

國立彰化師範大學 97 學年度碩士班招生考試試題

系所：數位內容科技與管理研究所碩士班

科目：計算機概論

☆☆請在答案紙上作答☆☆

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一、單選題(40%)

1. The UNIX operating system is written in a language called _____.
(1)Basic (2)Java (3)C (4) Delphi
2. A _____ is a connecting device that acts as a protocol converter.
(1)repeater (2) bridge (3) router (4) gateway
3. The only language understood by computer hardware is a _____ language.
(1) machine (2) symbolic (3) high-level (4) natural
4. Multi-programming requires a _____ operating system.
(1)distributed (2) time-sharing (3) parallel (4) batch
5. In the von Neuman model, the _____ subsystem stores data and program. (1) ALU (2) input/output (3) memory (4) control unit
6. The computer industry uses the term _____ to define information that contains numbers, text, images, audio, and video. (1) blog (2) pixels (3) multimedia (4) sampling
7. What is the Excess_128 representation of 6? (1) 00000101 (2)10000100 (3)10000110 (4) 10000001
8. The compiler consists of a _____ and a _____.
(1) linker; preprocessor
(2) text editor; loader
(3) preprocessor; loader
(4) preprocessor; translator
9. When you want to download music to a computer, the audio signal must be (1) sampled (2) quantized (3) coded (4) all the above.
10. A binary tree has a height of 4. What is the maximum number of nodes?
(1)33 (2) 16 (3) 32 (4)15
11. The most popular Web animation format is (1) GIF (2)JPEG (3) SWF (4) MPEG
12. A computer that has no hard disk storage but sends input to a server and receives response from it is called (1) host (2) Eee-PC (3) thin client (4)PDA.
13. A person who gains access to a computer system illegally is called a(n) (1)worm (2) virus (3) hacker (4) administrator.
14. _____ provides an elegant way of constructing digital images whose representation is scalable, compact and resolution-independent. (1)GIF (2)Bitmapped graphics (3) Vector graphics (4) Photoshop
15. In _____ encoding, the more frequently occurring characters have short codes than the less frequently occurring characters. (1) LZ (2)run-length (3)Huffman (4)JPEG
16. Which of the followings is not one of the server-side programming languages? (1) PHP (2) VB (3) ASP (4) none of the above

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17. For realistic photo image preproduction, ____ format is the best choice. (1) vector (2) bitmap (3) jpeg (4) none of the above
18. A ____ is a website for personal publishing using images, text, and links to other media related to its topic. The ability for readers to leave comments in an interactive format is an important part of it. (1)blog (2) video streaming site (3) homepage (4) RSS
19. Which method is used to synchronize the operations of the CPU with the I/O device, a large block of data can be passed from an I/O device to memory directly? (1) programmed I/O (2) DMA (3)interrupt-driven I/O (4) none of the above
20. _____ is a general client-server program on the internet that allows a host to remote login and appears to be a terminal at the remote system. (1)SMTP (2)HTTP (3)TELNET(4)none of the above

二、 Fill-in (每題 2%，共 20%)，填空或寫出英文全名

- XML stands for _____
- TCP stands for _____
- RFID stands for _____
- SVG stands for _____
- LAN stands for _____
- A terabyte is about _____
- The OSI network model has _____ layers
- $1001 \text{ XOR } 0101 =$ _____
- $x012A + x0C27 =$ _____
- A grey level image has one byte representation for each pixel. What is the largest decimal number that can be represented in two's complement form? _____

三、 Problem (40%)

1. Assume the memory location can store only eight bits. Complete the blank area of the table. (8%)

Contents of memory	Unsigned	Sign-and-Magnitude	One's Complement	Two's Complement
11111111				

2. The following floating number is represented using IEEE 754 single precision 32 bit. Complete the following table. (6%)

Number	Sign(1)	Exponent(8)	Mantissa(23)
2.5			

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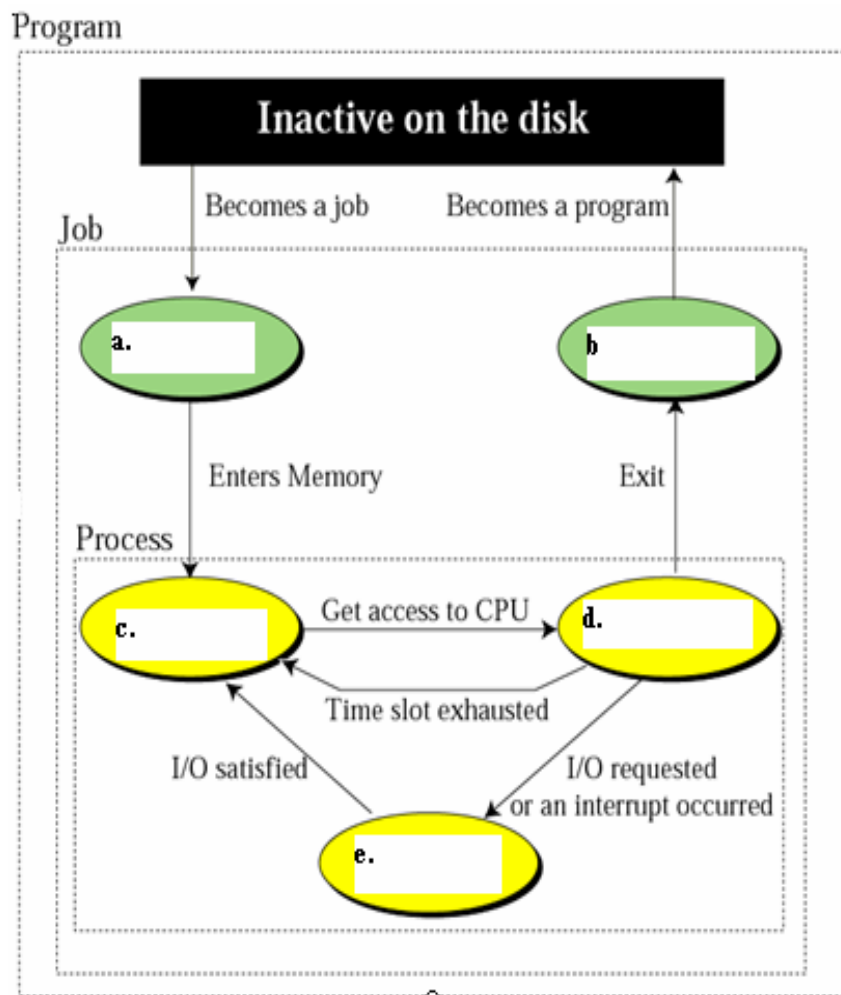
3. Following is the process state diagram that contains five states: Terminated, Ready, Hold, Running and Waiting (16%)

(a) Complete (Fill the states in rectangle blank area a-e) the state diagram. (5%)

(b) Explain what a processor is. (3%)

(c) The fork() function is a system call for UNIX, explain its functionality. (4%)

(d) The Thread class in Java provides a way of concurrent programming. Write down at least two distinguished differences between processes and threads. (4%)



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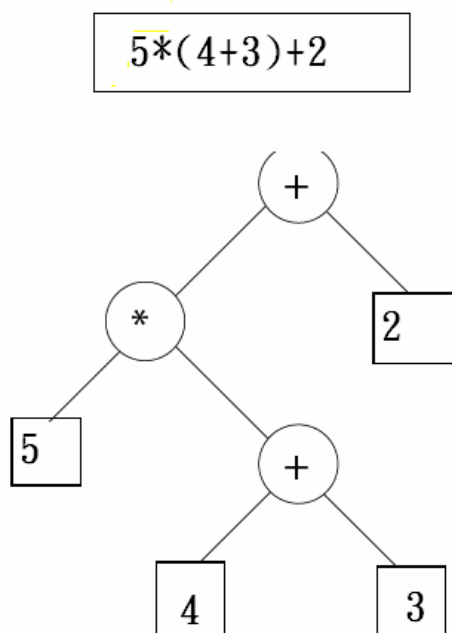
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4. For the following expression tree, (10%)

a. Write down the postorder traversal sequence (a) _____ . (3%)



b. Suppose the postfix expression $523*+$ is stored in an array $p[]$ and evaluated using the $\text{push}(\text{something})$, $\text{pop}()$ and $\text{eval}(\text{operator}, \text{operand1}, \text{operand2})$ operations of the stack data structure. For example, $\text{push}(a)$ pushes a into the stack and $\text{eval}('+', a, b)$ computes $a+b$. The postfix expression can be evaluated by the following sequences (b)-(g), Complete the sequence.

(7%)

(b) $\text{push}(p[0]);$ //push 5 into the stack

(c) $\text{push}(p[1]);$ //push 2 into the stack

(d) _____; //push 3 into the stack

(e) $\text{push}(\text{_____}(\text{_____}, \text{_____}, \text{_____}));$ //push $2+3$ into the stack

(f) _____($\text{_____}, \text{_____}, \text{_____}$); //Compute the final result

(g) The result of evaluation (f) is _____