AMERICAN INTERNATIONAL UNIVERSITY-BANGLADESH

Choose an item.

Assignment Cover Sheet

Assignment Title:	Assignment 2			
Assignment No:	2		Date of Submission:	1 March 2023
Course Title:	THEORY OF COMPUTATION			
Course Code:	CSC3113		Section:	H
Semester:	Spring	2022-23	Course Teacher:	**SHAKILA RAHMAN**

Declaration and Statement of Authorship:

1. I/we hold a copy of this Assignment/Case-Study, which can be produced if the original is lost/damaged.
2. This Assignment/Case-Study is my/our original work and no part of it has been copied from any other student's work or from any other source except where due acknowledgement is made.
3. No part of this Assignment/Case-Study has been written for me/us by any other person except where such collaborationhas been authorized by the concerned teacher and is clearly acknowledged in the assignment.
4. I/we have not previously submitted or currently submitting this work for any other course/unit.
5. This work may be reproduced, communicated, compared and archived for the purpose of detecting plagiarism.
6. I/we give permission for a copy of my/our marked work to be retained by the Faculty for review and comparison, including review by external examiners.
7. I/we understand thatPlagiarism is the presentation of the work, idea or creation of another person as though it is your own. It is a formofcheatingandisaveryseriousacademicoffencethatmayleadtoexpulsionfromtheUniversity. Plagiarized material can be drawn from, and presented in, written, graphic and visual form, including electronic data, and oral presentations. Plagiarism occurs when the origin of them arterial used is not appropriately cited.
8. I/we also understand that enabling plagiarism is the act of assisting or allowing another person to plagiarize or to copy my/our work.

* *Student(s) must complete all details except the faculty use part.*
** Please submit all assignments to your course teacher or the office of the concerned teacher.

Group Name/No.:

No	Name	ID	Program	Signature
1	MD Nahid Hasan	21-45018-2	Choose an item.	
2			Choose an item.	
3			Choose an item.	
4			Choose an item.	
5			Choose an item.	
6			Choose an item.	
7			Choose an item.	
8			Choose an item.	
9			Choose an item.	
10			Choose an item.	

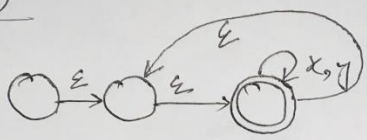
Faculty use only		
FACULTYCOMMENTS	**Marks Obtained**	
	Total Marks	

Name : MD Nahid Hasan

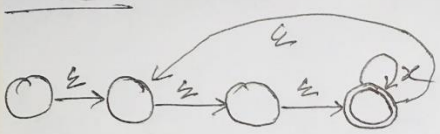
ID : 21-45018-2

1] $(x \cup y)^* \cup (x^* \cup y^*)x$ RE to NFA

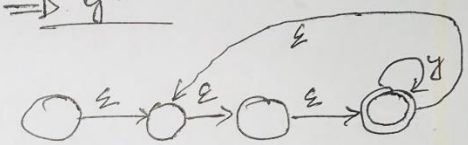
$\Rightarrow (x \cup y)^*$



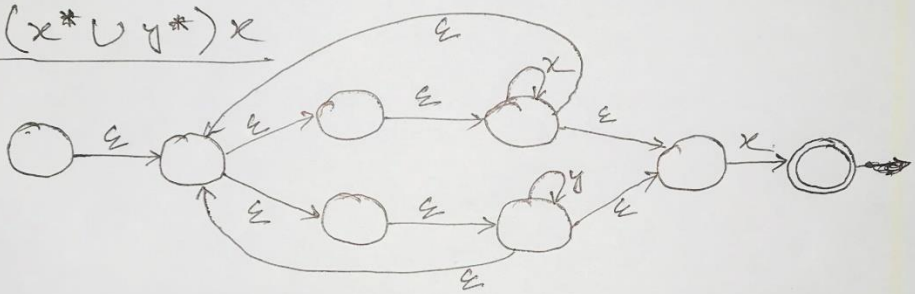
$\Rightarrow x^*$



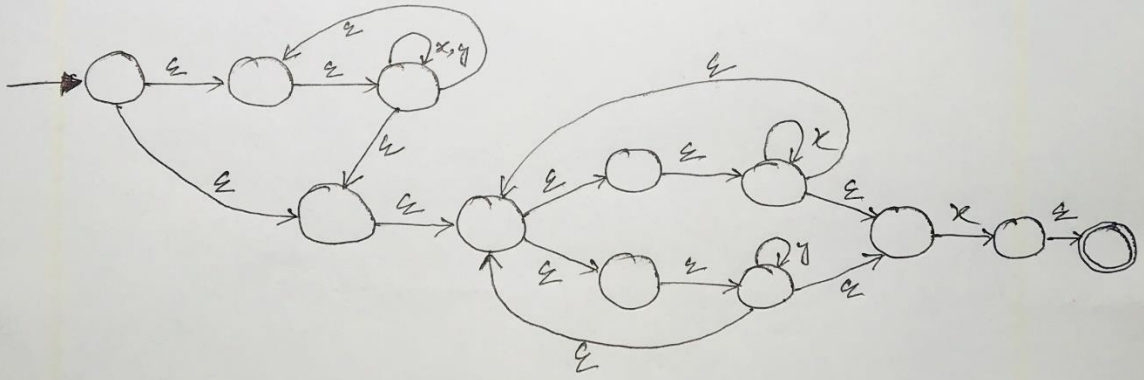
$\Rightarrow y^*$



$\Rightarrow (x^* \cup y^*)x$



$\Rightarrow (x \cup y)^* \cup (x^* \cup y^*)x$



(Ans)

2] {w | each a in w is followed by exactly three b}

= {abbb, abbbabbb, babbb, bbbabbbabbb, ...}

= {(b*) ∪ a(bbb)*}

So, w can start with either zero or more b's or it can start with a and followed by 3 b's.

3] ① cddcc(c∪d)*

= {w | w starts with substring "cddcc" and ends with either c and d.}

(P1) ① (c∪d)(c∪d)*

= {w | w starts with either c and d and ends with either c and d.}