CS402-Theory of Autometa

Solved MCQS for Final terms papers

Solved by JUNAID MALIK and Team



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ALL answers are verified if found any mistake then Correct ACCORDINGLY

1. If Σ = {aa, bb} , then Σ* will not contain

aaabbb

►aabbbb

►aabbaa

►bbaabbbb

2. "One language can have _____ TG"s".

►Only one

►Only two

►More than one

►Only three

3. According to 1st part of the Kleene"s theorem, If a language can be accepted by an FA then it can be accepted by a _____ as well.

►FA

►CFG

►GTG

►TG

4. Even-palindrome is a _____ language.

►Non-regular

►Regular

►Regular but infinite

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►Regular but finite

5. If L is a regular language then, Lc is also a _____ language.

► Regular (Page 66)

► Non-regular

► Regular but finite

► None of the given

6. Pumping lemma is generally used to prove that:

► A given language is infinite

► A given language is not regular

► Whether two given regular expressions of a regular language are equivalent or not

► None of these

7. the FA has N states, then test the words of length less than N. If no word is accepted by this FA, then it will _____ word/words.

►accept all

►accept no (Page 85)

►accept some

►reject no

8. In CFG, the symbols that can‟t be replaced by anything are called_____.

► Terminal (Page 87)

► Non-Terminal

► Production

► All of given

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9. Which of the following is a regular language?

► String of odd number of zeroes

► Set of all palindromes made up of 0‟s and 1‟s

► String of 0‟s whose length is a prime number

► All of these

10. Which of the following pairs of regular expressions are equivalent?

►1(001)* and (10)*10

►x(xx)* and (x)*x

► X + and X*

► X + and X* X +

11. An alphabet of Σ is valid if

►No letter of Σ appears in middle of any other letter

►No letter of Σ appears at end of any other letter

►No letter of Σ appears at start of any other letter

►No letter of Σ appears at end or middle of any other letter

12. Which of the following statement is true

►The length of the output string is greater than length of input string in moore machine.

►The length of the output string is greater than length of input string in mealy machine.

►The length of the output string is equal to length of input string in moore machine.

►The length of the output string is less than length of input string in mealy machine.

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13. If a CFG has only productions of the form nonterminal → string of two nonterminals or nonterminal → one terminal then the CFG is said to be in _____

►**Chomsky Normal Form**

►Ambiguous Form

►Left Aligned Form

►Right Aligned Form

14. We can also represent an FA using different states e.g Accept state; Reject state, Read state etc. The _____ state behaves as final state of an FA

►**Accept (Page 105)**

►Pop

►Push

►Reject

15. where the input string is placed before it is run, is called _____

►Date tape

►**Input Tape (Page 105)**

►Output Tape

►Magnetic tape

16. An FSM can be considered as TM

►Of finite tape length, rewinding capability and unidirectional tape movement

►Of finite tape length, without rewinding capability and bidirectional tape movement

►Of finite tape length, rewinding capability and bidirectional tape movement

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►Of finite tape length, without rewinding capability and unidirectional tape movement

17. The process of finding the derivation of the word generated by particular grammar is called _____ ►Processing

►Parsing (Page 136)

►Programming

►Planning

18. The first rule of converting the given "CFG in CNF", is _____

►CNK algorithm

►CYK algorithm (Page 135) Algorithm 4 (The CYK algorithm)

►CKY algorithm

►KYC algorithm

19. Alphabet Σ = {a, bc, cc} has number of letters

►One

►Two

►Three

►Four

20. If r1 is a regular expression then r1* is a _____

►GTG

►NFA

►FA

►RE (Page 9)

21. We cannot write regular expressions for all _____.

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►FA‟s

►TG‟s

►NFA‟s

►CFG's (Page 97)

22.For every Context Free Grammar (CFG), we can make the corresponding _____.

►FA

►TG

►PDA

►Regular Grammar

23.Pumping Lemma II says that length(x) + length(y) should be _____.

►Less than number of states (Page 75)

►Equal to number of states

►Greater than number of states

►Greater than or equal to number of states

24.Chomsky normal form (CYK) algorithm was proposed by _____.

►John cock (Page 135)

►James Cock

►Daniel I.A.

►John Weiss

25.The language of Palindromes defined over an alphabet set {a, b} can be recognized by _____.

►FA

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►NFA

►TG

►PDA

26. Which of the following is the first phase of compiler on the basis of functionality?

►Parser

►Lexical analyzer

►Scanner

►Interpreter

27. (Σ* - L) represent the _____ of a language L.

►Complement (Page 66)

►Kleene‟s closure

►Union

►intersection

28. If we have two transition graphs then their union will be expressed by

►taking a common start state and joining them by two null transitions (Page 65)

►just connecting both start states by null transitions

►connecting final state of first TG to the initial state of second TG

►connecting the final state of first TG to the final state of second TG

29. _____ and _____ are removed in order to make a CFG in Chomsky Normal Form(CNF).

►Null, nullable productions

►Nullable , unit productions

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►Null, unit productions (Page 102)

►String of length 0, null

30.If L1 and L2 are expressed by regular languages then L1 + L2 is also a_____ Language.

► Regular (Page 10)

► Ir-regular

► PDA

► Hybrid

31.Which of the following is a regular Context Free Grammar:

►S → abS| baS | ^ ab(ab+ba)*ba + ba(ab+ba)*ab

►S → aSb| baS | ^

►S → abS| bSa | ^

►S → aSb| Sa | ^

32.A read state can have _____ outgoing edge/ edges.

►1

►2

►3

►Any number of (Page 111)

33.Finite Automation (FA) and Nondeterministic Finite Automation (NFA) are equivalent if

►FA and NFA accept the same language (Page 43)

►FA shape is same like an NFA

►FA accept the null string also

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►NFA accept the null string also

34._____ is always Deterministic.

►Finite Automation (Page 25)

►Transition Graph

►Generalize Transition Graph

►Non-deterministic finite automation

35.If r1 = (aa + bb) and r2 = (a + b) then the language (aa + bb)(a + b) will be generated by

► (r1)(r2) (Page 10)

► (r1 + r2)

► (r2)(r1)

► (r1)*

36."One language can be expressed by more than one FA". This statement is _____

► True (Page 14)

► False

► Some times true & sometimes false

► None of these

37.Who did not invent the Turing machine?

► Alan Turing

► A. M. Turing (Page 140)

► Turing

► None of these

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38. Which statement is true?

► **The tape of turing machine is infinite. (Page 140)**

► The tape of turing machine is finite.

► The tape of turing machine is infinite when the language is regular

► The tape of turing machine is finite when the language is nonregular.

39. A regular language:

► **Must be finite (Page 11)**

► Must be infinite

► Can be finite or infinite

► Must be finite and cannot be infinite

40. Every regular expression can be expressed as CFG but every CFG cannot be expressed as a regular expression. This statement is:

► Depends on the language

► None of the given options

► **True (Page 97)**

► False

41. Consider the language L of strings, defined over Σ = {a,b}, ending in a

► **There are finite many classes generated by L, so L is regular (Page 76)**

► There are infinite many classes generated by L, so L is regular

► There are finite many classes generated by L, so L is non-regular

► There are infinite many classes generated by L, so L is non-regular

42. The word „formal" in formal languages means

► The symbols used have well defined meaning

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► They are unnecessary, in reality

► Only the form of the string of symbols is significant

► None of these

43.Let A = {0, 1}. The number of possible strings of length „n‟ that can be formed by the elements of the set A is

► n!

► n2

► nm

► 2n

44.Choose the correct statement.

► A Mealy machine generates no language as such

► A Moore machine generates no language as such

► A Mealy machine has no terminal state

► All of these

45.TM is more powerful than FSM because

► The tape movement is confined to one direction

► It has no finite state control

► It has the capability to remember arbitrary long sequences of input symbols

► None of these

46.If L1 and L2 are expressed by regular expressions r1 and r2, respectively then the language expressed by r1 + r2 will be _____

► Regular (Page 10)

► Ir-regular

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► Can‟t be decided

► Another Language which is not listed her

47.Like TG, a PDA can also be non-deterministic

► True (Page 111)

► False

48.The language of all words (made up of a‟s and b‟s) with at least two a‟s can not be described by the regular expression.

► a(a+b)*a(a+b)*(a+b)*ab*

► (a+b)* ab* a(a+b)*

► b*ab* a(a+b)*

► none of these

49.In FA, if one enters in a specific state but there is no way to leave it, then that specific state is called

► Dead State

► Waste Basket

► Davey John Locker

► All of these (Page 17)

50.If L is a regular language then, Lc is also a _____ language.

► Regular (Page 66) rep

► Non-regular

► Regular but finite

► None of the given

51.In CFG, the symbols that can‟t be replaced by anything are called___

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► **Terminal (Page 87) rep**

► Non-Terminal

► Production

► All of given

52.Which of the following is NOT a regular language?

► String of 0‟s whose length is a perfect squere

► Set of all palindromes made up of 0‟s and 1‟s

► String of 0‟s whose length is a prime number

► **All of the given options**

53.Choose the incorrect (FALSE) statement.

► A Mealy machine generates no language as such

► A Mealy machine has no terminal state

► **For a given input string, length of the output string generated by a Moore machine is not more than the length of the output string generated by that of a Mealy machine**

► All of these

54.Choose the incorrect statement:

► (a+b)*aa(a+b)* generates Regular language.

► **A language consisting of all strings over ∑={a,b} having equal number of a's and b's is a regular language**

► Every language that can be expressed by FA can also be expressed by RE

► None of these

Left hand side of a production in CFG consists of:

► One terminal

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► More than one terminal

► One non-terminal (Page 87)

► Terminals and non-terminals

55.PDA is only used to represent a regular language.

► True

► False

56.A production of the form non-terminal ∅ string of two non-terminal is called a live Production.

► True (Page 127)

► False

57.We can find a CFG corresponding to a DFA.

► True (Page 97)

► False

58.START, READ, HERE and ACCEPTS are conversions of the machine

► True (Page 122)

► False

59.A CFG is said to be ambiguous if there exists at least one word of its language that can be generated by different production trees

► True (Page 95)

► False

60.Syntax tree or Generation tree or Derivation tree are same tree

► True (Page 92)

► False

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61. The symbols that cannot be replaced by anything are called terminals

► **True (Page 87) repeat**

► False

62. The production of the form non-terminal ∅ one non-terminal is called unit production

- ► **True (Page 100)**
- ► False

63. DFA and PDA are equal in power.

- ► True
- ► **False (Page 105)**

64. A production of the form non-terminal ∅ non-terminal is called a dead Production.

- True
- **False (Page 127)**

65. Semi-word is a string having some terminals and one non-terminal at the right of string.

- **True (Page 97)**
- False

66. Two FAs are equivalent if they have same no. of states.

- **True (Page 15)**
- False

67. There exist exactly two different derivations in an ambiguous CFG for a word.

- **True (Page 93)**
- False

68. Regular languages are closed under Union, Concatenation and Kleene star.

- **True (Page 10)**
- False

69. CFG may also represent a regular language.

- **True (Page 97)**
- False

70. PDA is stronger than FA.

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- **True (Page 105)**
- False

71. A Total Language Tree has
- All languages over Σ
- **All strings over Σ (Page 96)**
- All words of all languages over Σ
- All words of one language over Σ

72. What Turing Machine does not have?
- Stack
- Tape
- Head
- **Word**

73. CFG given S ∅ bS|Sb|aa represents language b*aa
- aab*
- b*aab*
- **b*(aa)*b***

74. The values of input (say a & b) does not remain same in one cycle due to
- NAND gate
- Click plus
- OR gate
- **NOT gate**

75. Set of all palindromes over {a,b}is regular
- True
- **False (Page 74)**

76. In CFG, the symbols that cannot be replaced by anything are called
- **Terminals (Page 87) rep**
- Non terminals
- Productions
- None of the given options

77. a^n b^n generates the …… language
- regular
- non regular
- **EQUAL and non regular (Page 71)**

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- EQUAL and regular

78. The grammatical rules which involves meaning of words are called:

- **Semantic (Page 87)**
- Sytactics
- Alphabets
- None of the given options

79. If an FA has N state then it must accept the word of length

- **N-1**
- N+1
- N+2N

80. Two languages are said to belong to same class if they end in the same state when they run over an FA, that state

- Must be final state
- **May be final state or not (Page 75)**
- May be start or not
- None of the given options

81. In pref(Q in R) Q is …… to (than) R

- Equal
- **Not Equal (Page 79)**
- Greater
- Smaller

82. According to Myhill Nerode theorem, if L generates finite no. of classes then L is.....

- Finite
- Infinite
- **Regular (Page 76)**
- Non Regular

83. If the intersection of two regular languages is regular then the complement of the intersection of these two languages is also regular

- **True (Page 68)**
- False

84. In pumping lemma theorem (x y^n z) the range of n is

- **n=1,2,3,4..... (Page 74)**

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- n=0,1,2,3,4....
- n=-3,-2,-1,0,1,2,3,4.....
- n=-3,-2,-1,1,2,3,4.....

85.The complement of a regular language is also a regular

- **True repeat**
- False

86.For a non regular language there exist …… FA

- One
- At least one
- At most one
- **No (Page 71)**

87.The strings or words which do not belong to a language is called……. of that language

- Intersection
- Union
- **Complement (Page 66)**
- Quotient

88.A non regular language can be represented by

- RE
- FA
- TG
- **None of the given options (Page 71)**

89.For language L defined over {a, b},then L partitions {a, b}* into …… classes

- Infinite
- Finite
- **Distinct (Page 75)**
- Non distinct

90.If an FA accept a word then there must exist a path from

- **Initial to final state (Page 81)**
- Initial to each state
- Initial to each state but not to final state
- Initial to final state by traversing each state

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91. Does the empty string match the regular expression |y+a|?
- Yes
- **No (Page 3)**

92. If an FA already accepts the language expressed by the closure of certain RE, then the given FA is the required FA.
- **True (Page 37)**
- False

93. Which of the following statement is true about NFA with Null String?
- Infinite states
- Infinite set of letters
- Infinite set of transitions
- **Transition of null string is allowed at any stage (Page 71)**

94. If R is a regular language and L is some language, and L U R is a regular language, then L must be a regular language.
- **True (page 10)**
- False

95. FA corresponding to an NFA can be built by introducing an empty state for a letter having
- **no transition at certain state (Page 43)**
- one transition at certain state
- two transition at certain state
- more than two transitions at certain state

96. Let FA3 be an FA corresponding to FA1FA2, then the initial state of FA3 must correspond to the initial state of
- **FA1 only (Page 35)**
- FA2 only
- FA1 or FA2
- FA1 and FA2

97. (a* + b*)* = (a + b)* this expression is _____
- True
- **False**

98. If S = { x }, then S* will be
- {x,xx,xxx,xxxx,…}

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- **{^ ,x,xx,xxx,xxxx,…} (Page 10)**

99. The states in which there is no way to leave after entry are called

- Davey John Lockers
- Dead States
- Waste Baskets
- **All of the given options (Page 17)**

100. If S = {ab, bb}, then S* will not contain

- Abbbab
- **Bbba**
- ababbb
- bbbbab

101. According to theory of automata there are _____ types of languages

- 1
- **2 (Page 3)**
- 3
- 4

102. What do automata mean?

- Something done manually
- **Something done automatically**
- What is false about the term alphabet?
- It is a finite set of symbols.

103. It is usually denoted by Greek letter sigma

- **It can be an empty set. (Page 3)**
- Strings are made up of its elements

104. Formal is also known as _____

- **Syntactic language (page 3)**
- Semantic language
- Informal language
- None of these

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105. Consider the following production (of a CFG): S->XYZ Here _____ is left most nonterminal in working string. Note: S, X, Y and Z are all nonterminals

- S
- **X**
- Y
- Z

106. A PDA is called nondeterministic PDA if _____

- **There are more than one outgoing edges at READ or POP states with one label (Page 111)**
- There are more than one PUSH states
- There are mroe than one POP states
- All of the given options

107. A PDA consists of the following:

- An alphabet (Sigma) of input letters.
- An input TAPE with infinite many locations in one direction
- One START state with only one out-edge and no in-edge
- **All of the given options (Page 105)**

108. The CFG S --> aSa | bSb | a | b | ^ represents the language

- EVEN-EVEN
- **PALINDROM (Page 91)**
- EQUAL
- ODD-ODD

109. Halt states are

- Start and Accept
- **Accept and Reject (Page 105)**
- Start and Reject
- Read and Reject

110. Choice of path can be determined by left most derivation of the string belonging to CFL at…… state

- **Accept (Page 104)**
- Reject
- Push

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- POP

111. The unit and null productions can be deleted from a CFG

- **True (Page 99-100)**
- False

112. Identify the TRUE statement about following CFG: S -> SB|AB A -> CC B -> b C -> a

- The given CFG has 8 Nonterminals
- The given CFG has 8 Terminals
- **The given CFG is in CNF (Page 101)**
- The given CFG is not in CNF

113. The structure given below is called _____ S -> aA|bB A -> aS|a B -> bS|b

- RE
- TG
- **CFG (Page 87)**
- PDA

114. Which of the following states is not part of PDA

- START
- ACCEPT
- **WRITE (Page 107)**
- REJECT

115. The production of the form: nonterminal --> one nonterminal is called the _____

- **Unit production (Page 100)**
- NULL production
- Terminal production
- Non Terminal production

116. A _____ is the one for which every input string has a unique path through the machine.

- **Deterministic PDA (Page 111)**
- nondeterministic PDA
- PUSHDOWN store
- Input Tape

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117. In the null production N --> ^ , N is a

- Terminal
- **Non terminal (Page 99)**
- Word
- None of the given options

118. The major problem in the earliest computers was

- To store the contents in the registers
- **To display mathematical formulae (Page 87)**
- To load the contents from the registers
- To calculate the mathematical formula

119. In polish notation, (o-o-o) is the abbreviation of……?

- Operand - Operator – Operand
- Operand - Operand- Operator
- **Operator -Operand – Operand (Page 94)**
- Operand -Operand – Operand

120. The CFG is said to be ambiguous if there exist at least one word of its language that can be generated by the …… production trees

- One
- Two
- **More than one (Page 95)**
- At most one

121. The input string is placed, before it runs, in

- Stack
- Memory
- **Tape (Page 105)**
- Ram

122. The production S --> SS | a | b | ^ can be expressed by RE

- (a+b)+
- (a+b)
- **(a+b)* (Page 88)**
- (ab)*

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123. The locations into which we put the input letters on "Input Tap" are called _____

- Words
- alphabets
- **cells (Page 105)**
- elements

124. "CFG" stands for _____

- Context Free Graph
- **Context Free Grammer (Page 87)**
- Context Finite Graph
- Context Finite Grammer

125. In a CFG the nonterminal that occurs first from the left in the working string, is said to be _____

- Least Significant nonterminal
- Most Significant nonterminal
- **Left most nonterminal (Page 103)**
- Left most derivate

126. The unit production is

- Terminal --> Terminal
- Terminal --> Non Terminal
- Non terminal --> Terminal
- **Non terminal --> Non Terminal (Page 100)**

127. A _____ operator adds a new letter at the top of STACK

- **PUSH (Page 107)**
- POP
- READ
- APPEND

128. PDA stands for _____

- Push and Drop Automaton
- Pop and Drop Automaton
- **Push Down Automaton (Page 112)**
- None of given options

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129. The production of the form: Nonterminal-> ^ is said to be _____ production

- **NULL (Page 99)**
- UNIT
- Chomsky form production
- None of the given options

130. In a STACK:

- The element PUSHed first is POPed first
- **The element PUSHed first is POPed in the last (Page 107 concept)**
- The element PUSHed in last is POPed in last
- None of given options

131. Kleene star closure can be defined

- **Over any set of string (Page 7)**
- Over specific type of string

132. While finding RE corresponding to TG, we connect the new start state to the old start state by the transition labeled by

- A
- B
- **null string (Page 26)**
- None of the given options

133. For a given input, it provides the compliment of Boolean AND output.

- **NAND box (NOT AND) (Page 63)**
- DELAY box
- OR box
- AND box

134. It delays the transmission of signal along the wire by one step (clock pulse).

- NAND box (NOT AND)
- **DELAY box (Page 63)**
- OR box
- AND box

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135. Any language that can not be expressed by a RE is said to be regular language.

- True
- **False**

136. The current in the wire is indicated by 1 and 0 indicates the absence of the current.

- **True (Page 63)**
- False

137. For the given input, AND box provides the Boolean AND output.

- **True (Page 63)**
- False

138. If L1 and L2 are regular languages_____ is/are also regular language(s).

- L1 + L2
- L1L2
- L1*
- **All of above (Page 10)**

139. Let L be a language defined over an alphabet Σ, then the language of strings, defined over Σ, not belonging to L, is called Complement of the language L, denoted by Lc or L'.

- **True (Page 66)**
- False

140. To describe the complement of a language, it is very important to describe the ---------- of that language over which the language is defined.

- **Alphabet (Page 66)**
- Regular Expression
- String
- Word

141. For a certain language L, the complement of Lc is the given language L i.e. (Lc)c = Lc

- True
- **False (Page 66)**

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142. If L is a regular language then, --------- is also a regular language.

- Lm
- Ls
- Lx
- **Lc (Page 66)**

143. Converting each of the final states of F to non-final states and old non-final states of F to final states, FA thus obtained will reject every string belonging to L and will accept every string, defined over Σ, not belonging to L. is called

- Transition Graph of L
- Regular expression of L
- **Complement of L (Page 66)**
- Finite Automata of L

144. If L1 and L2 are two regular languages, then L1 U L2 is not a regular.

- True
- **False (Page 65)**

145. If L1 and L2 are regular languages, then these can be expressed by the corresponding FAs.

- **True (Page 68)**
- False

146. The language that can be expressed by any regular expression is called a Non regular language.

- True
- **False (Page 71)**

147. The languages ---------- are the examples of non regular languages.

- **PALINDROME and PRIME (Page 71)**
- PALINDROME and EVEN-EVEN
- EVEN-EVEN and PRIME
- FACTORIAL and SQURE

148. Let L be any infinite regular language, defined over an alphabet Σ then there exist three strings x, y and z belonging to Σ* such that all the strings of the form xy z n for n=1,2,3, … are the words in L. called.

- Complement of L
- **Pumping Lemma (Page 72)**
- Kleene‟s theorem

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- None in given

149. Languages are proved to be regular or non regular using pumping lemma.

- **True (Page 74)**
- False

150. ---------- is obviously infinite language.

- EQUAL-EQUAL
- EVEN-EVEN
- **PALINDROME (Page 75)**
- FACTORIAL

151. If, two strings x and y, defined over Σ, are run over an FA accepting the language L, then x and y are said to belong to the same class if they end in the same state, no matter that state is final or not.

- **True (Page 75)**
- False

152. Myhill Nerode theorem is consisting of the followings,

- L partitions Σ* into distinct classes.
- If L is regular then, L generates finite number of classes.
- If L generates finite number of classes then L is regular.
- **All of above (Page 75)**

153. The language Q is said to be quotient of two regular languages P and R, denoted by--- if PQ=R.

- R=Q/P
- **Q=R/P (Page 78)**
- Q=P/R
- P=R/Q

154. If two languages R and Q are given, then the prefixes of Q in R denoted by Pref(Q in R).

- **True (Page 78)**
- False

155. Let Q = {aa, abaaabb, bbaaaaa, bbbbbbbbbb} and R = {b, bbbb, bbbaaa, bbbaaaaa} Pref (Q in R) is equal to,

- **{b,bbba,bbbaaa} (Page 78)**
- {b,bba,bbaaa}
- {ab,bba,bbbaa}

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- {b,bba,bbba}

156. If R is regular language and Q is any language (regular/ non regular), then Pref (Q in R) is ---------.

- Non-regular
- Equal
- **Regular (Page 79)**
- Infinite

157. _____ states are called the halt states.

- **ACCEPT and REJECT (Page 105)**
- ACCEPT and READ
- ACCEPT AND START
- ACCEPT AND WRITE

158. The part of an FA, where the input string is placed before it is run, is called _____

- State
- Transition
- **Input Tape (Page 105)**
- Output Tape

159. In new format of an FA (discussed in lecture 37), This state is like dead-end non final state

- ACCEPT
- **REJECT (Page 105)**
- STATR
- READ

160. Between the two consecutive joints on a path:

- One character can be pushed and one character can be popped
- **Any no. of characters can be pushed and one character can be popped (Page 122)**
- One character can be pushed and any no. of characters can be popped
- Any no. of characters can be pushed and any no. of characters can be popped

161. The PDA is called non-deterministic PDA when there are more than one out going edges from…… state

- START or READ
- POP or REJECT
- **READ or POP (Page 111)**

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- PUSH or POP

162. Identify the TRUE statement:

- A PDA is non-deterministic, if there are more than one READ states in PDA
- A PDA is never non-deterministic
- **Like TG, A PDA can also be non-deterministic (Page 111)**
- A PDA is non-deterministic, if there are more than one REJECT states in PDA

163. There is a problem in deciding whether a state of FA should be marked or not when the language Q is infinite.

- **True (Page 79)**
- False

164. If an effectively solvable problem has answered in yes or no, then this solution is called ---------

- **Decision procedure (Page 80)**
- Decision method
- Decision problem
- Decision making

165. The following problem(s) ---------- is/are called decidable problem(s).

- The two regular expressions define the same language
- The two FAs are equivalent
- **Both a and b (Page 80)**
- None of given

166. To examine whether a certain FA accepts any words, it is required to seek the paths from ------- state.

- Final to initial
- Final to final
- **Initial to final (Page 81)**
- Initial to initial

167. The high level language is converted into assembly language codes by a program called compiler.

- **TRUE (Page 87)**
- FALSE

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168. Grammatical rules which involve the meaning of words are called ----------

- **Semantics (Page 87)**
- Syntactic
- Both a and b
- None of given

169. Grammatical rules which do not involve the meaning of words are called ----------

- Semantics
- **Syntactic (Page 87)**
- Both a and b
- None of given

170. The symbols that must be replaced by other things are called _____

- Productions
- Terminals
- **Non-terminals (Page 87)**
- None of given

171. The grammatical rules are often called_____

- **Productions (Page 87)**
- Terminals
- Non-terminals
- None of given

172. The terminals are designated by _____ letters, while the non-terminals are designated by _____ letters.

- Capital, bold
- **Small, capital (Page 87)**
- Capital, small
- Small, bold

173. The language generated by _____ is called Context Free Language (CFL).

- FA
- TG
- **CFG (Page 87)**
- TGT

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174. S → aXb|bXa X → aX|bX|Λ The given CFG generates the language in English _____

- **Beginning and ending in different letters (Page 91)**
- Beginning and ending in same letter
- Having even-even language
- None of given

175. The CFG is not said to be ambiguous if there exists atleast one word of its language that can be generated by the different production trees,

- TRUE
- **FALSE (Page 95)**

176. The language generated by that CFG is regular if _____

- No terminal → semi
- word No terminal → word
- **Both a and b (Page 97)**
- None of given

177. The production of the form no terminal → Λ is said to be null production.

- **TRUE (Page 99)**
- FALSE

178. CNF is stands for

- Context Normal Form
- Complete Normal Form
- **Chomsky Normal Form (Page 102)**
- Compared Null Form

179. Kleene"s theorem states

- All representations of a regular language are equivalent.
- All representations of a context free language are equivalent.
- All representations of a recursive language are equivalent
- **Finite Automata are less powerful than Pushdown Automata. (Page 105)**

180. Null production is a

- Word
- String
- Terminal
- **All of the given options**

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181. In nondeterministic PDA a string is supposed to be accepted, if there exists at least one path traced by the string, leading to _____ state.

- **ACCEPT (Page 111)**
- REJECT
- START
- READ

182. The CFG which generates the regular language is called:

- Regular expression
- Finite Automata
- **Regular grammar (Page 97)**
- None of the given options

183. If a CFG has a null production, then it is possible to construct another CFG accepting the same language without null production

- TRUE
- **FALSE (Page 99)**

184. In large FA with thousands of states and millions of directed edges, without an effective procedure it is _____ to find a path from initial to final state.

- Always easy
- **Impossible (Page 81)**
- may be good
- always impossible

185. If there is no final state of two FAs then their _____ also have no _____ state

- initial, union
- final, union
- **union,final (Page 83)**
- union, initial

186. Set of all palindromes over {a,b} is:

- Regular
- Regular and finite
- Regular and infinite
- **Non-regular (Page 71)**

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187. In the context of Myhill Nerode theorem, for even-even language sigma star can be partitioned into _____ number of classes.

- 3
- **4 (Page 77)**
- 5
- 6

188. The product of two regular languages is _____.

- **Regular (Page 78)**
- Infinite
- non-regular
- closure of a regular language

189. incase of Myhill Nerode theorem, if a language L partitions sigma star into distinct classes and L is also regular then L generates_____ number of classes.

- Infinite
- specified
- **finite (Page 75)**
- odd

190. While determining regular expression for a given FA, it is _____ to write its regular expression.

- Always possible easily
- **Sometime impossible (Page 80)**
- always impossible
- None of the given options

191. If (L1 ∩ L2c) ∪ (L1c ∩ L2) is regular language that accepts the words which are in L1 but not in L2 or else in L2 but not in L1 . The corresponding FA cannot accept any word which is in _____ L1 and L2.

- Not both
- **Both (Page 80)**
- At least in one
- None of the given options

192. A problem that has decision procedure is called _____ problem.

- Regular language
- un-decidable
- Infinite

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- **Decidable (Page 80)**

193. The product of two regular languages is _____.

- **Regular (Page 78)**
- Infinite
- non-regular
- closure of a regular language

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