Department of Electrical Engineering
Subject: Elective 3 (Advance Computer Architecture)

Max Marks: 30

Question.1) (10)

a. With the proper illustrations, please explain the instruction execution mechanism in a computer system
b. What is the difference between Von Neumann and Harvard architectures? Based on your analysis, please explain which one can be preferred Also explain the major roles of CPU in a Computer System?
c. What information do the machine instructions specify and which type of operations can they perform?

Question.2) (10)

a. With the help of any illustrative example, explain backup and recovery procedures for both cases i.e. with logging of transaction and without logging of transactions.
b. Memory bottleneck is one of the major hurdle to increase the speed of current computer systems. Explain this phenomenon and also explain the concept of memory hierarchy with appropriate justification
c. How the locality of reference works and why is it used in computer systems?

Question.3) (10)

a. Present the major functions of an IO module. Present the mechanism of control of IO Devices.
b. The average access time of data from a computer's cache is 26.9 ns. if that computer has 8MB of main memory with 100 ns access time, 8KB cache with 10 ns access time, Block size=4, and a 97% probability if cache hit, calculate the time needed for a cache hit of miss