Beni Suef University
Faculty of Computers and Artificial Intelligence
Second Semester 2020 / 2021
2nd year Students

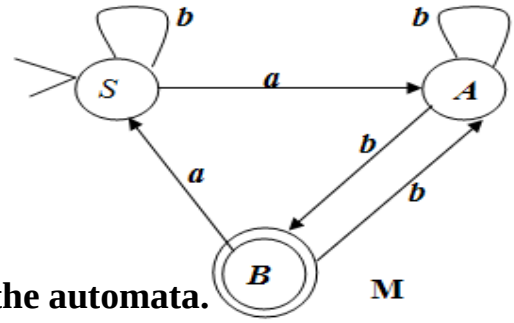
Select **only one** Research:

Research 1:

Question 1:

a) Write (true) or (false) for which of the string recognized by M

i) bbab ( )
ii) baab ( )
iii) abab ( )
iv) abaab ( )



M

b) Give the regular grammar .

c) Construct the transition table for the automata.

Question 2:

Let G be the grammer : $S \rightarrow A\ c$

$A \rightarrow BA\ / \lambda$

$B \rightarrow aB / b$

a. Trace the action of the Depth- First Top-Down Parsing Algorithm as it parses the string ***abbc***.

b. Trace the stack

c. Build the tree constructed by the parser

Question 3: Write a program to read the grammar and the string and then test is the string belongs to the language or not ? (select any programming language)

---------- **Best Wishes**----------

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Faculty of Computers and Artificial Intelligence
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3rd year Students
Computer Science Department

Research 2:

Question 1:

a) Let G be the grammar:

$$E \rightarrow E+E \,/\, E*E \,/\, (E) \,/\, id$$

- **Construct the left and right most derivation of the string (*id+id*id)* .**

b) Give the regular expression for each of the following:
that the n

i. **umber of *a's* is divisible by four.**
ii. **that do not contain *aa*.**

Question 2:

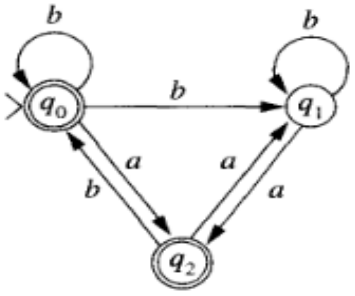
Let G be the grammer : S→ A c
A →BA / λ
B→ aB / b

a. Trace the action of the Breadth- First Top-Down Parsing Algorithm as it parses the string abbc .
b. Trace the Queue.
c. Build the tree constructed by the parser.
d. Give the implementation for the parser . (select any programming language).

Question 3:

a) Construct the transition table for the automata.

b) Give the regular grammar and regular expression for the automata.



---------- **Best Wishes**----------

عناصر تقييم الـ Sheet

Cover of the Sheet

- **Student Name :……**
- **Student ID : ……**
- **Sheet No.: ……**
- **Level :……**
- **Course Name: Automata and Language Theory**
- **Course code : CS 342**
- **Instructor: Dr.Doaa Shebl**

1- عناصر التقييم :

العنصر	التقييم بالدرجات
الشكل العام و استكمال جميع العناصر المطلوبة(5%)	
السؤال الاول (30%)	
السؤال الثانى (30%)	
السؤال الثالث (30%)	
المراجع العلمية (5%)	
مجموع الدرجات	