CSC005 – Intro to Computer Science   Name:_____
Final   Hofstra University – Fall 2006

Please answer **all six** questions. This is exam is worth **35 points.**

1. Problem Solving and Algorithm Design: (*5pts*)
    a) Distinguish between an **object** and an **object class**.
    b) Distinguish between a **field** and a **method**.
    c) How can object relate to one another?
    d) Discuss the differences between a **top-down design** and an **object-oriented design**.
    e) Distinguish between **data abstraction** and **procedural abstraction**.

2. Low Level Programming Languages: (*5pts*)
    a) What is a **machine language**?
    b) What is a **virtual computer**?
    c) What is an **operation code**?
    d) What is an **assembly language**?

3. High Level Programming Languages: *(10pts)*
    a) Distinguish between a **compiler** and an **interpreter**.
    b) Name four **programming language paradigms** and give an example language in each.
    c) What is a **Boolean expression**?
    d) What is **strong typing**?
    e) What is a **declaration**?
    f) Explain the flow of control of the *if* statement.
    g) How does the *case* statement differ from an *if* statement?
    h) What is the flow of control in a *while* statement?
    i) What is **encapsulation**?

4. Operating Systems: *(5pts)*
    a) What is an **operating system**?
    b) Explain the difference between **timesharing** and **multiprogramming**?
    c) What is a **real-time system**?
    d) Distinguish **between** logical addresses and **physical addresses**.
    e) Distinguish between **preemptive scheduling** and **nonpreemptive scheduling.**

5. Networking: *(5pts)*
    a) Distinguish between a **local area network (LAN)** and a **wide area network (WAN).**
    b) Distinguish between **Transmission Control Protocol (TCP)** and the **Internet Protocol (IP).**
    c) What is a **firewall**, what does it accomplish, and how does it accomplish it?
    d) What is an **IP address** and how is it composed?
    e) What is a **top-level domain name?**

6. Artificial Intelligence: *(5pts)*
a) What is the **Turing Test**?
b) Name and define two **knowledge representation** techniques.
c) What is a **semantic network**?
d) Distinguish between **depth-first searching** and **breath-first searching**.
e) What is the role of a **synapse**?

NOTE: This is due on or before the December 18th, Monday class – Absolutely no late submissions!