

Correct

Mark 1.00 out of 1.00

Which is the *parallel fraction* (φ) of the application? (Truncate your result to at most two decimal places and use a point as the decimal mark)

Note that we cannot use Amdhal Law in this case because the first parallel region cannot be perfectly parallelized.

Answer: 0.8 ✔

The correct answer is: 0.8

Question 5

Correct

Mark 1.00 out of 1.00

Which would be the *speed-up* that could be achieved using infinite processors ($S_{p->\infty}$), assuming that both parallel regions could be perfectly parallelized?

(Truncate your result to at most two decimal places and use a point as the decimal mark)

Answer: 5 ✔

$S_{p->\infty}=1/(1-\varphi)$.

The correct answer is: 5