

1. Which processor includes multi-clocks?  
 a) CISC  
 b) RISC  
 c) ISA  
 d) ANNA
2. \_\_\_\_\_ are used to overcome the difference in data transfer speeds of various devices.  
 a) Speed enhancing circuitry  
 b) Bridge circuits  
 c) Multiple buses  
 d) Buffer registers
3. The MSYN signal is initiated \_\_\_\_\_  
 a) Soon after the address and commands are loaded  
 b) Soon after the decoding of the address  
 c) After the slave gets the commands  
 d) None of the mentioned
4. A subtractor is not usually present in a computer, because  
 a) it is expensive  
 b) it is not possible to design it  
 c) the adder will take care of subtraction  
 d) none of the above
5. In J-K flip flop the function  $K=J$  is used to realize :  
 a) D flip flop  
 b) S-R flip flop  
 c) T flip flop  
 d) Master slave flip flop
6. The addressing mode/s, which uses the PC instead of a general-purpose register is  
 a) Indexed with offset  
 b) Relative  
 c) Direct  
 d) Both indexed with offset and direct
7. In the case of Zero-address instruction method the operands are stored in \_\_\_\_\_  
 a) Registers  
 b) Accumulators  
 c) Push down stack  
 d) Cache
8. The branch logic that provides decision-making capabilities in the control unit is known as  
 a) Controlled transfer  
 b) Conditional transfer  
 c) Unconditional transfer  
 d) None of above
9. Pipelining strategy is called implement  
 a) Instruction decoding  
 b) Instruction execution  
 c) Instruction prefetch  
 d) Instruction manipulation
10. Which flag is set to 1 when the result of arithmetic or logical operation is zero else it is set to 0 ?  
 a) Binary bit  
 b) Zero flag  
 c) Sign flag  
 d) Overflow flag
11. Which loop is guaranteed to execute at least one time?  
 a) for  
 b) while  
 c) do while  
 d) both (b) & (c)
12. Which class cannot create its instance?  
 a) Parent class  
 b) Nested class  
 c) Anonymous class  
 d) abstract class
13. A function that changes the state of the cout object is called a(n) \_\_\_\_\_  
 a) member  
 b) manipulator  
 c) adjuster  
 d) operator
14. Which feature of OOP illustrates the code reusability?  
 a) Polymorphism  
 b) Abstraction  
 c) Encapsulation  
 d) Inheritance
15. Which of these keywords must be used to handle the exception thrown by try block in some rational manner?  
 a) finally  
 b) throw  
 c) catch  
 d) try
16. Which of the following correctly describes overloading of functions?  
 a) Virtual polymorphism  
 b) Transient polymorphism  
 c) Ad-hoc polymorphism  
 d) Pseudo polymorphism

17. One of the disadvantages of pass-by-reference is that the called function corrupts the caller's data. This can be avoided by:
- passing pointers
  - declaring the parameters constant
  - both (a) and (b)
  - none of the above
18. Which of the library functions are used to dynamically allocate memory?
- malloc() and memalloc()
  - alloc() and memalloc()
  - malloc() and calloc()
  - memalloc() and faralloc()
19. Which among the following best described encapsulation?
- It is a way of combining various data member into a single unit
  - It is a way of combining various member functions into a single unit
  - It is a way of combining various data members and member functions into a single unit which can operate on any data
  - It is a way of combining various data members and member functions that operate on those data members into a single unit
20. Which is the best file organization when data is frequently added or deleted from a file?
- Sequential
  - Direct
  - Index sequential
  - None of the above
21. Which keyword is used to inherit a class or abstract class in Java is
- Extends
  - Encapsulates
  - Implement
  - Inherit
22. Which of the following is false?
- Object must be created before using members of a class.
  - Memory for an object is allocated only after its constructor is called
  - Object can't be passed by reference
  - Objects size depends on its class data members
23. What is the worst case complexity of bubble sort?
- $O(n \log n)$
  - $O(\log n)$
  - $O(n)$
  - $O(n^2)$
24. Which tree traversing method visits first root, then left child, and the right child?
- In-order
  - Pre-order
  - Post-order
  - Mix-order
25. Program with highest run-time complexity is :
- Tower of Hanoi
  - Fibonacci Series
  - Prime Number Series
  - None of the above
26. If there's no base criteria in a recursive program, the program will \_\_\_\_
- not be executed
  - execute until all conditions match
  - execute infinitely
  - obtain progressive approach
27. Which of the following is the advantage of the array data structure?
- Elements of mixed data types can be stored
  - Index of the first element starts from 1
  - Easier to access the elements in an array
  - Elements of an array cannot be sorted
28. If the elements "A", "B", "C" and "D" are placed in a queue and are deleted one at a time, in what order will they be removed?
- ABCD
  - DCBA
  - DCAB
  - CBDA
29. In binary heap, whenever the root is removed then the root replaces the rightmost element of last level. Why?
- It is the easiest possible way
  - To make sure that it is still complete binary tree
  - Because left and right subtree might be missing
  - None of the above
30. What will be the height of the hash tree with branching factor 2 and with 8 records?
- 3
  - 5
  - 4
  - 6
31. What is the correct syntax for referring to an external script called "TU.js"?
- `<script src="TU.js">`
  - `<script source="TU.js">`
  - `<script ref="TU.js">`
  - `<script type="TU.js">`
32. How can you open a link in a new browser window?
- `<a href="url" target="_blank">`
  - `<a href="url" target="_self">`
  - `<a href="url" target="_new">`
  - `<a href="url" target="_window">`
33. Well formed XML document means :
- It contains a root element
  - It contains an element
  - It contains one or more elements
  - Must contain one or more elements and root element must contain all other elements



34. \_\_\_\_\_ typically refers to a suite of technologies that allow developers to store data in a readable format.
- HTML
  - XML
  - XSL
  - PHP
35. What form of style rules are presented in CSS?
- selector {property : value}
  - selector (property : value)
  - selector {property = value}
  - selector (property = value)
36. The CSS property used to control the element's text size is .....
- text-style
  - font-size
  - text-size
  - font-style
37. In the JavaScript, which one of the following is not considered as an error ?
- Syntax error
  - Division by zero
  - Missing of semicolons
  - Missing of Bracket
38. The TELNET client uses a \_\_\_\_\_ driver, while the TELNET server uses a \_\_\_\_\_ driver.
- Terminal, Pseudoterminal
  - TELNET
  - Pesudoterminal, Terminal
  - None of the above
39. How do you get information from a form that is submitted using the "get" method in PHP?
- \$\_GET[];
  - Request.Form;
  - Request.QueryString;
  - Get();
40. To match the root node in XMLT transform the syntax will be
- <xsl:template match="document">
  - <xsl:template match="Root">
  - <xsl:template match="RotNode">
  - <xsl:template match="/">
41. Which of the following function is used to determine object type?
- obj\_type()
  - is\_a()
  - type()
  - is\_obj()
42. Inside which HTML element do we put the JavaScript?
- <script>
  - <head>
  - <meta>
  - <style>
43. The language that requires a user to specify the data to be retrieved without specifying exactly how to get it is
- Procedural DML
  - Procedural DDL
  - Non-Procedural DML
  - Non-Procedural DDL
44. Which of the following is a valid expression in SQL?
- SELECT NULL FROM SALES;
  - SELECT NAME FROM SALES;
  - SELECT \* FROM SALES WHEN PRICE = NULL;
  - SELECT # FROM SALES;
45. Which of the following is not a type of data dictionary view?
- USER
  - DBA
  - ALL
  - SYS
46. Which of the following dependency is related to 3NF?
- Functional Dependencies
  - Trivial Functional Dependency
  - Transitive Dependencies
  - Multivalued Dependencies
47. A lock that allows concurrent transactions to access different rows of the same table is known as a
- Field-level lock
  - Table-level lock
  - Row-level lock
  - Database-level lock
48. It is an abstraction through which relationships are treated as higher level entities:
- Generalization
  - Aggregation
  - Specialization
  - Inheritance
49. Which of the following is not a level of data abstraction?
- Physical Level
  - Logical Level
  - Critical Level
  - View Level
50. Which of the following is not a database recovery technique?
- Check-pointing
  - Two-phase commit
  - Transaction rollback
  - Shadow paging
51. Which operator performs pattern matching in SQL?
- BETWEEN operator
  - EXISTS operator
  - LIKE operator
  - SET operator
52. Which of the following is not property of transactions?
- Atomicity
  - Isolation
  - Concurrency
  - Durability
53. Consider the join of a relation R with relation S. If R has m tuples and S has n tuples, then the maximum size of joint is :
- MN
  - M+N
  - (M+N)/2
  - 2(M+N)

54. What type of join is needed when you wish to include rows that do not have marching values?
- Equi-join
  - Natural join
  - Outer join
  - All of the mentioned
55. The UML supports event-based modelling using \_\_\_\_\_ diagrams.
- Deployment
  - Collaboration
  - State chart
  - All of the mentioned
56. Efficiency in a software product does not include \_\_\_\_\_
- Licensing
  - Processing time
  - Responsiveness
  - Memory utilization
57. The best time to introduce security into an application is at the \_\_\_\_\_ phase.
- Implementation
  - Design
  - Development
  - Testing
58. Which of the following is one of the steps in the integration testing of OO software?
- Cluster testing
  - Thread-based testing
  - Use-base testing
  - None of the mentioned
59. Which testing is an integration testing approach that is commonly used when "shrink-wrapped" software products are being developed?
- Regression Testing
  - Integration testing
  - Smoke testing
  - Validation testing
60. What does the DFD of an application show?
- decision and control information
  - communication network structure
  - the underlying data and the relationship among them
  - processing requirements and the flow of data
61. Which of the following is/are utilized in Rapid Application Development (RAD)?
- structured techniques
  - sequential structure
  - joint application development techniques
  - object-oriented design technique
62. Which is NOT a step of requirement engineering?
- Requirements elicitation
  - Requirements analysis
  - Requirements design
  - Requirements documentation
63. Which model in system modelling depicts the static nature of the system?
- Behavioral Model
  - Context Model
  - Data Model
  - Structural Model
64. Which of the following is not a step of requirement engineering?
- elicitation
  - design
  - analysis
  - documentation
65. A page fault occurs, when :
- the Deadlock happens
  - the Segmentation starts
  - the page is found in the memory
  - the page is not found in the memory
66. In the operating system, each process has its own :
- Address space and global variables
  - Pending alarms, signals and signal handlers
  - Open files
  - All of the mentioned
67. What is Event latency?
- The amount of time an event takes to occur from when the system started
  - The amount of time from the event occurrence till the system stops
  - The amount of time from event occurrence till the event crashes
  - The amount of time that elapses from when an event occurs to when it is serviced.
68. Which scheduling algorithm allocates the CPU first to the process that requests the CPU first?
- First-come first-served scheduling
  - Shortest job scheduling
  - Priority scheduling
  - Round Robin Scheduling
69. A problem encountered in multitasking when a process is perpetually denied necessary resources is called
- deadlock
  - starvation
  - inversion
  - aging
70. In an absolute loading scheme, which loader function is accomplished by assembler?
- Re-allocation
  - Allocation
  - Linking
  - Loading
71. Transient operating system code is code that \_\_\_\_\_
- is not easily accessible
  - comes and goes as needed
  - stays in the memory always
  - never enters the memory space



72. In the One to One model when a thread makes a blocking system call
- other threads are strictly prohibited from running
  - other threads are allowed to run
  - other threads only from other processes are allowed to run
  - none of the mentioned
73. Which of the following condition stands true for Mutual Exclusion?
- No process access and manipulate the same data concurrently
  - If the process  $P_i$  is executing in its critical section, then no other processes can be executing in their critical sections
  - Several processes access and manipulate the same data concurrently
  - None of the above
74. Banker's algorithm is used \_\_\_\_\_
- to prevent deadlock
  - to solve the deadlock
  - to deadlock recovery
  - for Process scheduling
75. Piece of code that only one thread can execute at a time is called
- Mutual Exclusion
  - Critical Section
  - Synchronization
  - All of them
76. What do you call the organization of files and folders on a disk?
- Directory or directory tree
  - Path
  - File management
  - Root directory
77. Which of the following allows client to update their DNS entry as their IP address change ?
- Dynamic DNS
  - Mail transfer agent
  - Authoritative name server
  - DNS Control Directory
78. Which of the following TCP/IP protocol is used for transferring electronic mail message from one machine to another ?
- FTP
  - SNMP
  - SMTP
  - RPC
79. Which two encryption protocols might be used to provide secure transmissions for browser and web server communications?
- HTTP & HTTPS
  - SSL & TLS
  - SSL & HTTP
  - TCP & UDP
80. What is the default subnet mask for a class B network?
- 127.0.0.1
  - 255.0.0.0
  - 225.255.0.0
  - 255.255.255.0
81. Contention is
- one or more conductors that serve as a common connection for a related group of devices.
  - a continuous frequency capable of being modulated or impressed with a second signal
  - the condition when two or more stations attempt to use the same channel at the same time
  - a collection of interconnected functional units that provide a data communication service among stations attached to network
82. All of the following statements about the TCP protocol are true EXCEPT:
- Correct order of delivery is guaranteed
  - Connectionless
  - Connection oriented
  - Missing packets will be retransmitted.
83. Which IEEE standard do Wireless LAN networks conform to?
- 802.1
  - 802.13
  - 802.3
  - 802.11
84. The data link layer takes the packets from \_\_\_\_\_ and encapsulates them into frames for transmission :
- Physical layer
  - Transport layer
  - Network layer
  - Application layer
85. Which layer of the OSI model contains the LLC sublayer and the MAC sublayer?
- Physical Layer
  - Transport Layer
  - Data Link Layer
  - Session Layer
86. Examples of TCP/IP link layer technologies include:
- FTP, TELNET, DNS, HTTP, SMTP
  - IP, IPsec
  - TCP, UDP, ICMP
  - Ethernet, ATM, Frame Relay, Wi-Fi
87. Which of the following is not a function of network layer?
- routing
  - inter-networking
  - congestion control
  - error control
88. What is the minimum header size of an IP packet?
- 16 bytes
  - 10 bytes
  - 20 bytes
  - 32 bytes

89. Which of the following is one of the unique attributes of Cloud Computing?  
 a) utility type of delivery b) elasticity  
 c) low barrier to entry d) all of the mentioned
90. \_\_\_\_\_ ensures that the message is real, accurate and safeguards from unauthorized user modification during the transmission.  
 a) Authentication b) Non-repudiation  
 c) Integrity d) None of the above
91. Among the alternate models of B2B e-commerce, ..... is the best means to obtain a competitive advantage in the Mark place.  
 a) Process based b) Strategic relationship based  
 c) Transaction based d) Any of these
92. Which of the following is a kind of technique that allows sharing the single physical instance of an application or the resources among multiple organizations/customers in cloud computing?  
 a) Virtualization b) Service-Oriented Architecture  
 c) Grid Computing d) Utility Computing
93. What is data encryption standard (DES)?  
 a) Block cipher b) Stream cipher  
 c) Bit cipher d) Base cipher
94. How many numbers of the element in the open IoT architecture?  
 a) 4 b) 5  
 c) 6 d) 7
95. What is NOT the five V's of Big Data?  
 a) Valiant b) Velocity  
 c) Variety d) Veracity
96. Which of the following is a reasonable way to select the number of principle components "k"?  
 a) Choose k to be the smallest value so that at least 99% of the variance is retained  
 b) Choose k to be 99% of m ( $k=0.99*m$ , rounded to the nearest integer)  
 c) Choose k to be the largest value so that 99% of the variance is retained  
 d) Use the elbow method
97. ICT policy 2072 of Nepal indicate that A National ICT Research and Development Fund will be created with a view to promoting  
 a) Government developmental goals to be delivered over telecommunications networks  
 b) The development of Intellectual Policy in ICT  
 c) Both (a) and (b) d) None of the above
98. According to ETA, ..... is the competent authority to issue license to the Certifying Authority.  
 a) Controller b) Department of IT  
 c) Office of the Company Registrar d) Copyright Register's Office
99. How many councils constituted as major decision-making bodies to Tribhuvan University?  
 a) 3 b) 4  
 c) 5 d) 6
100. Who is the Chief Executive in Tribhuvan University?  
 a) President b) Prime Minister  
 c) Education Minister d) Vice-Chancellor