قائمة الاسئلة

بناء مترجمات Construction Compilers - ()- المستوى الثالث -قسم علوم حاسوب - - كلية الحاسوب وتكنولوجيا المعلومات - الفترة - درجة الام

1) What is the name of the course textbook?
ما اسم الكتاب المقرر للكورس؟

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ما اسم الكتاب المقرر للكورس؟

1) - Compiler Design: Principles and Practice
2) - Compilers: Principles, Techniques, and Tools
3) + Compiler Construction: Principles and Practice
4) - Compilers Construction: Principles, Techniques, and Tools

2) A computer program translates one language to another?
1) - compiler
2) - interpreter
3) - translator
4) + all of above

3) the compilers are only working for programming languages?
1) - TRUE.
2) + FALSE.

4) the only one difference between the compiler and interpreter is:
1) - construction of architecture
2) + the output format
3) - the input format
4) - none of the above

5) The translator that its output was executed immediately rather than generating object code
1) - the compiler
2) + the interpreter
3) - the assembler
4) - the loader

6) the output format of a compiler is:
1) + object code file
2) - executable file
3) - linked file
4) - loaded file

7) essential programs associated with compilers:
1) + linker
2) - loader
3) - executer
4) - all of above

8) essential auxiliary component(s) accompany all stages of compiling?
1) - literal table
2) - symbols table
3) - error handler
4) + all of above

9) the sorted processes of the compiler are:
1) - scanning, lexicalizing, parsing, semantizing, generating
2) - preprocessing, scanning, parsing, semantizing, generating

3) + lexicalizing, parsing, semantizing, optimizing, generating
4) - scanning, parsing, optimizing, semantizing, generating

10) it collects sequences of characters into units?
يجمع سلسلة حروف في وحدات؟

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يجمع سلسلة حروف في وحدات؟

1) - token
2) + lexicalizer
3) - parser
4) - regex

11) it is a sequence of characters?
1) - compiler
2) - lexicalizer
3) - tokenizer
4) + token

12) the compiler can check datatypes in the following phase:
1) - lexical phase
2) - parsing phase
3) + semantic phase
4) - intermediate phase

13) the compiler determines the token type in the phase:
1) - semantic phase
2) - parsing phase
3) + lexical phase
4) - generating phase

14) The error in C declaration variable - intx x; - raises in the following phase:
1) + Parsing phase
2) - Scanning phase
3) - Static semantic phase
4) - Dynamic semantic phase

15) The error in C assignment - int x; x='a' ; - occurs in the following phase:
1) - Parsing phase
2) - Scanning phase
3) + Static semantic phase
4) - Dynamic semantic phase

16) The error in C access index - int x[2]; x[2]=2 ; - raises in the following phase:
1) - Syntax phase
2) - Scanning phase
3) - Static semantic phase
4) + Dynamic semantic phase

17) The error in C evaluation expression - int x,y; y=x+5 ; - occurs in the following phase:
1) - Parsing phase
2) - lexical phase
3) - Static semantic phase
4) + Dynamic semantic phase

18) oftentimes, the code undertakes two phases of optimization?
يمر الكود بمرحلتين من التحسين؟

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يمر الكود بمرحلتين من التحسين؟
1) + TRUE.
2) - FALSE.

19) the code optimizing process refers to improve a code fragment in:
1) - location storage
2) - code reducing
3) - speed execution
4) + all of above

20) The compiler operations of the front-end depend on the target code language
1) - TRUE.
2) + FALSE.

21) The compiler operations of the back-end depend on the source code language
1) - TRUE.
2) + FALSE.

22) the analysis part of the compiler concerns on the source code of a program, while the synthesis part concerns with the produced machine code.
1) + TRUE.
2) - FALSE.

23) A compiler can compile two distinct programming languages?
1) - TRUE.
2) + FALSE.

24) If we want to create new programming language, we should create the correspond compiler first.
1) + TRUE.
2) - FALSE.

25) We can build a compiler without specifying the languages it can compile?
من الممكن تطوير مترجم دون التعبير عن اللغة التي ممكن أن يترجمها؟

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من الممكن تطوير مترجم دون التعبير عن اللغة التي ممكن أن يترجمها؟
1) - TRUE.
2) + FALSE.

26) what is the relationship between programming language development and compiler development?
العلاقة بين تطوير لغة برمجة و تطوير مترجم هي علاقة:

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العلاقة بين تطوير لغة برمجة و تطوير مترجم هي علاقة:
1) - independent relationship مستقلة

□□□
مستقلة
2) + correlational relationship متلازمة

□□□
متلازمة
3) - inverse relationship عكسية

□□□
عكسية
4) - optional relationship اختيارية

□□□
اختيارية

27) What is the relationship between the ease of use of a programming language and its compiler development?
1) - independent relationship مستقلة

□□□
مستقلة

2) - correlational relationship متلازمة

□□□
متلازمة

3) - inverse relationship عكسية

□□□
عكسية

4) + direct relationship طردية

□□□
طردية

28) Each phase of a compiler needs different kind of error handing?
1) + TRUE.
2) - FALSE.

29) A scanner recognizes a token from a source code, then stores it as IF='if . Which one is the token type?
1) + left if is the token type
2) - left if is the token value
3) - right if is the token type
4) - none of the above

30) In lexical analysis, a token is a set of characters that has a specific type?
1) + TRUE.
2) - FALSE.

31) ID, NUM, and PLUS are examples of token values?
1) - TRUE.
2) + FALSE.

32) myfun, 25, and + are examples of token values?
1) + TRUE.
2) - FALSE.

33) A token may have infinitely many lexemes, such as the token ELSE?
1) - TRUE.
2) + FALSE.

34) It is a sequence of characters that define a search pattern.
1) - token
2) + regex
3) - lexeme
4) - none of the above

35) precedence of operations in regex, | operator takes the higher priority than concatenation?
1) - TRUE.
2) + FALSE.

36) From alphabet ∑={ a,b,c}, what is the regex that generates the set of all strings that contain at exactly one b?
تعبير regex لتوليد نص يحتوي b لمرة واحدة

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تعبير regex لتوليد نص يحتوي b لمرة واحدة

1) - (a|c)*b
2) - a*bc*
3) - b(a|c)*

4) + all of above

37) From alphabet ∑={ a,b,c}, what is the regex that generates the set of all string that contain at least one b?
تعبير regex لتوليد نص يحتوي b مرة واحدة على الأقل

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تعبير regex لتوليد نص يحتوي b مرة واحدة على الأقل

1) + b+(a|c)*
2) - b*(a|c)+
3) - b+(a|c)
4) - b*(a|c)*

38) From alphabet ∑={ a,b,c}, what is the regex that generates the set of all strings that contain at most one b?
تعبير regex لتوليد نص يحتوي b مرة واحدة على الأكثر

□□□
تعبير regex لتوليد نص يحتوي b مرة واحدة على الأكثر

1) - (b|ε)*(a|c)*
2) - (a|c)*b
3) + (b|ε)(a|c)*
4) - b*(a|c)*

39) From alphabet ∑={ a,b,…,z}, what is the regex that generates the set of all strings that either begin or end in a (or both).
تعبير regex لتوليد نص يبدأ أو ينتهي أو يبدأ وينهتي بـ a

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تعبير regex لتوليد نص يبدأ أو ينتهي أو يبدأ وينهتي بـ a

1) - a*[a-z]*a*
2) - a+[a-z]*a* | a*[a-z]*a+
3) - a*[a-z]*a+
4) + (a+[a-z]*a*)|(a*[a-z]*a+)

40) From alphabet ∑={ a,b}, what is the regex that generates the set of all strings that contain an even number of a's and an even number of b's?
تعبير regex لتوليد نص يحتوي a بعدد زوجي و b بعدد زوجي في كل نص

□□□
تعبير regex لتوليد نص يحتوي a بعدد زوجي و b بعدد زوجي في كل نص

1) - (aa)*|(bb)*
2) - (aa|bb)*
3) + ((aa)|(bb))*
4) - none of the above

41) From alphabet ∑={ a,b}, what is the regex that generates the set of strings consists of single b surrounded by the same number of a's?

تعبير regex لتوليد نص يحتوي b لمرة واحدة محاط بعدد متساوأ من a

□□□
تعبير regex لتوليد نص يحتوي b لمرة واحدة محاط بعدد متساوأ من a

1) - a*ba*
2) - a+ba+
3) - a*ba* | a+ba+

4) + none of the above

42) A symbol that marks the boundaries between a series of characters?
1) - lookahead
2) - token
3) + delimiter
4) - all of above

43) Compilers rely on the FSA model to effectively recognize patterns in input strings?
1) + TRUE.
2) - FALSE.

44) Regular Expressions and FSAs Are equivalent in power?
1) + TRUE.
2) - FALSE.

45) Why didn't we exclusively use regular expressions when building compilers, and why do we sometimes turn to finite automata as an alternative?
لما لم نكتفي باستخدام التعبيرات النظامية ونلجأ إلى استخدام الآلة المحدودة في بناء المترجمات؟

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لما لم نكتفي باستخدام التعبيرات النظامية ونلجأ إلى استخدام الآلة المحدودة في بناء المترجمات؟

1) - FSAs make it easier to handle the complexity of specific input strings.
2) - Using FSA allows us to expand the boundaries of problem-solving.
3) - FSAs offer greater efficiency, particularly in the construction of compilers.
4) + all of above

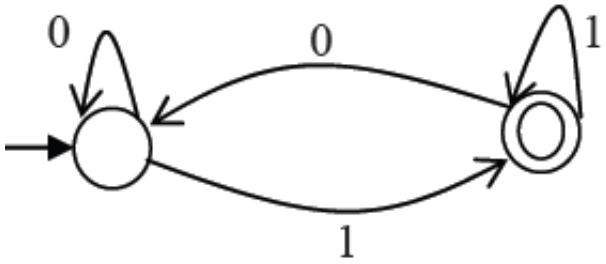
46) Given the language L = {ab, aa, baa}, which of the following strings are not in L*?
1) - abaabaaabaa
2) - aaaabaaaa
3) + baaaaabaaaab
4) - baaaaabaa

47) Given the language L = {xy,yy,yxx }, which of the following strings is in L*?
1) + xyyxxxyyyyxx
2) - yyyxxyyyxyyy
3) - yxxxyyyyyxxxy
4) - xyxyyyyxxxyyxy

48) If there exists more than one transition from a state for a particular character, then this called?
1) - FSA
2) - DFA
3) + NFA
4) - all of above

49) The ambiguity occurs in parsing phase if:
1) - there are more than one parse tree for the same expression
2) - there are leftmost derivation and rightmost derivation for the same production
3) - there are more than one syntax tree for the production itself
4) + all of above

50) Which of the regular expressions given below represent the attached DFA diagram?



1) + 0*1(1+00*1)*
2) - 0*1*(1+00*1)*
3) - 01(1+00*1)*
4) - 0*1(1+0*1)*

51) FSA computational theory is proficiently capable of computing of the lexical scanners?
1) + TRUE.
2) - FALSE.

52) What does it called the set of words whose letters are taken from an alphabet and are well-formed according to a specific set of rules?
1) - formal grammar
2) + formal language
3) - formal expression
4) - formal rules

53) they are examples of the formal language?
1) - context-free grammar
2) - context-sensitive grammar
3) - unrestricted grammar
4) + none of the above

54) Given the language L = {ab, aa, baa}, which of the following strings are in L*?
1) - aaabbaaaab
2) - aabaaabaabaab
3) - baaabbaaaab
4) + baaababbaaaaa

55) FSAs are generally used for any computational problem that involves transitions among finite states?
نستخدم FSA بشكل عام لحل مشكلات تتطلب التنقل بين مجموعة حالات.

□□□
نستخدم FSA بشكل عام لحل مشكلات تتطلب التنقل بين مجموعة حالات.

1) + TRUE.
2) - FALSE.

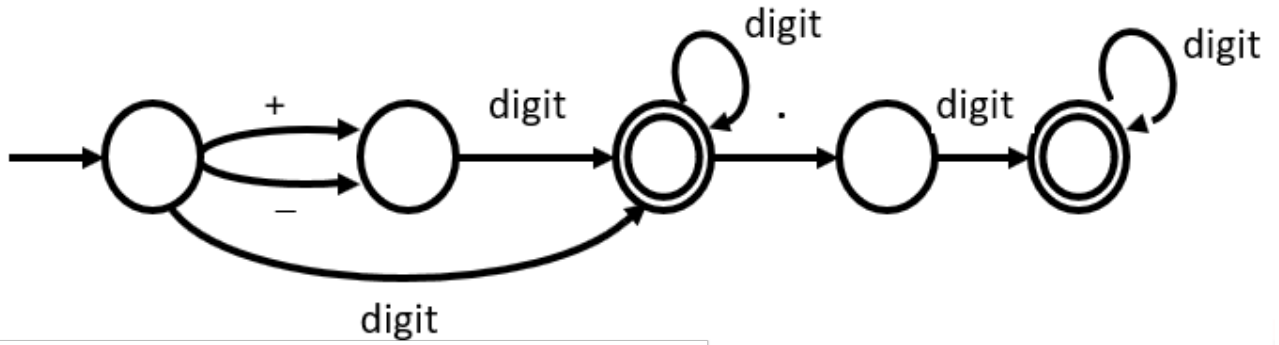
56) FSM is considered an abstract mathematical model of a SEQUENTIAL LOGIC function?
1) + TRUE.
2) - FALSE.

57) It is primarily used to recognize regular languages?
1) - CFG
2) + FSA
3) - regex
4) - none of the above

58) the formal formula function of the NFA does not differ from formula function of DFA?
1) + TRUE.

2) - FALSE.

59) What is the regex that DFA represents in the attached image graph?



1) - singe digit .digit
2) + singe digit (.digit)?
3) - singe digit (.digit)
4) - singe digit .digit?

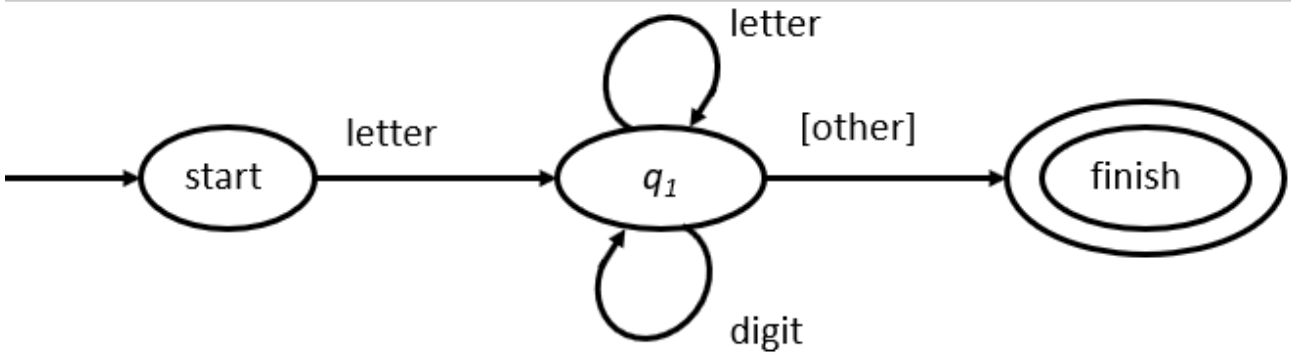
60) What regex is the required to verify a local mobile number?

1) - [0-9]+
2) - 7[01378][0-9]
3) - 7[^01378][0-9]*
4) + 7[01378][0-9]+

61) the C regex: modifier identifier(paras){ statements;} - defined to recognize:

1) - if statement
2) - loop statement
3) + function block
4) - program block

62) What does the graph in the attached image (img-62) recognize from a source code?



1) + identifier
2) - modifier
3) - statement
4) - program block

63) NFAs are real machines exist in our life?

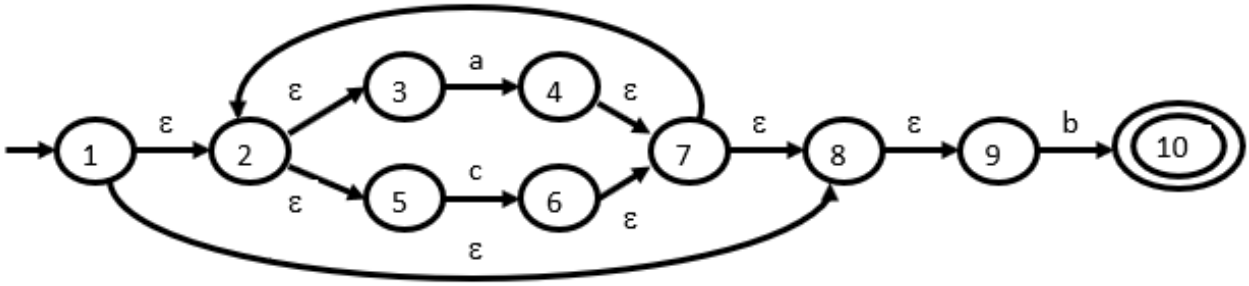
1) - TRUE.
2) + FALSE.

64) what is the situation that requires dealing with epsilon transition?
1) - in unknown DFA problems
2) + in unknown NFA problems
3) - in unknown DFA & NFA problems
4) - never required

65) We take advantage of epsilon transition to transition forward without consuming the input?
1) + TRUE.
2) - FALSE.

66) The string abb is accepted on the language å={a,b} where its DFA equivalent:
1) - (a|ε)*b
2) + ab*
3) - ab | bb | a+b
4) - none of the above

67) The attached NFA graph accepts the same language as that generated by the regular expression :



1) - (a*|c*)b
2) - a*c*b
3) + (a | c)*b
4) - (c | a)+b

68) Which one of the following languages over the alphabet {0,1} is described by the regex: (0+1)*0(0+1)*0(0+1)*
1) - a)The set of all strings containing the substring 00.
2) - b)The set of all strings containing at most two 0's.
3) + c)The set of all strings containing at least two 0's.
4) - d)The set of all strings that begin and end with either 0 or 1.

69) Which one of the following strings over the alphabet {a,b,c} is accepted by the regex: (a+b)*c
1) + c
2) - aaaaabbbbc
3) - abbbbbc
4) - none of the above

70) Which of the following strings over the alphabet {a,b,c} is in L* if DFA equivalent regex: (a*b)*c
1) - aaaaabc
2) - bbbbbc
3) - aaaaaabbbbbbc
4) + all of above

71) The parsing refers to conforming structure of an input into a grammar?
1) + TRUE.
2) - FALSE.

72) The word 'syntax' in syntax parsing points to the grammatical arrangement of letters in a word and their relationship with each other?
1) - TRUE.

2) + FALSE.

73) The purpose of the parsing phase in compilers is to check the sequence of tokens in the source code?
1) + TRUE.
2) - FALSE.

74) to check the structure of tokens we use:
1) - a) regular expressions
2) - b) finite state automata
3) - c) context-free grammar
4) + d) a & b

75) The semantic parser may be viewed as a function that takes as its input the sequence of tokens produced by the scanner and produces as its output the syntax tree.
1) - TRUE.
2) + FALSE.

76) The used data structure in syntax analysis phase is:
1) - a) parse tree
2) - b) binary tree
3) - c) syntax tree
4) + d) a & c

77) The main challenge in parser error detection is/are:
1) - errors discovery itself
2) - report the detected errors
3) + recovery of a current error and continuing to detect next error
4) - all of above

78) Context Free Grammar is a type of formal grammar that describes the syntax or structure of a formal language?
1) + TRUE.
2) - FALSE.

79) Context-free grammar is production rules generated by a context-free language?
1) - TRUE.
2) + FALSE.

80) to describe structure of statements of a programming language we use:
1) - FSA
2) - regex
3) + CFG
4) - all of above

81) Since CFG can perform the tasks of FSA, why isn't it used exclusively for both scanners and parsers in compiler design?
مادام أن CFG بإمكانها عمل ما تعمله FSA فلما لم يتم استخدام فقط CFG للـ scanners و أيضا الـ parsers في تصميم المترجمات؟

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1) - the modern compilers apply this idea. CFG for both scanner and parser
2) + it is not practical, because CFG uses higher resource, and it requires more complicating.
3) - It is impossible to replace FSA by CFGs
4) - FSA is more precise in tokenizing than CFG parser?

82) The CFG has five tuples in its formal definition function while FSA has only four?
1) - TRUE.
2) + FALSE.

83) What is the CFG for the language having any number of a's (not empty) string over the set ∑= {a}?

1) - S-> Sa
2) + S->Sa|a
3) - S->Sa|ε
4) - S->Sa|b

84) If G is a CFG with alphabet Σ and start symbol S, then the language of G is the set L(G) of strings derivable from the start symbol.
1) + TRUE.
2) - FALSE.

85) the language of G is the set of strings that include terminals and non-terminals?
1) - TRUE.
2) + FALSE.

86) What strings can G: S-> aSb|ε generate?
1) - $L(G)=\{a^nb^n \mid n>0\}$
2) + $L(G)=\{a^nb^n \mid n>=0\}$
3) - $L(G)=\{(ab)^n \mid n>=0\}$
4) - none of the above

87) What strings can G: A-> 0A1|a generate?
1) - $L(G)=\{0^na1^n \mid n>0\}$
2) - $L(G)=\{0^n1^n \mid n>=0\}$
3) + $L(G)=\{0^na1^n \mid n>=0\}$
4) - none of the above

88) What is the CFG for the language $L = \{a^{4n}vb^n \mid n>=1\}$?
1) - S-> aaaaSb|ε
2) + S-> aaaaSb|v
3) - S-> aSb|v
4) - S-> aaaavb

89) The derivation applied on G: E->E+E|n; E=>E+E+E=>E+E+n=>E+n+n=>n+n+n
1) - leftmost derivation
2) - left recursion
3) + rightmost derivation
4) - right recursion

90) It attempts to predict the next construction in the input string using one or more look-ahead tokens. What parser is this?
1) - LL(0)
2) + LL(1)
3) - backtracking parser
4) - recursive descent parser

91) The features of the predictive parsers are:
1) - left recursion and left derivation
2) - left recursion and right derivation
3) + right recursion and left derivation
4) - right recursion and right derivation

92) the following grammar is a LL(1) grammar?
1) - S->Aa|b , A->S|ε
2) - S->Sa|b
3) - S->aS|abS|a
4) + none of the above

93) FIRST set of the LL(1) parsing table tells which non-terminal can start production?
1) - TRUE.

2) + FALSE.

94) FOLLOW set of the LL(1) parsing table tells which terminal can follow a production?
1) - TRUE.
2) + FALSE.

95) The purpose of the LL(1) parsing table is to express the possible rule choices for a non-terminal A when the A is at the top of parsing stack based on the current input token.
1) + TRUE.
2) - FALSE.

96) The parsing table is a two-dimensional array indexed by:
1) + non-terminals as rows and terminals as columns
2) - terminals as rows and non-terminals as columns
3) - terminals as rows and non-terminals as columns and production in pairs cells
4) - none of the above

97) Recursive-Descent Parser views the grammar rule for a non-terminal A as a definition for a procedure to recognize an A
1) + TRUE.
2) - FALSE.

98) To construct a recursive-descent parser we map all productions into procedures in code?
1) + TRUE.
2) - FALSE.

99) we must construct parsing table for recursive-descent parser?
1) - TRUE.
2) + FALSE.

100) The Match procedure in top-down parsers matches the current next token with the current, advances the input if it succeeds, and declares error if it does not
1) + TRUE.
2) - FALSE.

101) A scanner recognizes a token from a source code, then stores it as IF='if . Which one is the token value?
1) - left if is the token type
2) - left if is the token value
3) + right if is the token value
4) - none of the above