LTP > Exámenes

Exámenes

Self-Assessment Test Theme 2

Volver a la Lista de Examenes

Parte 1 de 3 - Second 2.0/ 2.0 Puntos

Preguntas 1 de 10

1.0/ 1.0 Puntos. Puntos descontados por fallo: 0.33

Which of the following actions are performed in the semantic analysis phase during the compilation of a program?

- A. Splitting the sequence of characters of the program into words or tokens.
- B.
  Checking the coincidence of the number of arguments in a call with the formal parameters of the routine or function that is invoked.
- C. Creating the symbol table.
- D. Linking of the object code with the code resulting from other compilations.

Preguntas 2 de 10

1.0/ 1.0 Puntos. Puntos descontados por fallo: 0.33

Which of the following statements is false?

- A.
  A lexical analyzer (scanner) is a program that splits a string (the program) in a sequence of primitive syntactic components or tokens.
- B. The dynamic semantics of the language is checked during one of the compilation phases
- C. A parser is a program that recognizes a sequence of tokens and builds a sequence of instructions.
- D. A semantic analyzer is a program that checks the static semantics of language.

Parte 2 de 3 - First 2.67/ 3.5 Puntos

Preguntas 3 de 10

-0.33/ 0.5 Puntos. Puntos descontados por fallo: 0.33

Fill the gap in the following inference rule

$$\frac{\quad ? \quad}{\langle \text{if } b \text{ then } c \text{ else } c', e\rangle \rightarrow \langle c', e\rangle}$$

so that we obtain one of the rules of the small-step operational semantics of IMP:

- A. $\langle b, e\rangle \rightarrow \langle \text{false}, e\rangle$
- B. $\langle b, e\rangle \Rightarrow \text{false}$
- C. $\langle b, e\rangle \Rightarrow \text{true}$
- D. $\langle c, e\rangle \rightarrow \langle c', e\rangle$

Preguntas 4 de 10

0.5/ 0.5 Puntos. Puntos descontados por fallo: 0.33

Given the following code:

```
{P}
X:=X-1;
Y:=X;
{Q} = {Y>0}
```

and using the axiomatic semantics, which of the following values for the precondition P leads to conclude that the program is correct?

- A. X>Y
- B. X=100
- C. X
- D. X>0

Preguntas 5 de 10

0.5/ 0.5 Puntos. Puntos descontados por fallo: 0.33

Which of the following statements concerning the semantics of programming languages is false?

- A.
  In the operational semantics the meaning of the instructions may be done in two ways: small-step and big-step.
- B. The axiomatic semantics is used in some techniques for verifying imperative programs.
- C.
  The operational semantics is adequate to describe the meaning of all kinds of programming languages, including declarative ones.
- D. The axiomatic semantics is a kind of operational semantics.

Preguntas 6 de 10

0.5/ 0.5 Puntos. Puntos descontados por fallo: 0.33

The small-step operational semantics for IMP can be described as:

- A. A relation on program states.
- B. A relation on configurations, i.e., pairs consisting of an instruction and a program state.
- C. A relation between arithmetic expressions and integer values.
- D. A relation between programs and logical assertions.

Preguntas 7 de 10

0.5/ 0.5 Puntos. Puntos descontados por fallo: 0.33

Given a semantics S for a programming language, we say that two programs **i1** and **i2** are equivalent (written **i1 ≈ i2**) if they have the same semantics. If we consider the *big step* operational semantics for SIMP, which of the following program equivalence statements is **WRONG**?

- A. (x:=y; y:=x) ≈ x:=y
- B. (y:=y) ≈ skip

  (donde skip es la instrucción vacía)
- C. (x:=y; y:=x) ≈ (y:=x; x:=y)
- D. (if x >= 0 then x:= x-x else x:=x*0) ≈ x:=0

Preguntas 8 de 10

0.5/ 0.5 Puntos. Puntos descontados por fallo: 0.33

Which of the following aspects of a programming language is appropriate as a basis for building automatic tools to analyze the equivalence of programs?

- ○ A. Its generative grammar.
- ○ B. Its compiler.
- ○ C. Its parser.
- ○ D. Its semantics.

Preguntas 9 de 10

0.5/ 0.5 Puntos. Puntos descontados por fallo: 0.33

Consider the following definitions for the weakest precondition calculus:

wp(X:= exp, Q) = Q[X ↦ exp]

wp(i1;i2, Q) = wp(i1, wp(i2, Q))

Which is the outcome of wp((X:=X+1;Y:=Y-1; X:=X+Y'), X>0) ?

- ○ A. $X>0 \wedge Y>0$
- ○ B. $X+Y>0$
- ○ C. $X+Y>=0$
- ○ D. $X>=0 \wedge Y>=0$

Parte 3 de 3 - Third

1.0/ 1.0 Puntos

Preguntas 10 de 10

1.0/ 1.0 Puntos. Puntos descontados por fallo: 0.33

Which of the following statements is FALSE:

- ○ A. Interpreters give better support for debugging than compilers.
- ○ B. Interpreters generate object code smaller than compilers.
- ○ C. Compilers generally produce more efficient programs.
- ○ D. Java, Pascal and Prolog are three languages with mix implementation.