COL226: Programming Languages

Sat 20 Feb 2021 **Quiz 2** 30 minutes Max marks 10

Instructions:

1. Download the paper.
2. Write your name and entry number in the designated space on top and *do not forget to sign the honour statement below.*
3. Answer the question(s) in the appropriate space provided starting from this page.
4. Scan the paper with your completed answer.
5. Upload it on Gradescope 2002-COL226 page within the given time. *Make sure the first page with your name, entry no and signature is also the first page of your uploaded file*
6. Late submissions (within 2 minutes of submission deadline) on the portal will attract a penalty of 2 marks out of 10.
7. Email submissions after the closing of the portal will not be evaluated (You get a 0).
8. Uploads without the first page details (including signature) may be awarded 0 marks.

I abide by the Honour code that I have signed on my admission to IIT Delhi. I have neither given any help to anybody nor received any help from anybody or any site on the internet in solving the question(s) in this paper.

Signature: **Date:**

Consider the set $\{0,1\}^*$. The *Hamming distance* between two strings of equal length, is the number of bit positions in which the bits in the two strings are different.

Design a DFA that recognises all strings that are a *Hamming distance* of 1 from some string in $\mathcal{L}((101)^+)$. Explain your design with suitable justification.