I. Multiple-Choice Questions (1.5*20=30 points)

1. What is a unique characteristic of zeros in the one's complement representation?

a. Zero is represented by the largest positive value.

b. There are none; zero is implied by the absence of data.

c. Zero is represented by the largest negative value.

d. There are two of them, one positive and one negative.

2. _____is a protocol for mail services.

a. FTP b. SMTP c. TELNET d. HTTP

3. Every computer today is based on the _____ model.

a. Intel b. von Neumann c. input/output d. Microsoft

4. How do you represent the number -7 in 8 bits using two's complement?

a. 00000111 b. 11111001 c. 11100000 d. 10011111

5. A program is comprised of a finite number of _____.

a. hard drives b. instructions c. memory cells d. i/o devices

6. A 17th-century computing machine that could perform addition and subtraction was the _____.

a. Pascaline b. Jacquard loom

c. Analytical Engine d. Babbage machine

7. _____ is the highest speed memory.

a. CPU register b. main memory c. cache memory d. magnetic disk

8. An 8-bit pattern can represent up to _____ symbols.

a. 8 b. 128 c. 256 d. 16

9. If the ASCII code for E is 1000101, then the ASCII code for e is _____ .

a. 1000110 b. 1000111 c. 0000110 d. 1100101

10. Onecompanyoccupies two adjacent rooms in the Zhongxing Building.The network ,consisting of four workstations and a printer,is probably a _____.

a. LAN b.MAN c. WAN d. none of the above

11. Which number representation method is most widely used today for storing integers in a computer? _____ .

a. sign-and-magnitude b. one ’s complement

c. two ’s complement d. unsigned integers

12. For an 8-bit allocation , the largest decimal number that can be represented in two ’s complement form is _____ .

a. -8 b. -127 c. -128 d. -256

13. You use a bit pattern called a _____ to modify another bit pattern.

a. mask b. carry c. float d. byte

14. _____ is a memorytype with capacitors that need to be refreshed periodically.

a. SRAM b. DRAM c. ROM d. all of above

15. The _____ controller is a serial device that connects slow devices such as the keyboard and mouse to the computer.

a. SCSI b. FireWire c. USB d. IDE

16. Defining the users, needs, requirements, and methods is part of the _____ phase.

a. analysis b. design c. implementation d. testing

17. The IP address is currently _____ bits in length.

a. 4 b. 8 c. 32 d. any of the above

18. A process in the ready state goes to the running state when _____.

a. it enters memory b. it requests I/O

c. it gets access to the CPU d. it finishes running

19. _____ is a step-by-step method for solving a problem or doing a task.

a. A construct b. A recursion c. An iteration d. An algorithm

20. C, C++, and Java can be classified as _____ languages.

a. machine b. symbolic c. high-level d. natural

ll . Fill in the blanks(1.5*16=24 points)

1. Data and programs are stored in _____.
2. A ___is___ the smallest unit of data that can be stored in a computer.
3. All data types are transformed into a uniform representation called a _____for processing by computer.

4. Store －40 in a 16-bit memory location using two ’s complement representation. _____.

5. Store －40 in a 16-bit memory location using one ’s complement representation. _____.

6. Store －40 in a 16-bit memory location using sign-and-magnitude representation. _____.

7. Represent －25 in Excess_127 using an 8-bit allocation. _____.

8. To unset (clear) a bit in a target bit pattern, set the corresponding mask bit to 0 and use the operator.

9. The _____performs arithmetic and logical operations.

10. The two designs for CPU architecture are and_____. _____

11. There are two models of software development: _____ and _____.

12. There are two types of software testing: and _____. _____

13. _____is_____ the division of a large program into smaller parts that can communicate with each other.

III . Questions (46 points)

1. What is the subsystems of the Neumann computer models? （6 points ）

2. Name five types of data that a computer can process. （6 points ）

3. Add two numbers in two ’s complement representation:
(-35) + (+20) = (-15) （7 points ）

4. Define the term overflow . （6 points ）

5. What is the USB controller? （6 points ）

6. What are the four phases in software development? （8 points ）

7. Name the layers of the TCP/IP protocol suite. （7 points ）