

注意：考試開始鈴響前，不可以翻閱試題

台灣聯合大學系統 107 學年度學士班轉學考試題

考試科目：計算機概論

組別：A4、803

參考用

—作答注意事項—

1. 作答中如發現試題印刷不清，得舉手請監試人員處理，但不得要求解釋題意。
2. 請核對答案卷（卡）上之准考證號、考試科目是否正確。
3. 本考科禁止使用計算器。
4. 選擇題請在答案卡上作答。
5. 考生限在作答區內作答，不可書寫姓名、准考證號或與作答無關之其他文字或符號。
6. 答案卷用盡不得要求增加。
7. 答案卷限用藍筆或黑色鋼筆、原子筆或鉛筆書寫；答案卡限用 2B 軟心鉛筆畫記，如畫記不清（含未依範例畫記）致光學閱讀機無法辨識答案者，其後果考生自行負責。
8. 因字跡潦草或作答未標明題號等情事，致評閱人員無法辨識答案者，該部分不予計分。

單選題（每題三分，答錯不倒扣）

1. Which of the following is the binary representation of the decimal number (78.5625)?
 - (A) 1001110.1001
 - (B) 1001110.11
 - (C) 1001100.1001
 - (D) 1001110.101
 - (E) None of the above.

2. Each of decimal value $X=170$ and $Y=80$ are stored in 8bit allocation. The result of operation $X \oplus Y$ should be?
 - (A) 00001010
 - (B) 11110000
 - (C) 10100000
 - (D) 00001111
 - (E) None of the above.

3. Which of the following is the number representation of IEEE-754 single-precision floating-point format ($C1890000_{16}$)
 - (A) (-117.5)
 - (B) (-117.125)
 - (C) (117.125)
 - (D) (-17.125)
 - (E) None of the above.

4. Which of following is **incorrect** of the vector graphic method image?
 - (A) The type of image that can be easily rescaled
 - (B) The type of image that's file size smaller than bitmap image.
 - (C) The type of image that can represent the details in a photo.
 - (D) The type of image that consists of geometric shapes.
 - (E) None of the above.

5. We use 8K times per second sampling audio signal. 128 different levels present each sample. How many bytes are needed to store 2 minutes audio voice.
 - (A) 240KB
 - (B) 60KB
 - (C) 120KB
 - (D) 300KB

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- (E) None of the above.
6. Which of the following creates an overflow if both of the numbers and the result are in 8-bit two's complement representation?
- (A) $(-37) - 99$
(B) $37 + 99$
(C) $37 - 99$
(D) $(-37) + 99$
(E) None of the above.
7. If the computer has 32 data registers (R0 to R31), 2000 words in memory, and 16 different instructions. What is the minimum size of an add instruction in bits if a typical instruction use the following format: add R0 R2
- (A) 14
(B) 13
(C) 28
(D) 29
(E) None of the above.
8. Which of the following is the first stage of the modern operation system be loaded into the memory and run it?
- (A) Bootstrap program in ROM.
(B) Bootstrap program in H.D.
(C) Boot manager in H.D.
(D) Boot manager in floppy disk.
(E) None of the above.
9. Which of the following condition is **not correct** regarding deadlock or necessary conditions for deadlock?
- (A) Mutual exclusion.
(B) A process may hold allocated resources even though it cannot use it until other resources are available.
(C) No resource can be forcibly removed from a process holding it by operation system.
(D) Operation must abort all deadlocked processes to avoid deadlock.
(E) None of the above.
10. Which of the following is **correct** if the memory allocated to a process is a little larger than the process?

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- (A) Internal fragmentation occurs
(B) External fragmentation occurs
(C) Both internal and external fragmentation occur
(D) Neither internal nor external fragmentation occurs
(E) None of the above.
11. Which of the following is true of memory-mapped I/O ?
(A) The devices have a separate address space with memory.
(B) The advantage is the devices have to deal with larger address lines
(C) The device has to repeatedly check the status flags
(D) The devices and the memory using the same address space.
(E) None of the above.
12. Which of the following compression algorithm, when the symbols occurring more frequently assign shorter codes and those that occurring less frequently assign longer codes?
(A) Run-length coding
(B) Dictionary coding
(C) Arithmetic coding
(D) Huffman coding
(E) Predictive coding
13. A binary tree has eight nodes. The postorder traversal is FECHGDBA and inorder is EFCABHDG. Which of following is the preorder of the tree?
(A) BHDGAEFC
(B) BHDGAFEC
(C) AEFBCDGH
(D) EFCADHGB
(E) ACEFBDHG
14. Which of the following is incorrect of software testing phase?
(A) The black-box testing depends only on the external system interface to confirm its correctness.
(B) The basis path testing is glass-box testing.
(C) The control structure testing is glass-box testing.
(D) Boundary-value testing is glass-box testing.
(E) None of the above.

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15. Which of the following is the ciphertext of $p = 11$ and $q = 5$ and choose $e=7$.
Apply RSA algorithm where plaintext message=12?
- (A) 23
 - (B) 12
 - (C) 64
 - (D) 11
 - (E) None of the above.

16. Which of the following is result of running the C programming language below?

```
#define M1(a,b) a * (b)
#define M2(a,b) (a) + b
#include <stdio.h>
void main(void)
{
    int n1, n2;
    n1 = 2;
    n2 = 3;
    n1 = M1(n1 - n2, n2 - n1) * M2(n1 + n2, 2 * n2);
    printf("%d\n", n1);
}
```

- (A) (-11)
- (B) (-7)
- (C) (-2)
- (D) 2
- (E) None of the above.

17. Which of the following is result of running the C programming language below?

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```
void fun1(char *a) {
    int i, j;
    char c;

    for (i = 1, j = strlen(a) - 1; i < j; i=i+1, j=j-1) {
        c = a[i];
        a[i] = a[j];
        a[j] = c;
    }
}

int main(void) {
    char s1[] = "ABCDE";
    fun1(s1);
    printf("%s", s1);
    return 0;
}
```

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- (A) ABCDE
- (B) EDCBA
- (C) AEDCB
- (D) DECBA
- (E) None of the above.

18. Consider the following C programming language?

```
int Func (int n)
{
    if (n == 2) return 1;
    else return n + Func (n - 2);
}
```

What is the result after call Func(10)

- (A) 16
 - (B) 19
 - (C) 29
 - (D) 39
 - (E) None of the above.
19. Which is the concept using by virtual memory when a process is copied into main memory from the secondary memory according to the requirement.?
- (A) Demand paging
 - (B) Scheduling
 - (C) Segmentation

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- (D) Virtualization
- (E) None of the above.

20. In computer system hardware, which of following item is the fastest and most expensive form of storage and comparatively small?

- (A) Tape Storage
- (B) Cache
- (C) Optical Storage
- (D) Flash memory
- (E) None of the above.

多選題（每題四分，答錯每個選項倒扣 0.8 分）

21. Which of the statement(s) are correct in TCP protocol?

- (A) TCP is Connection-oriented
- (B) TCP is process-to-process
- (C) In TCP, sending and receiving data is done as sequence of characters
- (D) TCP is network layer protocol
- (E) TCP groups a number of bytes together into a packet called segment

22. Which of the statement(s) are correct in RISC architecture?

- (A) The advance is power efficient than CISC.
- (B) The Personal Computer is designed following this architecture.
- (C) The architecture is aimed at increasing the time of execution of instructions.
- (D) The processor has a more complicated design than CISC
- (E) The architecture was the first to implement pipe-lining.

23. Which of the statement(s) are correct in Computer Networks?

- (A) The length of an IPv6 address is 128 bits.
- (B) IPv6 does not use Broadcast type of address
- (C) Telnet can be used for file transfer, too.
- (D) Two colons (::) are used to denote continuous hexadecimal fields of zeros.
- (E) Transferring a file by FTP uses UCP connections.

24. Which of the statement(s) are correct in complexity of algorithm $O(n^2)$?

- (A) merge sort
- (B) linear search
- (C) binary search
- (D) bubble sort

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(E) selection sort

25. Which of the following a Turing machine consists of?

- (A) Keyboard
- (B) Head (read/write)
- (C) Controller
- (D) Calculator
- (E) Tape

26. What is the length of the character after encoding by Huffman coding with the given frequencies?

A(20), B(8), C(9), D(2), E(14)

- (A) A: 1bits
- (B) B: 3bits
- (C) C: 2bits
- (D) D: 4bits
- (E) E: 2bit

27. Choose the following items that are correct regarding ADT (Abstract Data Type)?

- (A) Array contains elements of different type.
- (B) Binary search cannot be implemented using linked lists.
- (C) Stack underflow is removing items from an empty stack.
- (D) The suitable structure for Breadth-First Traversal on a graph is the tree.
- (E) A queue is a FIFO (First In First Out) list.

28. Consider the following C programming language?

```
int a,b;  
int *x,*y;  
a = 1;  
b = 2;  
x = &a;  
y = &b;  
x = y;  
*x = 3;  
*y = 4;  
printf("%d %d %d %d",a, b,*x,*y);
```

What is the value after running?

- (A) a = 1
- (B) b = 4
- (C) x = 3

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- (D) $y = 3$
(E) $y = 4$
29. Which of following item(s) is correct about Computer Networks?
- (A) SMTP uses the TCP port 25.
 - (B) An email client has to know the MAC address of its initial SMTP server.
 - (C) SMTP defines message encryption.
 - (D) SMTPS is based on the SMTP connections secured by SSL.
 - (E) Simple mail transfer protocol (SMTP) uses TCP as the transport layer protocol for electronic mail transfer.
30. Which of following item(s) is **incorrect** about CPU Processing?
- (A) The processes that are stored in main memory and are ready and waiting to execute will be keep on a list called ready queue.
 - (B) In priority scheduling algorithm the process with highest priority allocate CPU.
 - (C) A process can move to a different classified ready queue in multilevel feedback scheduling algorithm.
 - (D) User level thread can be scheduled by the kernel.
 - (E) The interval time from a process submit and complete time is called turnaround time.

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