

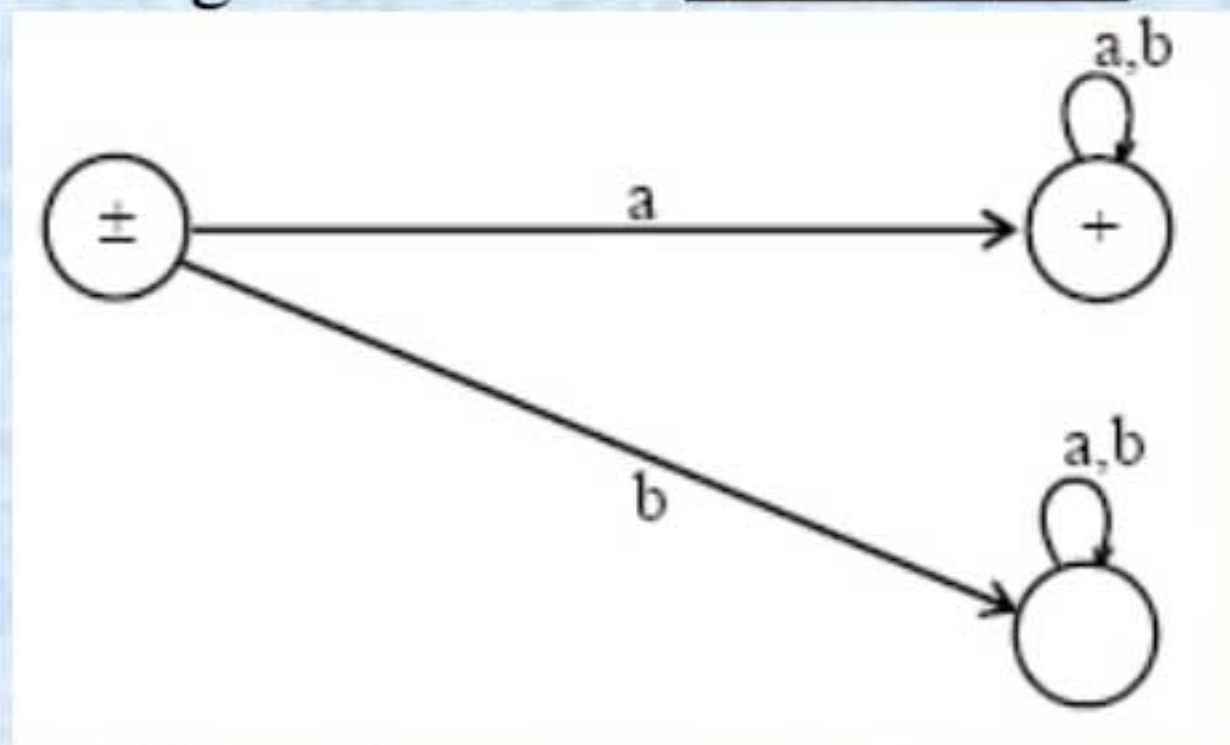
Question No: 1 (Marks: 1) - Please choose one

If $\Sigma = \{aa, bb\}$, then Σ^* will not contain

- ▶ **aaabbb**
- ▶ aabbbb
- ▶ aabbaa
- ▶ bbaabbbb

Question No: 2 (Marks: 1) - Please choose one

Below given FA has _____ RE.



- ▶ **a(a+b)*** (Page 14)
- ▶ (a(a+b)*)*
- ▶ a(a+b)*a
- ▶ a(a+b)*a + b(a+b)*b

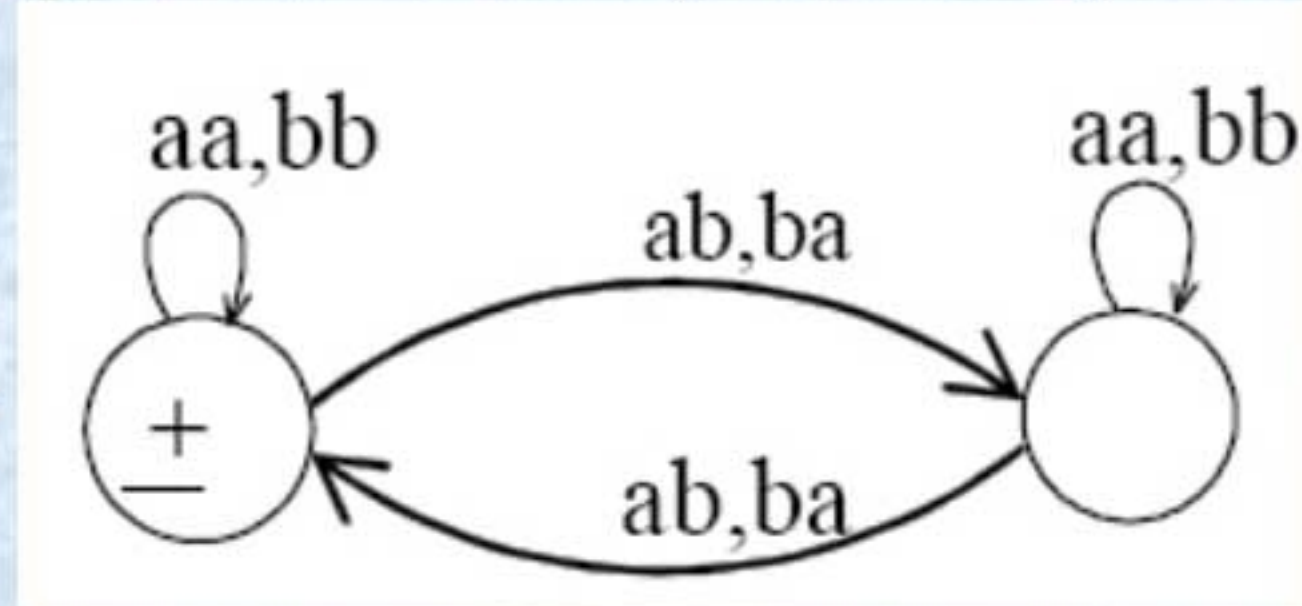
Question No: 3 (Marks: 1) - Please choose one

“One language can have _____ TG’s”.

- ▶ Only one
- ▶ Only two
- ▶ **More than one**
- ▶ Only three

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Question No: 4 (Marks: 1) - Please choose one



Above given TG represents the language i.e.

- ▶ **EVEN-EVEN** (Page 22)
- ▶ PALINDROME
- ▶ FACTORIAL
- ▶ None of these

Question No: 5 (Marks: 1) - Please choose one

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** (Page 25)

Question No: 6 (Marks: 1) - Please choose one

Even-palindrome is a _____ language.

- ▶ **Non-regular** [click here for detail](#)
- ▶ Regular
- ▶ Regular but infinite
- ▶ Regular but finite

Question No: 7 (Marks: 1) - Please choose one

If L is a regular language then, L^c is also a _____ language.

- ▶ **Regular** (Page 66)
- ▶ Non-regular
- ▶ Regular but finite
- ▶ None of the given

Question No: 8 (Marks: 1) - Please choose one

Pumping lemma is generally used to prove that:

- ▶ A given language is infinite
- ▶ **A given language is not regular** [Click here for detail](#)
- ▶ Whether two given regular expressions of a regular language are equivalent or not
- ▶ None of these

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Question No: 9 (Marks: 1) - Please choose one

If 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

Question No: 10 (Marks: 1) - Please choose one

In CFG, the symbols that can't be replaced by anything are called_____.

- ▶ **Terminal (Page 87)**
- ▶ Non-Terminal
- ▶ Production
- ▶ All of given

Question No: 11 (Marks: 1) - Please choose one

Which of the following is a regular language?

- ▶ **String of odd number of zeroes** [Click here for detail](#)
- ▶ 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

Question No: 12 (Marks: 1) - Please choose one

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^+

Question No: 13 (Marks: 1) - Please choose one

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 (Page 4)**
- ▶ No letter of Σ appears at end or middle of any other letter

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Question No: 14 (Marks: 1) - Please choose one

Which of the following statement is true

- ▶ The length of the output string is greater than length of input string in moore machine. [Click here for detail](#)
- ▶ 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.

Question No: 15 (Marks: 1) - Please choose one

If a CFG has only productions of the form
nonterminal $\rightarrow$ string of two nonterminals
or
nonterminal $\rightarrow$ one terminal
then the CFG is said to be in _____

- ▶ **Chomsky Normal Form (Page 101)**
- ▶ Ambiguous Form
- ▶ Left Aligned Form
- ▶ Right Aligned Form

Question No: 16 (Marks: 1) - Please choose one

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

Question No: 17 (Marks: 1) - Please choose one

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

- ▶ Date tape
- ▶ **Input Tape (Page 105)**
- ▶ Output Tape
- ▶ Magnetic tape

Question No: 18 (Marks: 1) - Please choose one

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
- ▶ **Of finite tape length, without rewinding capability and unidirectional tape movement** [click here for detail](#)

Question No: 19 (Marks: 1) - Please choose one

The process of finding the derivation of the word generated by particular grammar is called _____

- ▶ Processing
- ▶ **Parsing (Page 136)**
- ▶ Programming
- ▶ Planning

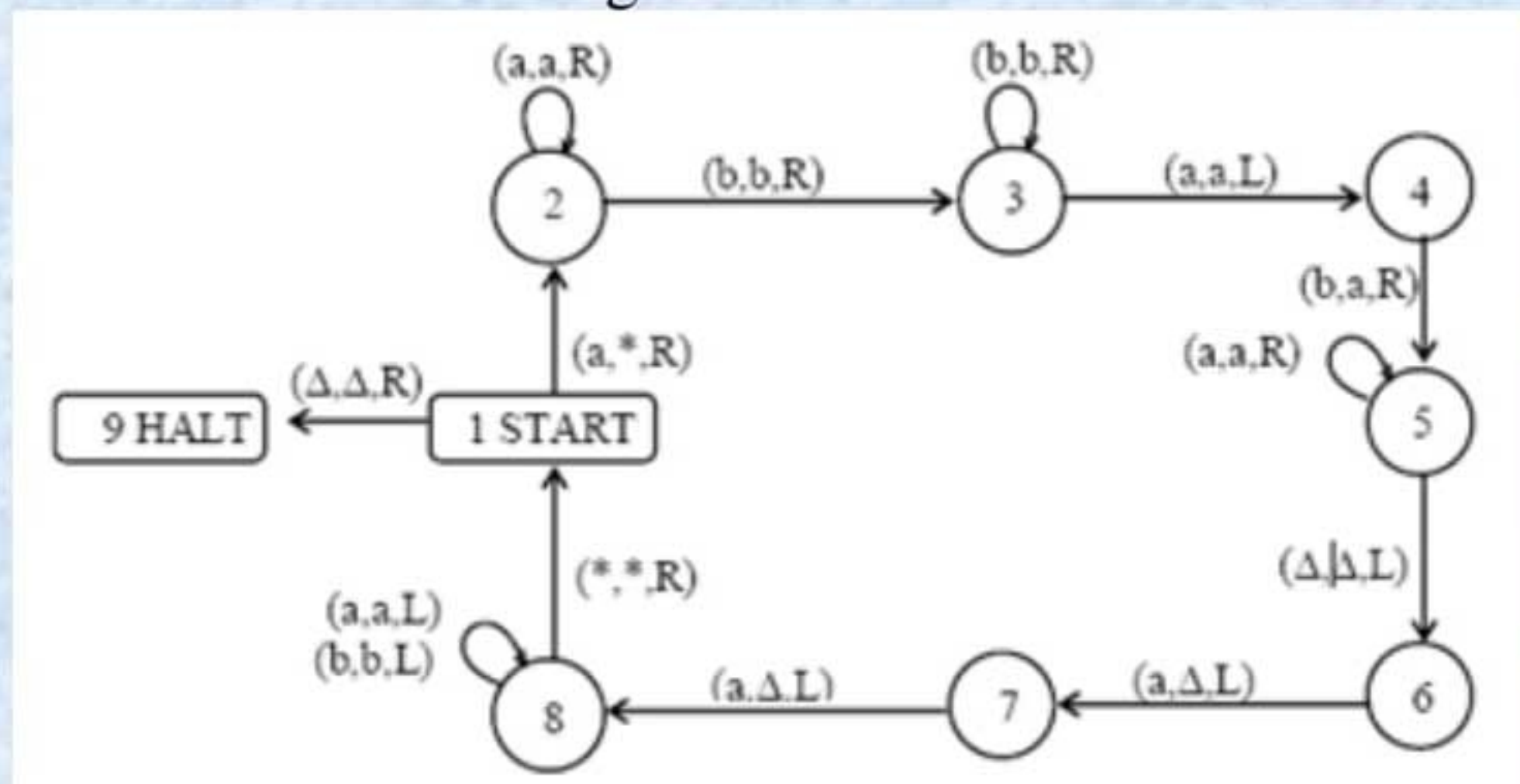
Question No: 20 (Marks: 1) - Please choose one

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

Question No: 21 (Marks: 1) - Please choose one

Consider the following TM



- ▶ Above TM accepts the non-CFL $\{a b c\}$
- ▶ **Above TM accepts the non-CFL $\{a^n b^n a^n\}$ (Page 142)**
- ▶ Above TM accepts the non-CFL $\{a^n b^{n+2} a^n\}$

Question No: 22 (Marks: 1) - Please choose one

Alphabet $\Sigma = \{a, bc, cc\}$ has number of letters

- ▶ One
- ▶ Two
- ▶ **Three**
- ▶ Four

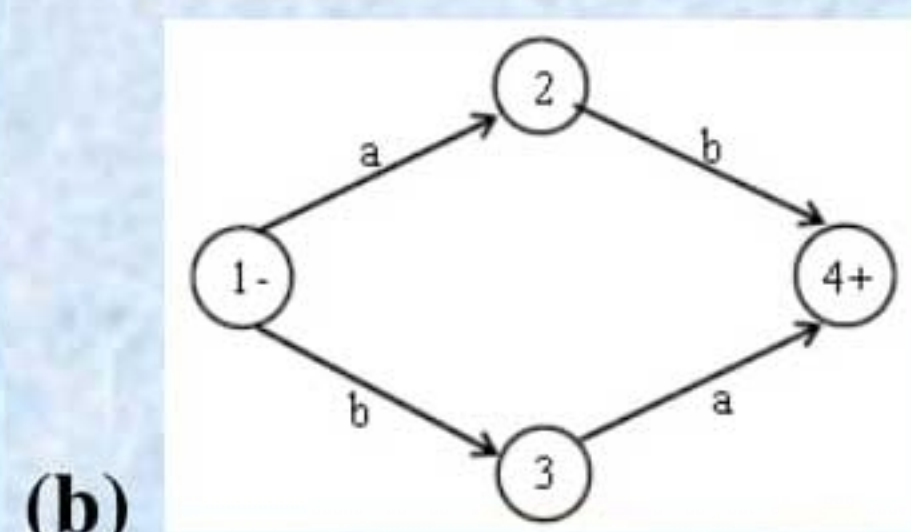
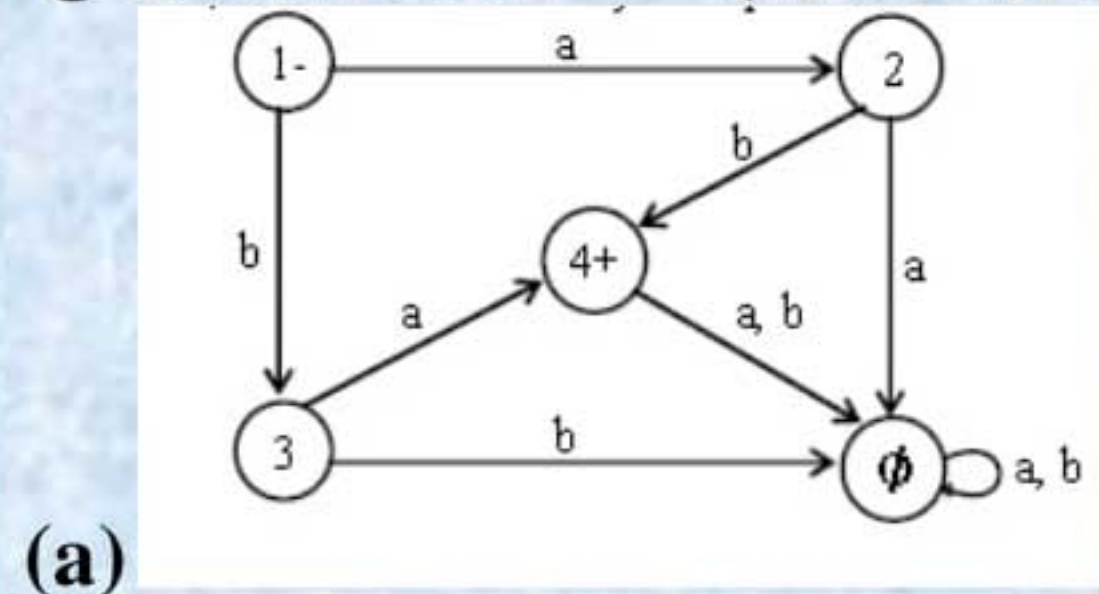
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Question No: 23 (Marks: 1) - Please choose one

If $r1$ is a regular expression then $r1^*$ is a _____

- ▶ GTG
- ▶ NFA
- ▶ FA
- ▶ **RE (Page 9)**

Question No: 24 (Marks: 1) - Please choose one



- ▶ **(a) is FA, (b) is NFA (Page 43)**
- ▶ (a) is NFA, (b) is FA
- ▶ (a) is TG, (b) is FA
- ▶ (a) is TG, (b) is GTG

Question No: 25 (Marks: 1) - Please choose one

We cannot write regular expressions for all _____.

- ▶ FA's
- ▶ TG's
- ▶ NFA's
- ▶ **CFG's (Page 97)**

Question No: 26 (Marks: 1) - Please choose one

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

- ▶ FA
- ▶ TG
- ▶ **PDA** [click here for detail](#)
- ▶ Regular Grammar

Question No: 27 (Marks: 1) - Please choose one

Pumping Lemma II says that $\text{length}(x) + \text{length}(y)$ should be _____.

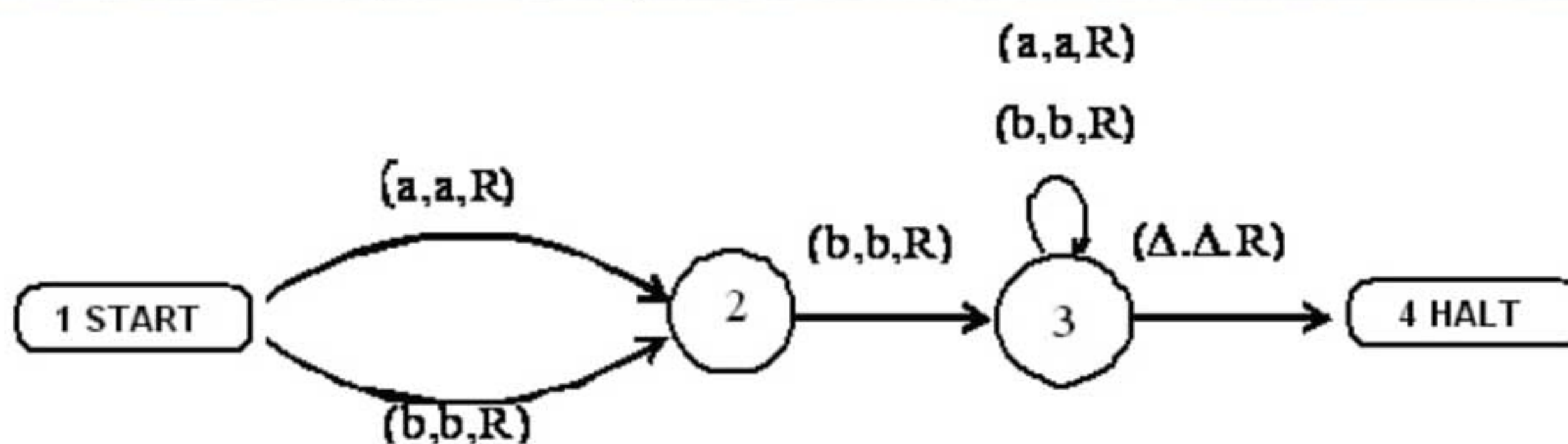
- ▶ **Less than number of states (Page 75)**
- ▶ Equal to number of states
- ▶ Greater than number of states
- ▶ Greater than or equal to number of states

Question No: 28 (Marks: 1) - Please choose one

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

- ▶ **John cock (Page 135)**
- ▶ James Cock
- ▶ Daniel I.A.
- ▶ John Weiss

Question No: 29 (Marks: 1) - Please choose one



The above machine is a/anTG _____

- ▶ Finite Automata
- ▶ **Turing machine (Page 141)**
- ▶ FA
- ▶ TG

Question No: 30 (Marks: 1) - Please choose one

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

- ▶ FA
- ▶ NFA
- ▶ TG
- ▶ **PDA (Page 91)**

Hint: - as it is non-regular so its CFG and PDA are possible.

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Question No: 31 (Marks: 1) - Please choose one

Which of the following statement(s) is/are true or false?

- (1) The Turing Machine is similar to a finite automation but with an unlimited and unrestricted memory.
(2) A Turing machine much more accurate model of a general purpose computer.

- ▶ **Statement 1 is true** [Click here for detail](#)
- ▶ **Statement 2 is true** [Click here for detail](#)
- ▶ Both statements (1 & 2) are false
- ▶ Statement 2 is false

Question No: 32 (Marks: 1) - Please choose one

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

- ▶ Parser
- ▶ Lexical analyzer
- ▶ **Scanner** [Click here for detail](#)
- ▶ Interpreter

Hint: - The first phase of a compiler is called lexical analysis (and is also known as a lexical scanner).

Question No: 33 (Marks: 1) - Please choose one

$(\Sigma^* - L)$ represent the _____ of a language L.

- ▶ **Complement** (Page 66)
- ▶ Kleene's closure
- ▶ Union
- ▶ intersection

Question No: 34 (Marks: 1) - Please choose one

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

Question No: 35 (Marks: 1) - Please choose one

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

- ▶ Null, nullable productions
- ▶ Nullable, unit productions
- ▶ **Null, unit productions** (Page 102)
- ▶ String of length 0, null

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Question No: 36 (Marks: 1) - Please choose one

If L1 and L2 are expressed by regular languages then $L1 + L2$ is also a _____ Language.

► **Regular (Page 10)**

- Ir-regular
- PDA
- Hybrid

Question No: 37 (Marks: 1) - Please choose one

Which of the following is a regular Context Free Grammar:

► $S \rightarrow abS \mid baS \mid \epsilon$ $ab(ab+ba)^*ba + ba(ab+ba)^*ab$

► $S \rightarrow aSb \mid baS \mid \epsilon$

► $S \rightarrow abS \mid bSa \mid \epsilon$

► $S \rightarrow aSb \mid Sa \mid \epsilon$

Hint :- remaining represents palindromes language which is non-regular

Question No: 38 (Marks: 1) - Please choose one

A read state can have _____ outgoing edge/ edges.

► 1

► 2

► 3

► **Any number of (Page 111)**

Question No: 39 (Marks: 1) - Please choose one

Finite Automaton (FA) and Nondeterministic Finite Automaton (NFA) are equivalent if

► **FA and NFA accept the same language (Page 43) [Also click here for detail](#)**

► FA shape is same like an NFA

► FA accept the null string also

► NFA accept the null string also

Question No: 40 (Marks: 1) - Please choose one

_____ is always Deterministic.

► **Finite Automaton (Page 25)**

► Transition Graph

► Generalize Transition Graph

► Non-deterministic finite automaton

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