

Here's a comprehensive list of 100 multiple-choice questions for an Information Technology exit exam, covering various topics. Each question is followed by four answer options.

Section 1: Networking (20 points)

1. Which protocol is used for sending email?
 - A. HTTP
 - B. FTP
 - C. SMTP
 - D. SNMP
2. What does DHCP stand for?
 - A. Dynamic Host Configuration Protocol
 - B. Domain Host Control Protocol
 - C. Dynamic Hypertext Configuration Protocol
 - D. Domain Hypertext Control Protocol
3. What is the purpose of a subnet mask?
 - A. To divide the IP address into network and host parts
 - B. To mask the IP address
 - C. To configure the DNS settings
 - D. To encrypt data
4. Which layer of the OSI model is responsible for error detection and correction?
 - A. Physical
 - B. Data Link
 - C. Network
 - D. Transport
5. What is the main function of a router?
 - A. To transmit data between computers within a local network
 - B. To provide IP addresses to devices
 - C. To route data between different networks
 - D. To connect devices to the internet
6. Which of the following is a private IP address?
 - A. 192.168.1.1
 - B. 8.8.8.8
 - C. 172.16.0.1
 - D. 10.0.0.1
7. What does the term "bandwidth" refer to in networking?
 - A. The number of devices on a network
 - B. The speed of the internet connection

- C. The maximum rate of data transfer across a given path
- D. The distance between network nodes

8. What is a VLAN?

- A. Virtual Local Area Network
- B. Variable Local Area Network
- C. Virtual Limited Area Network
- D. Variable Limited Area Network

9. Which protocol is used to secure HTTP traffic?

- A. FTP
- B. TLS
- C. SSH
- D. SFTP

10. Which device is used to connect multiple network segments?

- A. Hub
- B. Switch
- C. Router
- D. Modem

11. What is the purpose of NAT (Network Address Translation)?

- A. To translate domain names to IP addresses
- B. To assign IP addresses to devices
- C. To map private IP addresses to a public IP address
- D. To encrypt data traffic

12. What does the term "latency" refer to in networking?

- A. The amount of data that can be transmitted in a given time
- B. The delay before a transfer of data begins
- C. The speed of data transmission
- D. The frequency of data errors

13. Which of the following is a wireless networking standard?

- A. Ethernet
- B. IEEE 802.11
- C. TCP/IP
- D. Bluetooth

14. What is a firewall used for?

- A. To speed up internet connections
- B. To prevent unauthorized access to or from a private network
- C. To manage IP addresses
- D. To monitor network performance

15. What does VPN stand for?

- A. Virtual Private Network
- B. Variable Private Network
- C. Virtual Public Network
- D. Variable Public Network

16. Which of the following is a valid IPv6 address?

- A. 192.168.0.1
- B. 2001:0db8:85a3:0000:0000:8a2e:0370:7334
- C. 172.16.0.1
- D. 10.0.0.1

17. What is the maximum length of a CAT5e Ethernet cable?

- A. 10 meters
- B. 50 meters
- C. 100 meters
- D. 200 meters

18. Which protocol is used for remote login to a computer?

- A. FTP
- B. Telnet
- C. HTTP
- D. SMTP

19. What is the primary function of a DNS server?

- A. To assign IP addresses to devices
- B. To translate domain names into IP addresses
- C. To secure network traffic
- D. To manage network resources

20. Which network topology uses a single central cable to which all network devices are connected?

- A. Star
- B. Ring
- C. Bus
- D. Mesh

Section 2: Database Management (20 points)

21. What does SQL stand for?

- A. Structured Query Language
- B. Simple Query Language
- C. Standard Query Language

- D. Sequential Query Language

22. Which SQL command is used to retrieve data from a database?

- A. INSERT
- B. UPDATE
- C. SELECT
- D. DELETE

23. What is a primary key?

- A. A field that uniquely identifies each record in a table
- B. A field that allows duplicate values
- C. A field that stores the largest number in a table
- D. A field that can be left empty

24. Which of the following is a NoSQL database?

- A. MySQL
- B. PostgreSQL
- C. MongoDB
- D. Oracle

25. What is the purpose of the JOIN clause in SQL?

- A. To insert new rows into a table
- B. To delete rows from a table
- C. To retrieve data from multiple tables
- D. To update existing rows in a table

26. What does ACID stand for in database transactions?

- A. Atomicity, Consistency, Isolation, Durability
- B. Access, Control, Integrity, Data
- C. Availability, Confidentiality, Integrity, Durability
- D. Atomicity, Control, Isolation, Data

27. What is a foreign key?

- A. A key that is unique within a table
- B. A key that refers to a primary key in another table
- C. A key that can have duplicate values
- D. A key that cannot be NULL

28. Which SQL function is used to count the number of rows in a table?

- A. SUM()
- B. COUNT()
- C. AVG()
- D. MAX()

29. What is normalization in databases?
- A. The process of organizing data to reduce redundancy
 - B. The process of backing up data
 - C. The process of encrypting data
 - D. The process of creating indexes
30. Which SQL statement is used to create a new table?
- A. ALTER TABLE
 - B. CREATE TABLE
 - C. DROP TABLE
 - D. RENAME TABLE
31. What is the purpose of the GROUP BY clause in SQL?
- A. To combine multiple columns into one
 - B. To sort the results of a query
 - C. To aggregate data based on one or more columns
 - D. To filter the results of a query
32. Which SQL keyword is used to sort the result-set?
- A. SORT BY
 - B. ORDER BY
 - C. GROUP BY
 - D. FILTER BY
33. What is a view in SQL?
- A. A stored procedure
 - B. A virtual table based on the result-set of a query
 - C. A temporary table
 - D. A backup of a table
34. Which command is used to delete a table from a database?
- A. DELETE
 - B. DROP
 - C. REMOVE
 - D. ERASE
35. What is the default port number for MySQL?
- A. 1433
 - B. 3306
 - C. 5432
 - D. 1521
36. What does the SQL UNION operator do?
- A. Combines the results of two or more SELECT statements

- B. Deletes rows from a table
- C. Updates existing rows in a table
- D. Inserts new rows into a table

37. What is the purpose of an index in a database?

- A. To store large objects like images and videos
- B. To improve the speed of data retrieval
- C. To enforce unique constraints
- D. To provide a backup of the data

38. Which SQL statement is used to modify the structure of an existing table?

- A. ALTER TABLE
- B. MODIFY TABLE
- C. CHANGE TABLE
- D. UPDATE TABLE

39. What is a trigger in SQL?

- A. A command to retrieve data from a table
- B. A set of SQL statements that automatically executes when a specified event occurs
- C. A command to create a new table
- D. A command to delete data from a table

40. Which of the following is a DDL command in SQL?

- A. SELECT
- B. INSERT
- C. UPDATE

- D. CREATE

Section 3: Programming (20 points)

41. What is the purpose of the 'main' function in C/C++?

- A. To define global variables
- B. To start the execution of the program
- C. To initialize the system libraries
- D. To allocate memory

42. Which of the following is a Python keyword?

- A. function
- B. define
- C. pass
- D. execute

43. What does the term 'recursion' mean in programming?

- A. A function calling itself
- B. A function calling another function
- C. A loop inside a function
- D. A function returning a value

44. What is the output of the following Python code?

```
```python
x = 5
y = 10
print(x + y)
```
```

- A. 510
- B. 15
- C. 105
- D. 50

45. Which of the following is an interpreted language?

- A. C++
- B. Java
- C. Python
- D. Assembly

46. What is the purpose of a constructor in object-oriented programming?

- A. To destroy objects
- B. To initialize objects
- C. To create functions
- D. To allocate memory

47. What is the difference between '==' and '===' in JavaScript?

- A. '==' checks for equality, '===' checks for inequality
- B. '==' checks for equality with type conversion, '===' checks for strict equality without type conversion
- C. '==' is used for comparison, '===' is used for assignment
- D. '==' is used for mathematical operations, '===' is used for logical operations

48. What does the term 'inheritance' mean in object-oriented programming?

- A. A class deriving properties and behavior from another class
- B. A class being an instance of another class
- C. A class having multiple constructors
- D. A class having private variables

49. Which of the following is a valid Java identifier?

- A. 1variable

- B. `_variable`
- C. `variable-name`
- D. `var iable`

50. What is the output of the following code snippet in Java?

```
```java
int a = 5;
int b = 2;
System.out.println(a / b);
```
```

- A. 2.5
- B. 3
- C. 2
- D. 2.0

51. Which statement correctly declares an array in Java?

- A. `int[] arr;`
- B. `int arr[];`
- C. `int arr() = new int[5];`
- D. `int arr{} = new int[5];`

52. What is the use of the 'finally' block in Java?

- A. To execute code regardless of whether an exception is thrown or not
- B. To handle exceptions
- C. To define an entry point for the program
- D. To create a new thread

53. In Python, what is the difference between a list and a tuple?

- A. Lists are immutable, tuples are mutable
- B. Lists are mutable, tuples are immutable
- C. Lists can only contain integers, tuples can contain any data type
- D. Lists are faster than tuples

54. What is the purpose of the 'break' statement in a loop?

- A. To continue to the next iteration
- B. To terminate the loop immediately
- C. To pause the loop execution
- D. To restart the loop

55. What does 'CSS' stand for in web development?

- A. Cascading Style Sheets
- B. Computer Style Sheets
- C. Creative Style Sheets
- D. Colorful Style Sheets

56. What is the output of the following JavaScript code?

```
````javascript
let x = 10;
let y = '10';
console.log(x == y);
````
```

- A. true
- B. false
- C. 10
- D. '10'

57. Which of the following is not a valid C data type?

- A. int
- B. float
- C. boolean
- D. char

58. What is the purpose of the 'return' statement in a function?

- A. To terminate the function
- B. To return a value to the caller
- C. To pause the function execution
- D. To restart the function

59. Which of the following is a front-end web development framework?

- A. Node.js
- B. Django
- C. Angular
- D. Flask

60. What is the output of the following C++ code?

```
````cpp
int a = 10;
int b = 20;
cout << a + b;
````
```

- A. 30
- B. 1020
- C. 20
- D. 10

Section 4: Cybersecurity (10 points)

61. What is a firewall?

- A. A software to detect and remove viruses
- B. A device to connect multiple networks
- C. A network security device that monitors and controls incoming and outgoing network traffic
- D. A protocol for secure communication

62. What does SSL stand for?

- A. Secure Sockets Layer
- B. Secure Software Layer
- C. Secure System Layer
- D. Secure Server Layer

63. Which of the following is a form of malware that encrypts files and demands payment for decryption?

- A. Virus
- B. Worm
- C. Ransomware
- D. Spyware

64. What is a brute force attack?

- A. An attack that uses social engineering to obtain sensitive information
- B. An attack that uses a trial-and-error method to guess passwords
- C. An attack that exploits software vulnerabilities
- D. An attack that involves eavesdropping on network communication

65. What is the purpose of two-factor authentication?

- A. To provide an additional layer of security by requiring two forms of identification
- B. To speed up the login process
- C. To encrypt data during transmission
- D. To back up user credentials

66. What is a VPN?

- A. A protocol for secure email communication
- B. A type of firewall
- C. A Virtual Private Network that provides secure connections over the internet
- D. A device to connect multiple networks

67. Which of the following is a technique used to prevent unauthorized access to a network?

- A. DDoS
- B. Phishing
- C. Authentication
- D. SQL Injection

68. What is the primary purpose of an Intrusion Detection System (IDS)?

- A. To prevent network attacks
- B. To detect and alert about potential security breaches
- C. To encrypt data
- D. To manage network traffic

69. What is social engineering in cybersecurity?

- A. A technique to encrypt data
- B. A method to physically secure network devices
- C. Manipulating people into divulging confidential information
- D. A type of malware

70. What is the difference between a worm and a virus?

- A. A worm replicates itself to spread to other computers, while a virus attaches itself to a program or file
- B. A worm is a type of antivirus software, while a virus is a type of malware
- C. A worm is used for network scanning, while a virus is used for data encryption
- D. A worm is a hardware device, while a virus is a software program

Section 5: Operating Systems (10 points)

71. What is an operating system?

- A. A software that allows users to browse the internet
- B. A hardware component that processes data
- C. A software that manages computer hardware and software resources
- D. A type of application software

72. What is the purpose of virtual memory in an operating system?

- A. To increase the speed of the CPU
- B. To provide additional RAM by using a portion of the hard drive
- C. To encrypt files on the hard drive
- D. To store backup copies of files

73. Which of the following is a Linux distribution?

- A. Windows 10
- B. macOS
- C. Ubuntu
- D. Android

74. What does the term 'kernel' refer to in an operating system?

- A. The user interface
- B. The central part of the operating system that manages system resources
- C. The file system
- D. The application software

75. Which of the following is a system call in an operating system?

- A. printf
- B. malloc
- C. fork
- D. scanf

76. What is the purpose of a device driver?

- A. To provide an interface between the operating system and hardware devices
- B. To manage user accounts
- C. To encrypt data
- D. To allocate memory

77. Which of

the following is a task performed by the operating system's file management system?

- A. Compiling programs
- B. Translating code into machine language
- C. Managing files and directories on storage devices
- D. Handling network communication

78. What does the term 'multitasking' mean in an operating system?

- A. Running multiple operating systems on a single computer
- B. Running multiple applications simultaneously
- C. Running multiple processors simultaneously
- D. Running multiple computers on a single network

79. Which command is used to list files and directories in a directory in Unix/Linux?

- A. cd
- B. ls
- C. rm
- D. mkdir

80. What is the purpose of the 'Task Manager' in Windows operating systems?

- A. To manage user accounts
- B. To manage running applications and processes
- C. To manage network connections
- D. To manage system updates

Section 6: Software Development (10 points)

81. What is the purpose of version control in software development?

- A. To speed up the coding process
- B. To track changes to the code over time
- C. To compile the code

- D. To deploy the software

82. Which of the following is a version control system?

- A. MySQL
- B. Git
- C. Apache
- D. PHP

83. What does the term 'agile' refer to in software development?

- A. A type of programming language
- B. A software development methodology that emphasizes iterative development and collaboration
- C. A software testing technique
- D. A type of database management system

84. What is the purpose of a 'commit' in Git?

- A. To compile the code
- B. To save changes to the code repository
- C. To merge branches
- D. To delete a file

85. What does the term 'refactoring' mean in software development?

- A. Adding new features to the software
- B. Fixing bugs in the software
- C. Rewriting the code to improve its structure without changing its functionality
- D. Testing the software

86. What is a 'branch' in Git?

- A. A copy of the code where changes can be made independently
- B. A part of the code that has been deleted
- C. A compiled version of the code
- D. A bug in the code

87. What is the purpose of a 'pull request' in GitHub?

- A. To compile the code
- B. To merge changes from one branch into another
- C. To delete a repository
- D. To create a new branch

88. What does the term 'continuous integration' refer to in software development?

- A. The process of merging all developer working copies to a shared mainline several times a day
- B. The process of compiling the code
- C. The process of deploying the software

- D. The process of writing code

89. Which of the following is a build automation tool?

- A. MySQL
- B. Apache
- C. Jenkins
- D. PHP

90. What is the purpose of unit testing in software development?

- A. To test the performance of the software
- B. To test individual components of the software in isolation
- C. To test the software's security
- D. To test the software's usability

Section 7: Data Structures and Algorithms (10 points)

91. What is the time complexity of binary search?

- A. $O(n)$
- B. $O(n^2)$
- C. $O(\log n)$
- D. $O(1)$

92. Which of the following is a linear data structure?

- A. Tree
- B. Graph
- C. Array
- D. Hash table

93. What is a linked list?

- A. A data structure where elements are stored at contiguous memory locations
- B. A data structure where each element points to the next element
- C. A data structure used for storing key-value pairs
- D. A data structure used for hierarchical data

94. What is the purpose of a stack data structure?

- A. To store elements in a first-in, first-out (FIFO) order
- B. To store elements in a last-in, first-out (LIFO) order
- C. To store elements in a random order
- D. To store elements in a sorted order

95. Which sorting algorithm has the best average-case time complexity?

- A. Bubble sort
- B. Selection sort
- C. Quick sort

- D. Insertion sort

96. What is a binary tree?

- A. A tree where each node has at most one child
- B. A tree where each node has at most two children
- C. A tree where each node has at most three children
- D. A tree where each node has at most four children

97. What is the purpose of a hash table?

- A. To store elements in a sorted order
- B. To store elements in a hierarchical order
- C. To store elements in key-value pairs for efficient retrieval
- D. To store elements in a linear order

98. What is the time complexity of accessing an element in an array?

- A. $O(n)$
- B. $O(\log n)$
- C. $O(1)$
- D. $O(n^2)$

99. Which of the following data structures is used for breadth-first search in a graph?

- A. Stack
- B. Queue
- C. Linked list
- D. Array

100. What is the purpose of a priority queue?

- A. To store elements in a random order
- B. To store elements based on their priority
- C. To store elements in a sorted order
- D. To store elements in a hierarchical order

These questions cover a broad range of topics in Information Technology and are designed to test the fundamental knowledge of graduating students.