IIT GUWAHATI, DEPT OF CSE

CS221: Digital Design : Examination of Module 8 (Lec 30, 31, 32)

Date : 13th November 2020, Timing : 9.00AM to 9.45AM

Total Mark: 24

Submission Procedure: Submit PDF scan copy of handwritten answer sheet (mention your name and roll no in the sheet) to MS Team course examination link before 9.50AM of 13th November 2020.

- **Submission after 10.00AM of 13th Nov 2020 will not be accepted.**
- **If you have any issue with MS team upload then send email to me quickly (mentioning your Roll No, Exam 8 and attach the solution) before 10.15AM of 13th Nov 2020.**

1. [**8 Marks**] Determine the minimal state equivallent of state table given below using row matching method. PS is present state, NS is next state, X is input and Z is output. Write the answer in such that the process of row matching for each steps should be understandable at the time of evaluation.

PS	NS, Z (X=0)	NS, Z (X=1)
A	A, 0	E, 1
B	A, 1	E, 1
C	B, 1	F, 1
D	B, 1	F, 1
E	C, 0	G, 1
F	C, 1	G, 0
G	D, 0	H, 0
H	D, 0	H, 0

2. [**8 Marks**] Determine the minimal state equivallent of state table given in Question 1 using partitioning method.

3. [**2+4+2 Marks**] Determine the minimal state equivallent of state table shown in the Table 1 using implication chart method. a) Fill the first cross marking pass of the chart, (b) fill the subsequent cross markings in the chart, and (c) write the final answer. Anotate each cross marking with a number and put decription (the reason for cross marking) against the each marking number.

PS	NS, Z (X=0)	NS, Z (X=1)
A	E, 0	D, 1
B	F, 0	D, 0
C	E, 0	B, 1
D	F, 0	B, 0
E	C, 0	F, 1
F	B, 0	C, 0