UNIT-II Regular Expressions

Q.1) Construct DFA for the R.E l0 + (0 + ll) (6 Marks Nov-2016)

Q.2) State the pumping lemma theorem for regular sets. Show that the language L = $\{0^n \mid n \text{ is prime}\}$ is not regular. (4 Marks Nov-2016)

Q.3) Using Pumping lemma, Prove that L = $\{O^{i2}$ / i is an integer, i > l} is not-regular. (6 Marks NOV-2017)

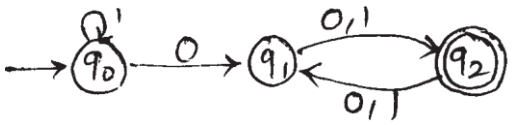
Q.4) Discuss Applications of FA & regular expressions. (4 Marks NOV-2017)

Q.5) Define the following with suitable examples (4 Marks NOV-2017)

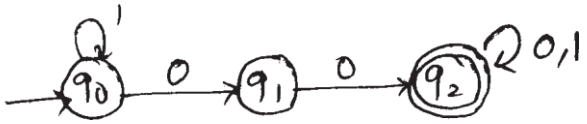
i. FA
ii. Regular Expression

Q.6) Find the regular expression for the following: (4 Marks NOV-2017)

i)



ii)



Q.7) Prove that the following language is non-regular, using pumping lemma.

L = $\{a^n b^n \mid n>0\}$ (6 Marks NOV-2017)

Q.7) Show that (0 +l)* = (0* l*)* (4 Marks Nov-2016)

Q.8) Give RE for following language over = {0, l} (6 Marks Nov-2016)

i. The language of all strings containing exactly two 0's.
ii. The language of all strings containing at least two 0's.
iii. The language of all strings not containing the substring 00

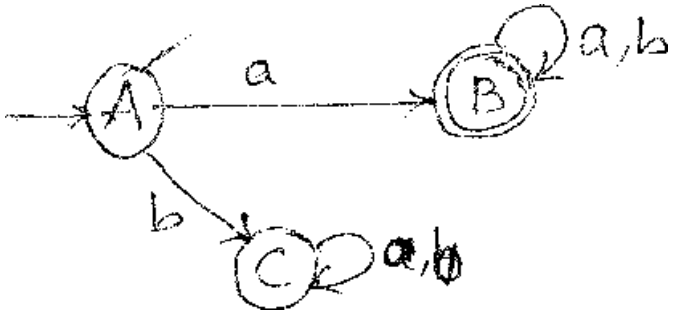
Q.8) Draw an FA recognizing the regular language corresponding to give regular expression. (5 Marks NOV-2015)

1(01 + 10)* + 0 (11 + 10)*

Q.9) Write a short note on the applications of Regular Expressions. (5 Marks NOV-2015)

Q.10) Using Pumping lemma for the regular sets Prove the language L = $\{a^{i2} \mid i$ is an integer, $i \geq 1\}$ is not- regular. (6 Marks NOV-2015)

Q.11) Construct Regular Expression for the following transition diagram using Arden's theorem. (4 Marks NOV-2015)



Q.12) What is Regular Expression 'r'. Give RE for the following language over {0, 1}. (6 Marks NOV-2014)

i. Language of all strings that begin and end with 101.
ii. If L(r) = {00, 010, 0110, 01110, ...}.

Q.13) Show that (a* b*)*=(a +b)* (4 Marks Nov-2014)

Q.14) Construct DFA for regular expression (a + b)* abb. (8 Marks Nov-2014)

Q.15) Construct NFA for following regular expressions. (8 Marks Nov-2014)

i. a * b (a + b)*
ii. (aa + bb)* bb (a + b)*

Q.16) Explain properties of regular expression. (6 Marks Nov-2014)

Q.17) Write formal definition of regular expression with suitable example. State Arden's theorem and its use. (4 Marks May-2017)

Q.18) Define regular sets. List out closure properties of regular sets. (4 Marks May -2017)

Q.19) Describe in the simple English the language defined by the following RE. (6 Marks May-2016)

i. (a+b)* a (a+b)*
ii. (01*0)* 1
iii. a(a+b)*bb

Q.20) Construct a FA for given regular expression (10)* 101(01)*. (4 Marks May-2016)

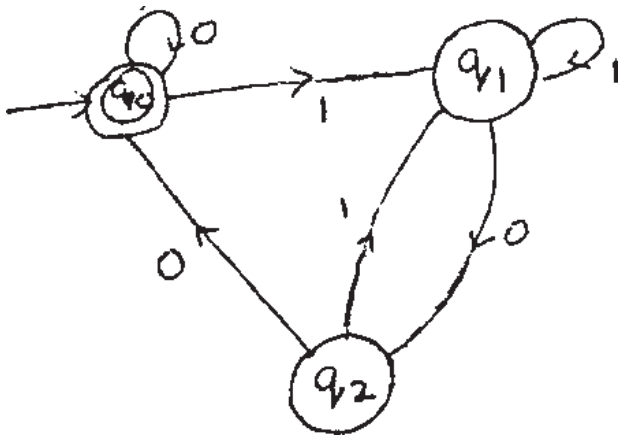
Q.21) Let ∑ = {a,b}. Write RE to define language consisting of strings such that

i. Strings without substring bb
ii. Strings that have exactly one double letter in them.

(4 Marks May-2015)

Q.22) With examples define Regular Expression. (2 Marks May-2015)

Q.23) Find RE for the following DFA using Arden's theorem. (4 Marks May-2015)



Q.24) Find all possible regular expression over L⊆{0,1}*. (4 Marks May-2013)

i. The set & all possible string containing
ii. The set of all string that do not end with "01".

Q.25) Construct a DFA for the regular expression (a+b)*(baaa). (6 Marks May-2013)

Q.26) Define regular expressions. Give RE for the following over ∑= {0,1}

i. All binary strings with at least one 0.
ii. All binary strings with at most one 0.

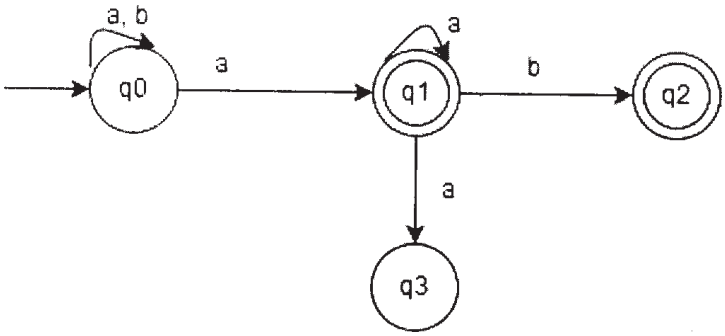
(6 Marks Aug-2014 INSEM)

Q.27) Find the regular expression corresponding to each of the following subset of {0, l}.(4 Marks Aug-2015 INSEM)

i. Language of all Strings not containing the substring 000.
ii. Language of all Strings containing an even no of 0's.

Q.28) Show that L={$a^n b^{2n}$ | n>0} is not regular. (6 Marks Aug-2015 INSEM)

Q.29) Construct a regular expression for given finite automata. (6 Marks Aug-2015 INSEM)



Q.30) Define Pumping Lemma. Prove that the language L={$a^n b^{n+1}$ | n>0} is not regular. (6 Marks May-2018 ENDSEM)

Q.31) If L(r)={ε, x, xx, xxx, xxxx, xxxxx, …….} What is r? . (4 Marks May-2018 ENDSEM)

Q.32) By using Pumping lemma, Prove that following Language

L={ $a^{n!}$ | n>=1} is not regular. (4 Marks May-2018 ENDSEM 2012 Course)

Q.33) Give RE for the following Languages over ∑= {0,1}

i) The Language of all strings containing at least two 0's.

ii) The Language of all strings containing exactly two 0's.

iii) The Language of all strings containing every 0 followed by 11.

iv) The Language of all strings not containing the substring 000.

(4 Marks May-2018 ENDSEM 2012 Course)