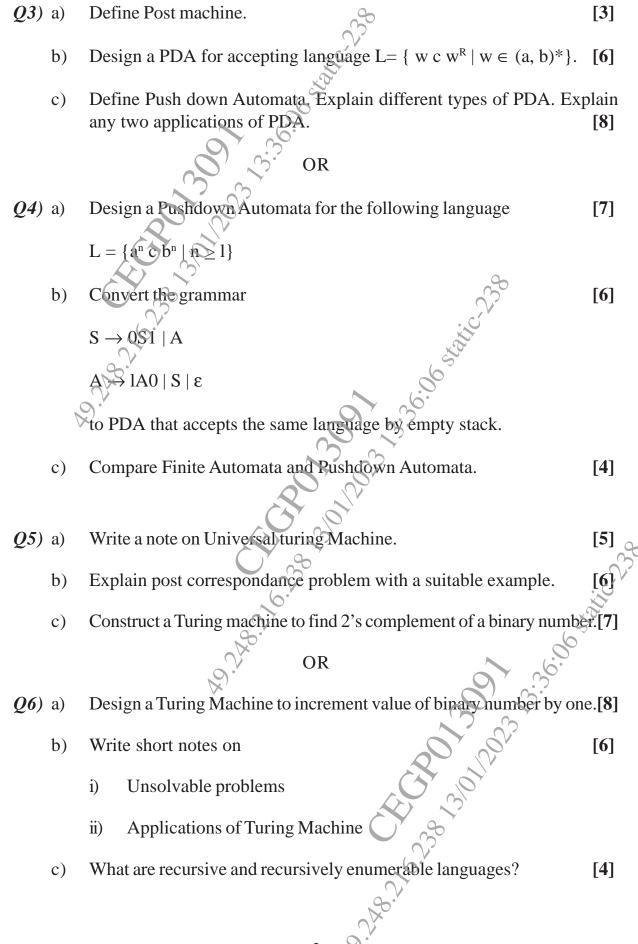
Total No	o. of Questions : 8]	SEAT No. :			
PA-14	199	[Total No. of Pages : 3			
	[5926] 119				
T.E. (Information Technology)					
THEORY OF COMPUTATION					
(2019 Pattern) (Semester - I) (314441)					
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	/2 Hours] cons to the candidates:	[Max. Marks : 70			
<i>1)</i>	Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8	3.			
2)	Neat diagrams must be drawn wherever necessary.	9			
3)	Figures to the right indicate full marks.				
<i>4</i>)	Assume suitable data, if necessary.				
Q1) a)	What is a Regular Grammar? Explain types of	fregular grammar. [5]			
b)	Simplify the following CFG.	[6]			
	$S \rightarrow ABA$				
	$A \rightarrow aA \mid \varepsilon$				
	$B \rightarrow bB \mid \epsilon$				
c)	What is ambiguous grammar? Show that ambiguous and find the equivalent unambigu				
	$E \rightarrow E + E E * E (E) I$				
	$I \rightarrow a \mid b$				
	OR	9, 30.			
Q2) a)	Write CFG for the language L= $\{a^i b^j c^k i =$	j + k > 1. [6]			
b)	Check whether the given language is CFL or	$c \text{ not } L = \{a^nb^nc^n n > = 0\}. [6]$			
c)	Covert the following RLG to FA.	[6]			
	$S \rightarrow 0A \mid 1B \mid 0 \mid 1$				
	$A \rightarrow 0S \mid 1B \mid 1$				
	$B \rightarrow 0A 1S$	0			

P.T.O.



<i>Q7</i>)	a)	What is a Traveling Salesman Problem? Justify that it is a NP-c problem.	lass [8]
		şçi	
	b)	Write short notes on	[9]
		i) A Simple Un-decidable problem	
		ii) Measuring Complexity	
		OR	
Q 8)	a)	Explain Cook's theorem in detail.	[8]
	b)	Explain Cook's theorem in detail. Explain in detail the Node-Cover Problem.	[9]
		9.750	
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