Review CSI104 – Foundations of Computer Sciences

Part 1: Multi-choice

1, A (n) ____ occurs when a program tries to place more information into a memory location than it can handle.
a., Buffer overflow
b., Access attack
c., Virus attack
d., Modification attack

2, _____ is a process in which an algorithm calls itself.
a., Procedure
b., Searching
c., Recursion
d., Iteration

3, The _____ construct uses a set of actions one after another.
a., sequence
b., decision
c., repetition
d., flow

4, ____ is the science and engineering of making intelligent machines.
a., Nanotechnology
b., Magnetic storage
c., Quantum mechanics
d., Artificial intelligence

5, In _____ sort, the smallest item from the unsorted list is swapped with the item at the beginning of the unsorted list.
a., selection
b., bubble
c., insertion
d., decrease

6, A process in the _____ state can go to either the ready, terminated, or waiting states.
a., hold
b., virtual
c., running
d., hold or running

7, When a sequential file is updated, the _____ file gets the actual update.
a., new master
b., old master
c., transaction
d., error report

8, A unary operator is applied to _____ relation(s) and creates an output of _____ relation(s).
a., one, one
b., one, two
c., two, one
d., two, two

9, In a computer, the _____ subsystem performs calculations and logical operations.
a., ALU
b., input/output

c., memory
d., control unit

10, Which number representation method is often used to store the exponential value of a fractional part?
a., unsigned integers
b., two's complement
c., Excess
d., ten's complement

11, _____ is multi-programming with swapping.
a., Partitioning
b., Paging
c., Demand paging
d., Queuing

12, What is the standard port number for HTTPs?
a., 21
b., 23
c., 80
d., 443

13, All the members of a record must be _____.
a., the same type
b., related types
c., integer type
d., character type

14, In the _____ hashing method, the key is divided by the file size, and the address is the remainder plus 1.
a., direct
b., modulo division
c., division remainder
d., digit extraction

15, Which of the following is equivalent to 9C in Hexadecimal?(choose two)
a., By Binary: 10011100
b., By Octal: 234
c., By Hexadecimal: 8B1
d., By Decimal: 191

16, Three security goals are _____.
a., confidentiality, cryptography, and nonrepudiation
b., confidentiality, encryption, and decryption
c., confidentiality, integrity, and availability
d., confidentiality, denial of service, and masquerading

17, The only language understood by computer hardware is a _____ language.
a., machine
b., symbolic
c., high-level
d., natural

18, Defining the users, requirements, and methods is part of the _____ phase.
a., analysis
b., design

c., implementation
d., testing

19, When we want to store music in a computer, the audio signal must be _____.
a., Sampled only
b., Quantized only
c., Coded only
d., Sampled, quantized, and coded

20, Of the various database models, the _____ model is the most prevalent today.
a., hierarchical
b., network
c., relational
d., linked list

21, Which physical topology uses a hub or switch?
a., Bus
b., Ring
c., Star
d., Bus and Ring

22, In RSA, if user A wants to send an encrypted message to user B, the plaintext is encrypted with the public key of _____.
a., user A
b., user B
c., the network
d., a third party.

23, _____ is a multi-programming method in which multiple programs are entirely in memory with each program occupying a contiguous space.
a., Partitioning
b., Paging
c., Demand paging
d., Demand segmentation

24, An empty linked list consists of _____.
a., a node
b., two nodes
c., data and a link
d., a null head pointer

25, You want to create a relation called New that contains tuples that belong to both relation A and relation B. For this, you can use the _____ operation.
a., select
b., union
c., project
d., intersection

26, When converting a decimal fraction to base b, we repeatedly ____b.
a., divide by
b., multiply by
c., add to
d., subtract from

27, _____means concealing the message by covering it with something else.

a., Cryptography
b., Steganography
c., Compressing
d., Authentication

28, The RSA algorithm for confidentiality uses _____ cryptography.
a., asymmetric-key
b., symmetric-key
c., substitution
d., transposition

29, Which of the following converts source code into a computer language and results in an executable file?
a., Compiler
b., Interpreter
c., IDE
d., Algorithm

30, Which of the following representations is erroneous?
a., By Binary: 10111
b., By Octal: 349
c., By Hexadecimal: 3AB
d., By Decimal: 256

31, _____ is an English-language-like representation of code.
a., A UML diagram
b., A program
c., Pseudocode
d., An algorithm

32, The base of the hexadecimal number system is ____.
a., 2
b., 8
c., 10
d., 16

33, Which is not a type of control structure?
a., Invocation
b., Top down
c., Algorithm
d., Repetition

34, The Jacquard loom is important in the history of computing for what innovation?
a., It worked like a player piano.
b., Reusable cards with holes held information.
c., It used gears and wheels for calculation.
d., Paper rolls with holes held information.

35, In the system development process, structure charts are tools used in the _____ phase.
a., analysis
b., design
c., implementation
d., testing

36, _____ is a pictorial representation of an algorithm.
a., A UML diagram

b., A program
c., Pseudocode
d., An algorithm

37, The index of an indexed file has _____ fields.
a., two
b., three
c., four
d., any number of

38, _____ is a protocol for e mail services.
a., FTP
b., SMTP
c., HTTP
d., DNS

39, What is it called when an instance of a class is also an instance of its superclass?
a., Inheritance
b., Encapsulation
c., Instantiation
d., Polymorphism

40, The _____ level of a three-level DBMS architecture defines the logical view of the data.
a., external
b., conceptual
c., internal
d., physical

41, To prevent _____, an operating system can put resource restrictions on processes.
a., starvation
b., synchronization
c., Paging
d., deadlock

42, _____ is a declarative language used on relational databases.
a., JAVA
b., SQL
c., PYTHON
d., C++

43, _____ is an ordered collection of data in which each element contains the location of the next element.
a., An array
b., A record
c., A linked list
d., A file

44, A step-by-step solution to a problem is called _____.
a., hardware
b., an operating system
c., a computer language
d., an algorithm

45, _____ is a measure of how tightly two modules are bound to each other.
a., Modularity

b., Coupling
c., Interoperability
d., Cohesion

<u>Part II:</u> Question

1, What is the function of components in a computer?

2, Briefly describe the five generations of computers.

3, How to convert from binary to octal, decimal, hexadecimal?

4, Name five types of data that a computer can process. How to storage them in computer?

5, Describe logical binary operations? How to set or unset bits using the mask pattern?

6, Define RAM, ROM, SRAM, DRAM PROM, EPROM, and EEPROM.

7, How many layers are there in the TCP/IP protocol suite and encapsulate data units at each layers?

8, What is algoritm? How many contructs in programe? List of way to representaion algorithm ? What is difference between iteration and recursion algorithm?

9, Define ‘software lifecycle’, list of four phases in the development process

10, What are the two general types of file access methods?

11, What is the relationship between the new master file and the old master file?

12, What is the purpose of the transaction file in updating a sequential file?

13, Name three types of data structures and function of them.

14, In a relation, what is an attribute? What is a tuple? List some unary operations in relational databases. List some binary operations in relational databases.

15, Which of the following attacks is a threat to confidentiality, integrity, availability? What is difference between symetric and asymetric key?

Good luck