1.	A mathematical model of a machine with the ability of a read-head to move left as well as right is a
	 DFA 2DFA both a and b none
2.	2DFA tuples are
	 4 5 6 7
3.	Full form of ID
	 Input data Indistinguishable none Instantaneous description
4.	For a 2DFA, δ is defined as :
	• $Q \times \Sigma \longrightarrow Q$ • $Q \times \Sigma \longrightarrow Q \times \{L,R\}$ • both a and b • None
5.	Let P and Q be two regular expressions over Σ and if P does not contain $\pmb{\epsilon}$ then R = Q + RP has a unique solution given by
	 R=PQ* R=PQ+ R=QP* none
6.	Select a Regular expression which generates all strings that start with ab and end with bba
	 aba*b*bba ab(ab)*bba ab(a+b)*bba all
7.	A DFA is minimal, if and only if
	 All its states are reachable from the start state All its states are distinguishable both a and b none
8.	$R.\epsilon = \epsilon.R =$
	 0 Φ R ε
9.	(S+T)R =
40	 SR+TR RS+RT both a and b none
10.	5
	 (11)+1 (11)*1 both a and b

11.	11. Construct a RE for even number of 1's.					
	• (11)*					
	• (11)+					
	• both a and b					
12	• none					
12.	Standard representations of regular languages are: • Regular expressions					
	DFA					
	regular grammars					
	• All					
13.	Regular set is L={0,1,10,100,1000,}, but Regular expression is represented as					
	(0+10*)(0+1)*					
	• (010*)					
	• (010*)					
14.	The regular expression is (a+b)* then regular set is					
	• L={(ε)a,b,aa,ab,ba,bb}					
	L={a,b,aa,ab,ba,bb}both a and b					
	none					
15.	Set of strings of a's and b's ending with abb. How it can be represented by regular expression.					
	• (a+b)+abb					
	• (a+b)*abb					
	• both a and b					
	• none					
16.	$R.\Phi = \Phi.R =$					
	 R O					
	• Φ					
	• none					
17.	A CFG is said to be in CNF, if all productions are of the form:					
	 A→BC, A→a 					
	 A→aC, A→ab 					
	• both a and b					
10	• none A CEC is if there evicts unique LMD/DMD					
18.	A CFG is if there exists unique LMD/RMD • ambiguous					
	• unambiguous					
	both a and b					
	• none					
19.	If there are different parse trees for LMD and RMD then the grammar is called					
	ambiguousunambiguous					
	unambiguousrecursive					
	unrestricted					
20.	is useful to display the derivations as trees.					
	Derivation Tree					
	Parse Tree					
	both a and b					

none

	•	none		
21.	In der	ivation tree all leaf nodes of the tree are labelled by of the grammar		
	•	Terminals		
	•	non-terminals		
	•	both a and b		
	•	none		
22.	In der	ivation tree the interior nodes are labelled using		
	•	Terminals		
	•	non-terminals		
	•	both a and b		
	•	none		
23.	Deriva	ation tree is also called		
	•	Parse Tree		
	•	A-Tree		
	•	B-Tree		
	•	none		
24.	A deri	vation, in which, in each step left most variable is replaced, is called		
	•	LMD		
	•	RMD		
	•	both a and b		
	•	none		
25.	A deri	vation, in which, in each step right most variable is replaced, is called		
	•	LMD		
	•	RMD		
	•	both a and b		
	•	none		
26.	CFLs a	are not closed under		
	•	Intersection		
	•	Difference		
	•	Complement		
~ -	• •			
27.	The Cl	FG for defining palindrome over {a or b}. The productions P are $S \to \varepsilon a b$, $S \to aSa$, $S \to bSb$		
	and the	e grammar is G=({S}, {a,b}, P. S). This grammar is		
	•	Ambiguous		
	•	Unambiguous both a and b		
		done		
28.	_	ull form is		
20.	CIVI	Canonical normal form		
		Chomsky normal form		
		both a and b		
	•	none		
29.	Whic	n of the production rule can be accepted by Chomsky Normal Form?		
23.	• VIIIC	$A \rightarrow BC$		
		$A \rightarrow \varepsilon$		
	•	$S \rightarrow a$		
	•	all		
30.		is always stationed at one of the tape cells and provides communication for the		
	interaction between the tape and the control unit.			
	•	Таре		
	•	control unit		

31.	1. What are the components of a TM?					
	 tape head control unit all 					
32.	A decision problem which can be solved by some algorithm is called					
32.	 Undecidable Decidable both a and b none 					
33.						
	 4 5 6 7 					
34.	Which of the following is an ϵ production					
	 S → A A → ε B → a none 					
35.	Which of the following is an unit production					
	• $S \rightarrow A$ • $A \rightarrow \varepsilon$ • $B \rightarrow a$ • none					
36.	5. The format: A \rightarrow aB refers to which of the following?					
	 CNF BNF GNF none 					
37.	37. A variable which is not leading to terminal or terminal string is called					
	 Non-generating symbol null variable start variable none 					
	38. The Grammar G=					
	 (V,T,P,S) (V,T,S) (T,P,S) none 					
	39. Type2 grammar is called					
	CFGCSGURGRG					
	40. CFG is recognized by					
	10. Ci 0 13 1000 gillized by					

Head none

 Recursive Grammar non-linear either right-linear or left-linear none 42. A PDA chooses the next move based on Current state and stack top next input symbol both a and b none 43. Choose one which is not a regular expression? [(a+b)(aa+b))/(a+b) [(0+1)-(0b+a1)(a+b)] (01+11+10)* none 44. A production of the form A → B, where A and B are both non-terminals is called a Unit production ε production both a and b none 45. Which production is Useless production for the Grammar: S → A, A → aA, A → ε, B → bA S → A A → aA A → ε B → bA 46. Reduction of the grammar means Elimination of useless symbols Elimination of unit productions Elimination funit productions Elimination function for TM is defined as Q × Σ → Q × Σ × {L,R,N} Q × Σ → 2 Q Q × (Σ ∪ {ε}) → Q none 48. The language accepted by a Turning Machine is Recursively enumerable language regular language regular language regular language Context sensitive language 		
 PDA LBA LBA A grammar G=(V.T.P.S) is said to be regular, if it is		
41. A grammar G=(V.T.P.S) is said to be regular, if it is		
 Recursive Grammar non-linear either right-linear or left-linear none 42. A PDA chooses the next move based on Current state and stack top next input symbol both a and b none 43. Choose one which is not a regular expression? [(a+b)(aa+b)/(a+b) [(0+1)-(0b+a1)(a+b)/// (01+11-10)* none 44. A production of the form A → B, where A and B are both non-terminals is called a Unit production ε production both a and b none 45. Which production is Useless production for the Grammar: S → A, A → aA, A → ε, B → bA S → A A → ε B → bA 46. Reduction of the grammar means Elimination of useless symbols Elimination of productions Elimination of productions Elimination of unit productions all 47. The transition function for TM is defined as Q × Σ → Q × Σ × {L,R,N} Q × Σ → 2 Q Q × (Σ ∪ {ε}) → Q none 48. The language accepted by a Turning Machine is Recursively enumerable language regular language regular language regular language Context sensitive language 		
 non-linear either right-linear or left-linear none 42. A PDA chooses the next move based on Current state and stack top next input symbol both a and b none 43. Choose one which is not a regular expression? [(a+b)(aa+bb)/(a+b) [(0+1)-(0b+a1)(a+b)// (01+11+10)* none 44. A production of the form A → B, where A and B are both non-terminals is called a Unit production ε production both a and b none 45. Which production is Useless production for the Grammar: S → A, A → aA, A → ε, B → bA S → A A → a A A → a A A → a A Elimination of the grammar means Elimination of the grammar means Elimination of unit productions Elimination of unit productions Elimination function for TM is defined as Q × Σ → Q × Σ × {L,R,N} Q × Σ → Q × Q Q × (Σ ∪ {ε}) → Q none The language accepted by a Turning Machine is Recursively enumerable language regular language regular language Context sensitive language Context sensitive language 	41.	
 either right-linear or left-linear none 12. A PDA chooses the next move based on Current state and stack top next input symbol both a and b none 13. Choose one which is not a regular expression? [(a+b)(aa+bb)/(a+b)] [(0+1)-(0b+a1)(a+b)] (01+11+10)* none 14. A production of the form A → B, where A and B are both non-terminals is called a ——— Unit production \$\varepsilon\$ production both a and b none 15. Which production is Useless production for the Grammar: S → A, A → aA, A → \$\varepsilon\$, B → bA S → A A → aA A → aA A → a B → bA 16. Reduction of the grammar means Elimination of useless symbols Elimination of productions Elimination function for TM is defined as Q × Σ → Q × Σ × {L,R,N} Q × Σ → 2°Q Q × (Σ U {\$\varepsilon\$} → Q none 18. The transition function for TM is defined as Recursively enumerable language regular language regular language regular language Context sensitive language 		
 none 42. A PDA chooses the next move based on Current state and stack top next input symbol both a and b none 43. Choose one which is not a regular expression? [(a+b)(aa+bb)/(a+b)] ((0+1)-(0b+a1)(a+b)] (01+11+10)* none 44. A production of the form A → B, where A and B are both non-terminals is called a Unit production ε production both a and b none 45. Which production is Useless production for the Grammar: S → A, A → aA, A → ε, B → bA S → A A → aA A → ε B → bA 46. Reduction of the grammar means Elimination of useless symbols Elimination of unit productions Elimination of unit productions Elimination of unit productions Elimination of unit productions all 47. The transition function for TM is defined as Q × Σ → Q × Σ × {L,R,N} Q × Σ → 2 · Q Q × (Σ ∪ (ε)) → Q none 48. The language accepted by a Turning Machine is Recursively enumerable language regular language regular language Context sensitive language 		
 Current state and stack top next input symbol both a and b none 43. Choose one which is not a regular expression? [(a+b)(aa+bb)/(a+b)] (01+11+10)* none 44. A production of the form A → B, where A and B are both non-terminals is called a Unit production ε production both a and b none 45. Which production is Useless production for the Grammar: S → A, A → aA, A → ε, B → bA S → A A → a A A → ε B → bA 46. Reduction of the grammar means Elimination of unit productions Elimination of unit productions Elimination function for TM is defined as Q × Σ → Q × Σ × {L,R,N} Q × Σ → 2°Q Q × (Σ ∪ {ε}) → Q none 48. The language accepted by a Turning Machine is Recursively enumerable language regular language regular language regular language regular language context sensitive language 		_
 next input symbol both a and b none 43. Choose one which is not a regular expression? [{a+b}(aa+bb)/(a+b)] [{0+1}-(ob+a1)(a+b)] (01+11+10)* none 44. A production of the form A → B, where A and B are both non-terminals is called a Unit production ε production both a and b none 45. Which production is Useless production for the Grammar: S → A, A → aA, A → ε, B → bA S → A A → aA A → ε B → bA 46. Reduction of the grammar means Elimination of useless symbols Elimination of unit productions Elimination of unit productions Elimination function for TM is defined as Q × Σ → Q × Σ × {L,R,N} Q × Σ → 2 Q Q × (Σ ∪ {ε}) → Q none 48. The language accepted by a Turning Machine is Recursively enumerable language regular language regular language context sensitive language 	42.	A PDA chooses the next move based on
 both a and b none 43. Choose one which is not a regular expression? [(a+b)(aa+bb)](a+b) [(01+1)-(0b+a1)(a+b)] ((01+11+10)* none 44. A production of the form A → B, where A and B are both non-terminals is called a Unit production both a and b none 45. Which production is Useless production for the Grammar: S → A, A → aA, A → ε, B → bA S → A A → aA A → ε B → bA 46. Reduction of the grammar means Elimination of useless symbols Elimination of unit productions Elimination of unit productions all 47. The transition function for TM is defined as Q × Σ → Q × Σ × {L,R,N} Q × Σ → Q × Σ × {L,R,N} Q × Σ → 2°Q Q × (Σ ∪ {ε}) → Q none 48. The language accepted by a Turning Machine is Recursively enumerable language regular language regular language context sensitive language 		·
 none 43. Choose one which is not a regular expression? [(a+b)(aa+bb)](a+b) [(0+1)-(0b+a1)(a+b)] (01+11+10)* none 44. A production of the form A → B, where A and B are both non-terminals is called a Unit production \$\varepsilon\$ production both a and b none 45. Which production is Useless production for the Grammar: S → A, A → aA, A → \$\varepsilon\$, B → bA \$\varepsilon\$ A → \$\varepsilon\$ \$\varepsilon\$ A → aA \$\varepsilon\$ A → \$\varepsilon\$ \$\varepsilon\$ Elimination of useless symbols \$\varepsilon\$ Elimination of unit productions \$\varepsilon\$ Elimination function for TM is defined as \$\varepsilon\$ \varepsilon\$ \va		
43. Choose one which is not a regular expression? • [(a+b)(aa+bb)](a+b) • [(0+1)-(0b+a1)(a+b)] • (01+11-10)* • none 44. A production of the form A → B, where A and B are both non-terminals is called a • Unit production • ε production • both a and b • none 45. Which production is Useless production for the Grammar: S → A, A → aA, A → ε, B → bA • S → A • A → aA • A → ε • B → bA 46. Reduction of the grammar means • Elimination of useless symbols • Elimination of unit productions • Elimination of unit productions • Elimination of unit productions • all 47. The transition function for TM is defined as • Q × Σ → Q × Σ × {L,R,N} • Q × Σ → 2 · Q • none 48. The language accepted by a Turning Machine is • Recursively enumerable language • regular language • regular language • Context sensitive language		
 [(a+b)(aa+bb)](a+b) [(0+1)-(0b+a1)(a+b)] (01+11+10)* none A production of the form A → B, where A and B are both non-terminals is called a Unit production \$\varepsilon\$ production both a and b none Which production is Useless production for the Grammar: S → A, A → aA, A → \$\varepsilon\$, B → bA \$\varepsilon\$ A → aA A → aA A → \$\varepsilon\$ Elimination of useless symbols Elimination of unit productions Elimination of unit productions Elimination function for TM is defined as Q × \$\varepsilon\$ Q × \$\varepsilon\$ \(\varepsilon\$ \\\varepsilon\$ \(\varepsilon\$ \(\varepsilon\$ \varepsilon\$ \(\varepsilon\$ \(\varepsilon\$ \(\varepsilon\$ \\\\varepsilon\$ \(\varepsilon\$ \(\varepsilon\$ \\\\varepsilon\$ \(\varepsilon\$ \(\varepsilon\$ \(\varepsilon\$ \(\varepsilon\$ \(\varepsilo	43.	
 [(0+1)-(0b+a1)(a+b)] (01+11+10)* none 44. A production of the form A → B, where A and B are both non-terminals is called a Unit production \$\varepsilon\$ production both a and b none 45. Which production is Useless production for the Grammar: S → A, A → aA, A → \$\varepsilon\$, B → bA \$\varepsilon\$ A → aA A → \$\varepsilon\$ B → bA 46. Reduction of the grammar means Elimination of useless symbols Elimination of the productions Elimination of unit productions Elimination function for TM is defined as Q × \$\varepsilon\$ Q × \$\varepsilon\$ x × {L,R,N} Q × \$\varepsilon\$ Q × \$\varepsilon\$ x × {L,R,N} Q × \$\varepsilon\$ Q × \$\varepsilon\$ y \(\varepsilon\$ y \(\vareps		
 none 44. A production of the form A → B, where A and B are both non-terminals is called a Unit production \$\varepsilon\text{ production}\$ both a and b none 45. Which production is Useless production for the Grammar: S → A, A → aA, A → \$\varepsilon\text{ B} → bA \$\varepsilon\text{ A} → \varepsilon\text{ B}\$ \$\varepsilon\text{ B} → bA 46. Reduction of the grammar means Elimination of useless symbols Elimination of unit productions Elimination of unit productions all 47. The transition function for TM is defined as \$\varepsilon\text{ X} \times \times \varepsilon\text{ X} \times \varepsilon\text{ L}, \varepsilon\text{ N}\right\) \$\varepsilon\text{ X} \times \varepsilon\text{ X} \times \varepsilon\text{ L}, \varepsilon\text{ N}\right\) \$\varepsilon\text{ X} \times \varepsilon\text{ Q} \times \varepsilon\text{ L}, \varepsilon\text{ N}\right\) \$\varepsilon\text{ Recursively enumerable language}\$ \$\varepsilon\text{ regular language}\$ \$\varepsilon\text{ Context sensitive language}\$ 		
44. A production of the form A → B, where A and B are both non-terminals is called a • Unit production • ε production • both a and b • none 45. Which production is Useless production for the Grammar: S → A, A → aA, A → ε, B → bA • S → A • A → aA • A → ε • B → bA 46. Reduction of the grammar means • Elimination of useless symbols • Elimination of ε productions • Elimination of unit productions • all 47. The transition function for TM is defined as • Q × Σ → Q × Σ × {L,R,N} • Q × Σ → Q × Σ × {L,R,N} • Q × Σ → Q × Σ × {themely the production of the grammar means of the grammar means • Recursively enumerable language • regular language • Context sensitive language		• (O1+11+1O)*
 Unit production ε production both a and b none Which production is Useless production for the Grammar: S → A, A → aA, A → ε, B → bA S → A A → aA A → ε B → bA Reduction of the grammar means Elimination of useless symbols Elimination of ε productions Elimination of unit productions all The transition function for TM is defined as Q × Σ → Q × Σ × {L,R,N} Q × Σ → 2 ° Q Q × (Σ ∪ {ε}) → Q none The language accepted by a Turning Machine is Recursively enumerable language regular language Context sensitive language 	4.4	1.0.10
 Unit production ε production both a and b none 45. Which production is Useless production for the Grammar: S → A, A → aA, A → ε, B → bA S → A A → aA A → ε B → bA 46. Reduction of the grammar means Elimination of useless symbols Elimination of unit productions Elimination of unit productions Elimination function for TM is defined as Q × Σ → Q × Σ × {L,R,N} Q × Σ → 2^Q Q × (Σ ∪ {ε}) → Q none 48. The language accepted by a Turning Machine is Recursively enumerable language regular language Context sensitive language 		
 € production both a and b none 45. Which production is Useless production for the Grammar: S → A, A → aA, A → ε, B → bA S → A A → aA A → ε B → bA 46. Reduction of the grammar means Elimination of useless symbols Elimination of ε productions Elimination of unit productions Elimination function for TM is defined as Q × Σ → Q × Σ × {L,R,N} Q × Σ → 2 ^Q Q × (Σ ∪ {ε}) → Q none 48. The language accepted by a Turning Machine is Recursively enumerable language regular language Context sensitive language 	u	
 none 45. Which production is Useless production for the Grammar: S → A, A → aA, A → ε, B → bA S → A A → ε B → bA 46. Reduction of the grammar means Elimination of useless symbols Elimination of unit productions Elimination of unit productions all 47. The transition function for TM is defined as Q × Σ → Q × Σ × {L,R,N} Q × Σ → 2 ^ Q Q × (Σ ∪ {ε}) → Q none 48. The language accepted by a Turning Machine is Recursively enumerable language regular language Context sensitive language 		
45. Which production is Useless production for the Grammar: S → A, A → aA, A → ε, B → bA • S → A • A → ε • B → bA 46. Reduction of the grammar means • Elimination of useless symbols • Elimination of unit productions • Elimination of unit productions • all 47. The transition function for TM is defined as • Q × Σ → Q × Σ × {L,R,N} • Q × Σ → 2^Q • Q × (Σ ∪ {ε}) → Q • none 48. The language accepted by a Turning Machine is • Recursively enumerable language • regular language • regular language • Context sensitive language		• both a and b
 ε, B → bA S → A A → aA A → ε B → bA Reduction of the grammar means Elimination of useless symbols Elimination of ε productions Elimination of unit productions all The transition function for TM is defined as Q × Σ → Q × Σ × {L,R,N} Q × Σ → 2 Q Q × (Σ ∪ {ε}) → Q none The language accepted by a Turning Machine is Recursively enumerable language regular language Context sensitive language 	45	
 A → aA A → ε B → bA 46. Reduction of the grammar means Elimination of useless symbols Elimination of ε productions Elimination of unit productions all 47. The transition function for TM is defined as Q × Σ → Q × Σ × {L,R,N} Q × Σ → 2^Q Q × (Σ ∪ {ε}) → Q none 48. The language accepted by a Turning Machine is Recursively enumerable language regular language Context sensitive language 		
 A → ε B → bA Reduction of the grammar means Elimination of useless symbols Elimination of ε productions Elimination of unit productions all The transition function for TM is defined as Q × Σ → Q × Σ × {L,R,N} Q × Σ → 2 ^Q Q × (Σ ∪ {ε}) → Q none The language accepted by a Turning Machine is Recursively enumerable language regular language Context sensitive language 		\bullet S \rightarrow A
 B → bA 46. Reduction of the grammar means Elimination of useless symbols Elimination of ε productions Elimination of unit productions all 47. The transition function for TM is defined as Q × Σ → Q × Σ × {L,R,N} Q × Σ → 2^Q Q × (Σ ∪ {ε}) → Q none 48. The language accepted by a Turning Machine is Recursively enumerable language regular language Context sensitive language 		
 Reduction of the grammar means Elimination of useless symbols Elimination of productions Elimination of unit productions all The transition function for TM is defined as Q × Σ → Q × Σ × {L,R,N} Q × Σ → 2 ^Q Q × (Σ ∪ {ε}) → Q none The language accepted by a Turning Machine is Recursively enumerable language regular language Context sensitive language 		
 Elimination of useless symbols Elimination of ε productions Elimination of unit productions all 47. The transition function for TM is defined as Q × Σ → Q × Σ × {L,R,N} Q × Σ → 2 ^ Q Q × (Σ ∪ {ε}) → Q none 48. The language accepted by a Turning Machine is Recursively enumerable language regular language Context sensitive language 	16	
 Elimination of ε productions Elimination of unit productions all 47. The transition function for TM is defined as Q × Σ → Q × Σ × {L,R,N} Q × Σ → 2 ^Q Q × (Σ ∪ {ε}) → Q none 48. The language accepted by a Turning Machine is Recursively enumerable language regular language Context sensitive language 	40.	
 Elimination of unit productions all 47. The transition function for TM is defined as Q × Σ → Q × Σ × {L,R,N} Q × Σ → 2^Q Q × (Σ ∪ {ε}) → Q none 48. The language accepted by a Turning Machine is Recursively enumerable language regular language Context sensitive language 		·
 all 47. The transition function for TM is defined as Q × Σ → Q × Σ × {L,R,N} Q × Σ → 2^Q Q × (Σ ∪ {ε}) → Q none 48. The language accepted by a Turning Machine is Recursively enumerable language regular language Context sensitive language 		
 Q × Σ → Q × Σ × {L,R,N} Q × Σ → 2^Q Q × (Σ ∪ {ε}) → Q none The language accepted by a Turning Machine is Recursively enumerable language regular language Context sensitive language 		·
 Q × Σ → 2 Q Q × (Σ ∪ {ε}) → Q none 48. The language accepted by a Turning Machine is Recursively enumerable language regular language Context sensitive language 	47.	
 Q × (Σ ∪ {ε}) → Q none 48. The language accepted by a Turning Machine is Recursively enumerable language regular language Context sensitive language 		
 none The language accepted by a Turning Machine is Recursively enumerable language regular language Context sensitive language 		
 The language accepted by a Turning Machine is Recursively enumerable language regular language Context sensitive language 		
 Recursively enumerable language regular language Context sensitive language 	48.	
regular languageContext sensitive language		
Context tree language		
- Context in conditional and ge		Context free language

- 49. A grammar with at most one variable (non-terminal) at the right side of a production is a
 - Linear grammar
 - nonlinear
 - both a and b
 - none
- 50. A decision problem which cannot be solved by some algorithm is called
 - Undecidable
 - Decidable
 - both a and b
 - none