MID-SEM EXAMS

DSD, CSE IV SEM.

1) Let us consider the following case.

NIT Goa has called students to campus and the Hostel needs a automated digital system for smooth and covid safe entry to students.

Let us assume the reception, has set 3 doors, the first door opens to an Isolation centre, second door leads to hostel rooms and third door takes students to a covid awale centre as and when it opens.

Let us also ~~assum~~ assume that one and only one door opens at any point of time for a particular student.

Let us say the first door opens, if the student does not carry a ~~fev~~ Covid -ve certificate or has fever or both.

The second door opens if and only if the student carry with him a Covid -ve certificate and follow covid awale protocols and does not suffer from fever.

The third door opens if and only if the student carry Covid -ve certificate and does not follow Covid awareness parameters which include 'Mask', 'Hand Gloves' and 'Sanitizer'.

You are supposed to design a digital system to meet the above requirement.

You can assume that all parameters (i/ps) are available in digital form.

(Ex. :- Fever == YES == 1, Fever == NO == 0)

You are supposed to list the 'switching variables', derive switching functions, using truth table,

Obtain most minimal switching algebraic expression and realize a digital system for the same using only NAND gates. — 30M.

2) Consider the following expression

1) $f(x, y, z) = \Sigma m(0, 2, 4, 7)$

2) $F(x, y, z) = \Pi M(1, 3, 5, 6)$

Reduce the above two expressions to the most minimal expression using theorems and postulates of SA and verify the results using 'MAP method'

— 20M