CSIS Department, BPHC.
Semester-1, 2020-21
Principles of Programming Language (CSF301)
Comprehensive Examination
Exam Date: 23-Dec-2020 (3-00 to 5-00 PM)
Part-A Questions Paper: (30 Mins) 25 Marks

Note: Different sets were compiled with same questions and with different options.

Question-1. Look at the following statements- [2M]

i. Tokens are grouped/partitioned into lexemes.
ii. Describing the syntax is easier than describing the semantics of a programming language.
iii. Machine language is the best candidate for describing the operational semantics.
iv. Operational semantics depends on mathematics.

Now pick the right option from the following.

A. (ii) and (iv) are true
B. (i) and (ii) are true
C. Only (iii) is true
D. Only (ii) is true
E. (i) and (iii) are true
F. All statements from (i) to (iv) are wrong.

Question-2. Look at the following statements- [2M]

i. Two pointer variables are aliases when they point to same memory location.
ii. The throughput time of a variable is the time during which the variable is unassigned.
iii. Names can be bound to variables and variables can be bound to types.
iv. Pure interpretation is much faster than executing the equivalent machine code.

Now pick the right option from the following.

A. (iii) and (iv) is true
B. (i) and (ii) are true
C. (i) and (iii) are true
D. (ii) and (iv) are true
E. All statements from (i) to (iv) are wrong.

Question-3. Look at the following statements- [2M]

(i) For a given string of a language, any pair of LMD and RMD are always distinct.
(ii) A variable's value is sometimes called as its ***r-value***.
(iii) Maximum length of an identifier in C++ is 31 characters.
(iv) The SW System- ***yacc*** is a language generator.

Now pick the right option from the following.

A. (i) ,(ii) and (iii) are true

B. (ii) and (iv) are true
C. (iii) and (iv) are true
D. Only (ii) is true

E. All statements from (i) to (iv) are wrong.

Question-4. Look at the following statements- [2M]

(i) A grammar symbol can have both inherited attributes and synthesized attributes.
(ii) Denotational semantics is based on Formal logic.
(iii) In Attribute grammar, a predicate function can be associated with terminal symbols only.
(iv) The graph that indicates the order of evaluation of attributes in Attribute Grammar is called as ***value graph***.

Now pick the right option from the following.

A. (ii) and (iv) are correct
B. Only (i) is correct
C. (i) and (iii) are correct
D. (i) ,(ii) and (iv) are correct
E. All statements from (i) to (iv) are wrong.

Question-5. According to the one of the EBNF variations, the rule A→ B[ab]D is same as A→B{ab}D [True/False] **[1m]**

Question-6. Inherited attributes can be used to pass the semantic information across the parse tree. [True/False] **[1m]**

Question-7. A parse tree structure of an attribute grammar is the one based on - [2M]

A. The underlying semantics of the language
B. The BNF grammar of the language
C. The meaning of the language
D. All the above
E. None of the above

Question-8: **[2m]**

Look at the following statements.

(i) In order to activate a subprogram, it is essential to dynamically create an instance of the activation record for the subprogram.
(ii) Every recursive subprogram activation, copies the old instance of an activation record on the stack

(iii) Every nonrecursive subprogram activation, creates a new instance of an activation record on the stack

(iv) The current Environmental Pointer is saved in the new activation record instance as a static link.

Now pick the right option from the following.

A. Statements (i) , (ii) and (iv) are true
B. Statements (i) and (iii) are true
C. Statements (ii), (iii) and (iv)are true
D. None of the options

Question-9.

Look at the following statements- [2M]

(i) In Java, a constructor cannot be specified to be synchronized w.r.t., implementing Competition Synchronization.
(ii) In Java, the method *wait()* can be called from any method of an object.
(iii) In Java thread programming, the *run()* method calls *start()* method.
(iv) Semaphores can be used to implement monitors.

Now pick the right option from the following.

A. (iii) and (iv) are correct
B. Only (i) is correct
C. (i) and (iv) are correct
D. (i) ,(ii) and (iii) are correct
E. All statements from (i) to (iv) are wrong.

Q10. If the Semaphore vale is 0, it indicates that the shared resource is not currently being accessed, and hence the access request can be allowed/granted. [true/ False]

Question-11.

Look at the following statements- [2M]

(i) In Ruby, methods cannot be declared outside the class.
(ii) In C and C++ programs, Function declarations are called as *Profiles*.
(iii) Haskell does not have mutable data.
(iv) In PHP formal parameters can have default values.

Now pick the right option from the following.

A. (ii), (iii) and (iv) are correct
B. (i) and (ii) are correct

C. (i) ,(ii) and (iii) are correct
D. (i) , (iii) and (iv) are correct.
E. All statements from (i) to (iv) are wrong.

Question-12.

Look at the following statements- [2M]

(i) Pass-by-name is sometimes called as pass-by-copy.
(ii) In call-by-reference implementation, the actual parameter is shared with the called-subprogram.
(iii) C language copied pass-by-value model of parameter passing from BASIC.
(iv) The greatest advantage of static local variables is its support for recursion.

Now pick the right option from the following.

A. (ii), (iii) and (iv) are correct
B. only (ii) is correct
C. (i) ,(ii) and (iii) are correct
D. Only (i) is correct
E. (i) , (iii) and (iv) are correct.
F. All statements from (i) to (iv) are wrong.

Question-13.

Look at the following statements- [2M]

(i) Semantics of Declarative languages is much complex than the semantics of Imperative languages.
(ii) In Prolog, variables are not bound to types by declarations.
(iii) Database search in Prolog, always based on Hashtable.
(iv) Prolog propositions have no intrinsic semantics.

Now pick the right option from the following.

A. (ii), (iii) and (iv) are correct
B. (i), (ii) and (iv) are correct
C. (i) ,(ii) and (iii) are correct
D. (ii) and (iv) are correct.
E. All statements from (i) to (iv) are wrong.

Question.14.

In Logic programming, the horn clauses with empty left side are called as ***headed horn clauses***. [TRUE/ FALSE] (1M)

Question.15.

In Java, an object whose methods are all synchronized is effectively a monitor.

[TRUE/ FALSE] (1M)