The University of Burdwan

BCA (H) Part-III Examination, 2020
Paper Name: Theory of Computing Paper Code: BCA-304
Subject: BCA

F.M:40 **Time: 2 Hrs**

Answer any *eight* Questions. All questions carry equal marks. 8X5=40

1. Define Deterministic Finite Automata (DFA) and Language accepted by DFA.
2. Draw the DFA for the following.

   L = Set of all strings with at least one a and exactly two b's over Σ = {a, b}.
3. Define Regular Expression and language associated with Regular expression.
4. Describe Moore machine in brief.
5. Prove that L = {a^P : P being prime number} over Σ = {a} is not regular.
6. Write down the Push Down Automata (PDA) of the language, L = {$a^n b^n$: n>=0} over Σ = {a, b}.
7. Write down the Context Free Grammar for the following languages.
   (a) L = {$a^n b^{2n}$: n>=0} over Σ = {a, b}.
   (b) L = {ww^R: w and w^R belongs to Σ^* and w^R is the reverse of w} over Σ = {a, b}.
8. Describe language and grammar in brief.
9. Briefly Describe Deterministic and Non-Deterministic PDA.
10. Briefly describe parse tree.