29/5/24

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TECHNOLOGY, RESEARCH, SOCIAL INNOVATION & PARTNERSHIPS

PRN:

Term End Examination

May/June 2024

CET2008B - Theory of Computation

Question Paper ID: 037666

Faculty/School	School of Computer Science and Engineering	**Term**	Semester VI
Program	TY B.Tech CSE/CSF	**Duration**	**1 Hours 30 Minutes**
Specialization	-	**Max. Marks**	**40**

Section - 1 (8 X 5 Marks)
Answer any 8 questions

1	**Construct the NFA accepting languages represented by 0*1*2* and convert it into DFA .**	**5 marks**	CO1	Applying
2	**Write any 10 Identities of regular expressions.**	**5 marks**	CO2	Understanding
3	**Construct the grammar for following languages when input symbols are {a,b } .** 1. **Palindrome for the odd length .** 2. **Palindrome for Even length , where length is always greater than zero .**	**5 marks**	CO3	Applying
4	**Convert the following grammar in CNF .** **A → 01XY** **X → 1XY | ϵ** **Y →YXa | X | ϵ**	**5 marks**	CO3	Remembering
5	**Construct the PDA for L= { a^n b^n c^md^m | N,M >=1 } .**	**5 marks**	CO3	Applying
6	**Design a Turing machine over {1, b} which can compute a concatenation function over Σ = {1}. If a pair of words (w1, w2) is the input the output has to be w1w2.**	**5 marks**	CO4	Applying
7	**Describe the Instantaneous Description of Turing Machine and also state the acceptance and rejection conditions for the Turing Machine**	**5 marks**	CO4	Applying

8	**What is decidability and undecidability? Explain with examples.**	**5 marks**	CO5	Understanding
9	**Design a Turing Machine that replaces every occurrence of abb by baa.**	**5 marks**	CO4	Applying
10	**What are recursive and recursively enumerable languages? Give examples.**	**5 marks**	CO5	Understanding

END OF QUESTION PAPER