Multiple Choice Questions (20%)

1. What is the most popular used RAM at the current personal computer?
   A. Rambus
   B. DRAM
   C. SDRAM
   D. DDR II SDARM

2. For completing a program, what is the correct order?
   A. Source Code→Complier→Link→Object Code→Executable File
   B. Source Code→ Object Code→ Complier→Link →Executable File
   C. Source Code→ Link → Complier →Object Code→Executable File
   D. Source Code→Complier→Link→ Executable File →Object Code

3. Which language can not be used for constructing an interactive web page?
   A. eXtendable Markup Language
   B. Active Server Pages
   C. JavaServer Pages
   D. C++

4. What is the BLAST used for?
   A. A multiple sequence alignment tool
   B. A sequence clustering tool
   C. A local alignment software
   D. A microarray software

5. Please select the **wrong** description for XML?
   A. It can use CSS to represent its data on web pages.
   B. It is a part of HTML.
   C. It is extended from SGML.
   D. Users can define their own tags.

Discussion and Short Answer Questions(80%)

6. Please list the running order of the following software when turning on a computer. (5%)
   1) Operation System
   2) Web Browser
   3) Basic Input/Output System
   4) Network Card Driver

7. Currently IPv4 address has four numbers (i.e. 140.116.1.10) and each of them is between 0 and 255. Please explain how many bytes are used for an IPv4 address (2%), and please transfer the IP address 140.116.1.10 into binary format. (8%)

8. Please draw a diagram and explain the interactions among **CPU, memory, Output devices, input devices, and storage devices** in detail. (5%)

本試題是否可以使用計算機：　□可使用　，　☑不可使用　　（請命題老師勾選）

9. Please explain the differences between the Pentium CPU and the Dual Core CPU. (7%)

10. Please explain the relation of HardDisk's Cylinder/Track and Track/Sector. (6%) Suppose a hard disk has the following information, what the HD's storage capacity ? Please show how you calculate it. (6%)

Cylinders	58168
Headers	16
Platters	2
Sectors/Track	63
Bytes/Sector	512
RPM	7200

11. (a) Please write down the level of F node (2%)

    (b) Please write down the F's sibling (2%)

    (c) Please show previous tree nodes in preorder, postorder, inorder, and levelorder. (8%)
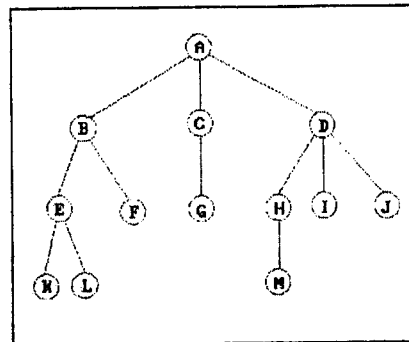
12. Please write down an algorithm to print out the following style figure in an N*N array. (Please Note that the size of your algorithm is not limited to 5 lines only. It should be applicable to different sizes of this kind of figure). (12%)

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*****
 ***
  *
 ***
*****
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13. Considering the following schemas for a course selection system:

Student (snum:integer, sname: string, major: string, level: string, age: integer)

Class (name: string, meets_at: string, room: string, fid:interger)

Enrolled(snum: integer, canme:string)

Faculty(fid: integer, fname: string, deptid: integer)

(a) Please draw a reasonable E-R diagram. (5%)

(b) Please write down a SQL for finding the name(s) of student whose age is(are) over 20. (5%)

(c) Write down the query description in SQL: Find the names of all Junior (level =JR) who are enrolled in the class taught by Sam. (7%)