

大同大學 九十四 學年度資工系在職碩士班入學考試試題

考試科目：計算機概論 班別：資工系在職碩士班

第 1/2 頁

註：本次考試 不可以參考自己的書籍及筆記； 不可以使用字典； 不可以使用計算器。

Please note that answering in English is encouraged but NOT required for all questions in this test.

I. Spell out the following acronyms. For example, HTTP: Hypertext Transfer Protocol. (20 points)

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|--------|--------|--------|--------|----------|
| 1. XML | 2. JVM | 3. PC | 4. SQL | 5. ERP |
| 6. MP3 | 7. LCD | 8. ROM | 9. GPS | 10. SCSI |

II. Explain the following terminologies. Full points will be rewarded only when the description, not direct translation, is provided. (30 points)

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|-----------------|------------------|------------------|
| 1. Cache | 2. Notebook | 3. Compiler |
| 4. Piracy | 5. Open Source | 6. Interrupt |
| 7. Spyware | 8. Search Engine | 9. Antivirus |
| 10. Pixel | 11. Shell | 12. Makefile |
| 13. Compression | 14. Security | 15. Polymorphism |

III. In each of the following questions, select the right answer among the given choices. (30 points)

- 802.1D is published by which of the following organizations? (1) ISO (2) IEEE (3) IETF (4) IBM.
- In $O(n)$, n usually represents (1) the running time (2) the size of the input (3) the number of variables (4) the number of code lines.
- Which of the following is **not** a technique used in multiprogramming? (1) Paging (2) Demand Framing (3) Demand Segmentation (4) Demand Paging.
- Which is not a necessary condition for deadlock? (1) preemption permission (2) mutual exclusion (3) resource holding (4) circular waiting.
- Which of the following applications is **not** a browser? (1) Macromedia Flash (2) Netscape Navigator (3) Mozilla Firefox (4) Microsoft IE.
- In 'cell phone', cell is (1) the shape of the phone (2) the packet format (3) the coverage area of the base station (4) the encoding mechanism.
- 1 GB memory has (1) 10^9 bits (2) $2^3 \cdot 10^9$ bytes (3) 2^{12} bits (4) 2^{10} bytes.
- We convert a Power Point file of numerous graphs into a PDF file. Which statement is correct? (1) Both files are of the same size. (2) The .ppt file is always smaller. (3) The .ppt file is always larger. (4) It depends on the situation.
- In the development specifications, most requirements are (1) optional (2) negotiable (3) conditional (4) mandatory.
- Which of the following is usually **not** considered as a malicious code? (1) worm (2) virus (3) Trojan (4) bug.
- Which of the following models do most of the current database systems adopt? (1) relational (2) object oriented (3) hierarchical (4) network.
- To make efficient signal transmissions over a medium, we usually apply (1) modulation (2) encryption (3) transformation (4) linking.
- What is included in the header of a TCP segment? (1) IP address (2) port number (3) session ID (4) MAC address.
- What system parameter of display does 1024x768 describe? (1) density (2) dimension (3) degree (4) resolution.
- Which of the following OS is not appropriate for handheld devices? (1) Windows CE (2) Palm OS (3) Linux (4) Windows XP.

<背面繼續>

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第 2/2 頁

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IV. Answer the following questions.

1. What are the four components of the von Neumann model? Draw a picture to show the architecture of the model. (5 points)
2. Use logical gates of your choice to implement a single bit adder. Please mark the inputs A, B, output R, and carry C in the design. (5 points)
3. Draw the figures of (1) bus, (2) full mesh, (3) ring, and (4) star configurations for a 6-node network. Discuss their cost and reliability. (5 points)
4. There are n activities, a_1, \dots, a_n . Each activity, a_i , starts at time $s[i]$ and finishes at time $f[i]$. Any two activities may overlap each other. Assume $f[i] \leq f[j]$ if $i < j$ and you can join one activity at a time. Write an algorithm so that you can attend the maximum number of activities. You can use an example to show how it works. (5 points)