1) Briefly explain the following software security vulnerabilities in the following format:

(a) Cause – Reasons why they could arise in a program
(b) Impact – How these vulnerabilities could be misused by an attacker
(c) Solution – Discuss potential solution approaches that you would employ to mitigate/remove the vulnerability from a code.
(d) Identify the vulnerability with one of the four issues and justify why? *Structural, Semantic, Dataflow, Control flow*

(i) System Information Leak vulnerability
(ii) Path Manipulation vulnerability
(iii) Denial of Service vulnerability
(iv) Hardcoded Password Management vulnerability
(v) Empty Password Initialization vulnerability
(vi) Unreleased Resource Streams vulnerability