2 marks

Q3. a^k b^L c^K K>=1, L>=0

$a^k b^L c^k$

$a^1 b^0 c^1$

$K = 1, L = 0$

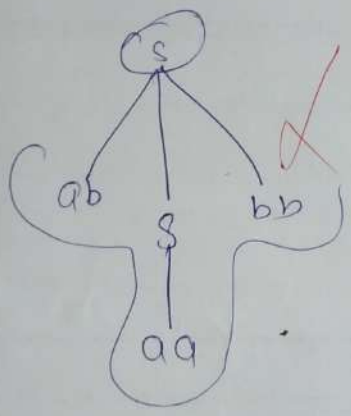
$S \longrightarrow ac$ at minimum case $L = 0, K = 1$

$S \longrightarrow a^1 b^0 c$ at $L = 1$

3 marks

Q4. Generate the string w=abaabb from the given CFG.
S → SS | aSb | ε

$S \longrightarrow ab \mid aa \mid bb$



UNIVERSITY OF MANAGEMENT & TECHNOLOGY, LAHORE CAMPUS
SST, Department of Computing (CS)

Quiz# 3 – Theory Paper: Theory of Automata V3

Instructor: Rana Marwat Hussain

Name # Syed Ali Murtaza SID # F2020266433 Signature# _____

Total Marks: 10

Note: (A) Attempt all Questions.

(B) Write only in the Given Space no extra sheet or any other material will be allowed/given.

(C) Each question contains different marks as shown on the label.

(D) Cutting/rewriting/overwriting will not accept especially in output questions. Please avoid it.

(E) Time for completing each section is mentioned separately.

Q1. a^2n+2 b^4 n>=0 **3 marks**

$a^{2n+2}\ b^4$

$S \longrightarrow aabbbb \mid aa$

4

2 marks

Q2. Construct the CFG for the language having any number of a's & b's over the set ∑= {a,b}.

(1) $S \longrightarrow asb$

✓ 1

2 marks

Q3. a^k b^L c^K K>=1, L>=0

$a^k\ b^L\ c^k$

$a^1\ b^0\ c^1$

ac

$S \rightarrow S_1 \mid B$

$S \rightarrow (aSc \mid ac)$

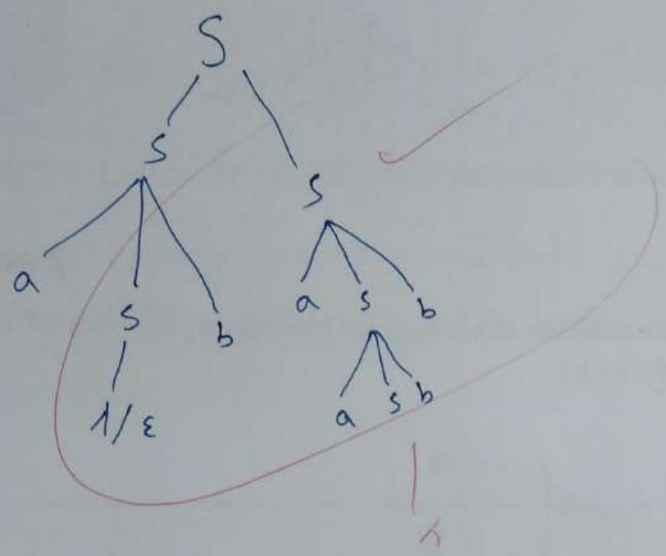
$B \rightarrow (bB \mid 1)$

$a^2\ b^1\ c^2$

aabcc

3 marks

Q4. Generate the string w=abaabb from the given CFG.
S → SS | aSb | ε



UNIVERSITY OF MANAGEMENT & TECHNOLOGY, LAHORE CAMPUS
SST, Department of Computing (CS)
Quiz# 3 – Theory Paper: Theory of Automata V3
Instructor: Rana Marwat Hussain

Name # M. Ahmad Abdul Hameed SID # F2020266374 Signature# Ahmad

Total Marks: 10

Note: (A) Attempt all Questions.

(B) Write only in the Given Space no extra sheet or any other material will be allowed/given.

(C) Each question contains different marks as shown on the label.

(D) Cutting/rewriting/overwriting will not accept especially in output questions. Please avoid it.

(E) Time for completing each section is mentioned separately.

5

Q1. a^2n+2 b^4 n>=0 **3 marks**

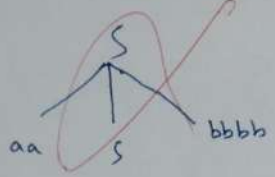
$a^{2n+2}\ b^4$

$n=0$

$a^{2\cdot0+2}\ b^4$

$a^2\ b^4$

$S \longrightarrow (aa\ S bbbb \mid an)$



2 marks

Q2. Construct the CFG for the language having any number of a's & b's over the set ∑= {a,b}.

$a^n b^n$

$n=1$

$a^1 b^1$

also written as

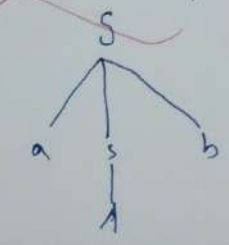
ab

$n=0$

$a^0 b^0$

λ

$S \rightarrow (a S b \mid \lambda)$



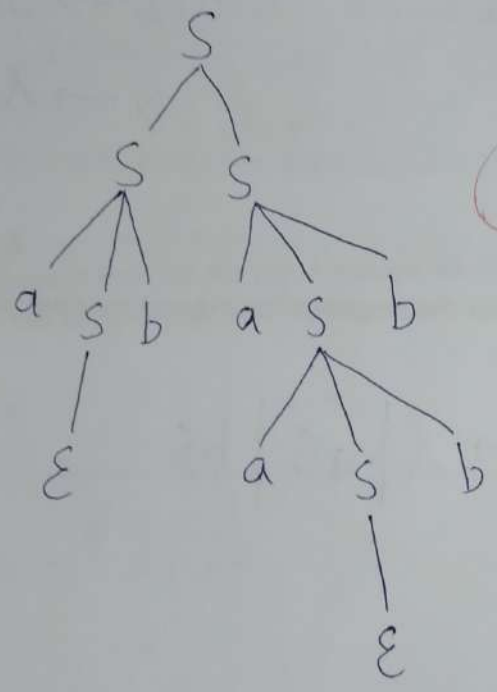
2 marks

Q3. a^k b^L c^K K>=1, L>=0

$S \rightarrow \Lambda \mid aSc \mid Sb$

3 marks

Q4. Generate the string w=abaabb from the given CFG.
S → SS | aSb | ε



UNIVERSITY OF MANAGEMENT & TECHNOLOGY, LAHORE CAMPUS
SST, Department of Computing (CS)
Quiz# 3 – Theory Paper: Theory of Automata V3
Instructor: Rana Marwat Hussain

Name # Muqsit Islam SID # F2020266003 Signature#

Total Marks: 10

Note: (A) Attempt all Questions.

(B) Write only in the Given Space no extra sheet or any other material will be allowed/given.

(C) Each question contains different marks as shown on the label.

(D) Cutting/rewriting/overwriting will not accept especially in output questions. Please avoid it.

(E) Time for completing each section is mentioned separately.

10

Q1. a^2n+2 b^4 n>=0 **3 marks**

$n=1 :- a^{2+2}b^4 = aaaabbbb$

$n=2 :- a^{4+2}b^4 = aaaaaabbbb$

$n=3 :- a^{6+2}b^4 = aaaaaaaabbbb$

$n=0 :- a^2b^4 = aabbbb$

$S \rightarrow aa$

$S \rightarrow bbbb$

(1) $S \rightarrow SaaS \mid \lambda$

$S \rightarrow \lambda$

2 marks

Q2. Construct the CFG for the language having any number of a's & b's over the set ∑= {a,b}.

$S \rightarrow \lambda \mid aS \mid bS$

2 marks

Q3. a^k b^L c^K K>=1, L>=0

3 marks

Q4. Generate the string w=abaabb from the given CFG.

S → SS | aSb | ε

UNIVERSITY OF MANAGEMENT & TECHNOLOGY, LAHORE CAMPUS

SST, Department of Computing (CS)

Quiz# 3 – Theory Paper: Theory of Automata V3

Instructor: Rana Marwat Hussain

Name # _____ SID #_____ Signature#_____

Total Marks: 10

Note: (A) Attempt all Questions.

(B) Write only in the Given Space no extra sheet or any other material will be allowed/given.

(C) Each question contains different marks as shown on the label.

(D) Cutting/rewriting/overwriting will not accept especially in output questions. Please avoid it.

(E) Time for completing each section is mentioned separately.

Q1. a^2n+2 b^4 n>=0 **3 marks**

2 marks

Q2. Construct the CFG for the language having any number of a's & b's over the set ∑= {a,b}.