

- (a) $a+b \mid c(da)+$

- (b) $a?(a+b) \mid cda(da)^*$

3. Describe the strings matched by each of the regular expressions of Question 2 informally but as precisely as possible.

4. Prove or disprove: The two regular expressions of Question 2 are equivalent.

5. What is the output (or error) produced by the following Python program? Explain your answer.

```
1  def main():
2      def f(x):
3          def g(x):
4              return 1
5
6          def h(y):
7              return x + y
8
9          print(g(x))
10         return h
11
12     print(f(42)(3))
13
14
15  main()
```

6. Depict the sequence of distinct states of the call stack (runtime stack) when the program of Question 5 is run.

7. Provide JCoCo assembly code for function `h` of the program of Question 5.