

## **Sample Paper 2**

16. Each assembly language statement corresponds to, at most, one \_\_\_\_\_ language statement.

*ANSWER:* machine

17. Individual assembly language statements, though easier to read, can be no more powerful than the underlying \_\_\_\_\_.

*ANSWER:* instruction set

18. When we moved from machine language to assembly language, we needed a piece of system software—a(n) \_\_\_\_\_—to translate assembly language instructions into machine language.

*ANSWER:* assembler

19. The \_\_\_\_\_ computer architecture is characterized by sequential fetch-decode-execute cycles.

*ANSWER:* Von Neumann

20. Newer languages such as Java and C# were developed specifically to run on a variety of hardware platforms without the need for a separate \_\_\_\_\_ for each type of machine.

*ANSWER:* compiler

21. Assembly language programs are \_\_\_\_ specific.

- a. language
- b. compiler
- c. architecture
- d. machine

*ANSWER:* d

22. In assembly language, the programmer must take a microscopic view of a task, breaking it down into tiny subtasks at the level of what is going on in individual \_\_\_\_.

- a. memory locations
- b. programs
- c. subtasks
- d. tasks

*ANSWER:* a

23. High-level programming languages were created to overcome the deficiencies of \_\_\_\_\_ language.

- a. compiling
- b. assembly
- c. object
- d. link

*ANSWER:* b

24. Machine language is also known as \_\_\_\_ code.

- a. object
- b. source

## **Sample Paper 2**

- c. link
- d. reloadable

*ANSWER:* a

25. The software translator used to convert our high-level language instructions into machine language instructions is called a(n) \_\_\_\_.

- a. compiler
- b. editor
- c. loader
- d. linker

*ANSWER:* a

26. Source code is also known as \_\_\_\_.

- a. assembly language instructions
- b. link language instructions
- c. compiling instructions
- d. high-level language instructions

*ANSWER:* d

27. The \_\_\_\_ code for a task that needs to be performed often can be stored in a code library

- a. object
- b. processing
- c. container
- d. assembly

*ANSWER:* a

28. Procedural languages are also called \_\_\_\_ languages.

- a. immediate
- b. translated
- c. interpreted
- d. imperative

*ANSWER:* d

29. Imperative commands are instructions in the \_\_\_\_.

- a. machine Language
- b. assembly Language
- c. processing language
- d. programming language

*ANSWER:* d

30. A \_\_\_\_ stores and fetches values to and from memory cells.

- a. random access memory

## **Sample Paper 2**

- b. read-only memory
- c. flash memory
- d. memory cache encoder

*ANSWER:* a

31. Syntax is the rules for exactly how \_\_\_\_\_ must be written in a programming language.
- a. orders
  - b. instructions
  - c. executables
  - d. statements

*ANSWER:* d

32. Which language does NOT require a semicolon to terminate an executable program statement?
- a. Python
  - b. Ada
  - c. C++
  - d. C#

*ANSWER:* a

33. The \_\_\_\_\_ evaluates a proposed project and compares the costs and benefits of various solutions.
- a. design study
  - b. feasibility study
  - c. specification study
  - d. work breakdown study

*ANSWER:* b

34. \_\_\_\_\_ is the time to plan how the program will accomplish the determined task.
- a. Program design
  - b. Assembly design
  - c. Processing design
  - d. Program statement document

*ANSWER:* d

35. \_\_\_\_\_ is the process of translating the detailed designs into computer code.
- a. Translating
  - b. Interpreting
  - c. Coding
  - d. Configuring

*ANSWER:* c

36. \_\_\_\_\_ takes place on each module (subtask code) as it is completed.
- a. Regression testing

## **Sample Paper 2**

- b. System testing
- c. Unit testing
- d. Integration testing

*ANSWER:* c

37. \_\_\_\_ a program means running it on many data sets to be sure its performance falls within required limits.

- a. Debugging
- b. Benchmarking
- c. Configuring
- d. Coding

*ANSWER:* b

38. \_\_\_\_ includes online tutorials or help systems that the user can bring up while the program is running, and (less often) written user's manuals.

- a. Technical documentation
- b. Rough documentation
- c. First-level documentation
- d. User documentation

*ANSWER:* d

39. Most programming languages are now presented within an \_\_\_\_.

- a. integrated development environment
- b. integrated deployment environment
- c. implementation development environment
- d. interactive development environment

*ANSWER:* a

40. Rapid prototyping allows \_\_\_\_\_ between the user and the programmer to be identified and corrected early in the development process.

- a. processing errors
- b. config errors
- c. miscommunications
- d. interfacing errors

*ANSWER:* c

6. The output of a scanner is a list of all the \_\_\_\_\_ contained in a high-level language statement as well as the classification number of each token found.

*ANSWER:* tokens

7. The output of a parser is a(n) complete \_\_\_\_\_, or an error message if one cannot be constructed.

*ANSWER:* parse tree

## **Sample Paper 2**

8. If a parser can convert the sequence of input tokens into the goal symbol, then that sequence of tokens is a syntactically \_\_\_\_\_ statement of the language.

*ANSWER:* valid

9. \_\_\_\_\_ for high-level languages like C++ or Java are very large.

*ANSWER:* Grammars

10. One of the possible \_\_\_\_\_ optimizations is eliminating unnecessary operations.

*ANSWER:* local

21. During the parsing phase, the sequence of tokens formed by the scanner is checked to see whether it is \_\_\_\_\_ correct according to the rules of the programming language.

- a. grammatically
- b. algorithmically
- c. always
- d. syntactically

*ANSWER:* d

22. In the \_\_\_\_\_ phase, the compiler examines the individual characters in the source program and groups them into tokens.

- a. semantic analysis and code generation
- b. parsing
- c. lexical analysis
- d. code optimization

*ANSWER:* c

23. In the \_\_\_\_\_ phase, the compiler takes the generated code and sees whether it can be made more efficient, either by making it run faster or having it occupy less memory.

- a. code optimization
- b. parsing
- c. lexical analysis
- d. semantic analysis and code generation

*ANSWER:* a

24. A high-level language program is called a(n) \_\_\_\_\_ program.

- a. object
- b. source
- c. lexical
- d. token

*ANSWER:* b

25. A \_\_\_\_\_ shows how individual tokens can be grouped into predefined grammatical categories until the desired goal is reached.

## **Sample Paper 2**

- a. parse tree
- b. scanner
- c. parser
- d. compiler

*ANSWER:* a

26. In \_\_\_\_\_, a nonterminal is an intermediate grammatical category used to help explain and organize the language.
- a. code optimization
  - b. BNF
  - c. OOP
  - d. parsing

*ANSWER:* d

27. The collection of all statements that can be successfully parsed is called the \_\_\_\_\_ defined by a grammar.
- a. language
  - b. terminal
  - c. nonterminal
  - d. rule

*ANSWER:* a

28. The Greek character lambda represents \_\_\_\_\_.
- a. zero
  - b. the null string
  - c. the defined string
  - d. the unknown string

*ANSWER:* b

29. In BNF, the \_\_\_\_\_ is used to separate two alternative definitions of a nonterminal.
- a. forward slash
  - b. vertical bar
  - c. backward slash
  - d. asterisk

*ANSWER:* b

30. \_\_\_\_\_ parsing algorithms examine several tokens “down the road” to see what would happen if a certain choice was made.
- a. Look-ahead
  - b. Token prediction
  - c. Down-the-road
  - d. Recursive

*ANSWER:* a

## **Sample Paper 2**

31. A(n) \_\_\_\_ definition defines a nonterminal symbol in terms of itself.
- a. ambiguous
  - b. recursive
  - c. local
  - d. global

*ANSWER:* b

32. During parsing, a compiler deals only with the \_\_\_\_ of a statement.
- a. semantics
  - b. syntax
  - c. grammar
  - d. rules

*ANSWER:* b

33. A \_\_\_\_ is a data structure that stores information about a nonterminal, such as the actual name of the object and its data type.
- a. rule
  - b. production
  - c. parse tree
  - d. semantic record

*ANSWER:* d

34. Following \_\_\_\_, the compiler makes a second pass over the parse tree to produce the translated code.
- a. semantic analysis
  - b. lexical analysis
  - c. code optimization
  - d. code generation

*ANSWER:* a

35. \_\_\_\_ begins at the productions in the tree that are nearest to the original input tokens.
- a. Code generation
  - b. Parsing
  - c. Lexical analysis
  - d. Semantic analysis

*ANSWER:* a

36. \_\_\_\_ is where the compiler polishes and fine-tunes the translation so that it runs a little faster or occupies a little less memory.
- a. Compilation
  - b. Generation
  - c. Optimization
  - d. Efficiency

## **Sample Paper 2**

*ANSWER:* c

37. \_\_\_\_ is the ability to write highly optimized programs that contain no wasted time or unnecessary memory cells.

- a. Conciseness
- b. Ambiguity
- c. Code-aware
- d. Efficiency

*ANSWER:* d

38. A(n) \_\_\_\_ is a compiler embedded with a collection of supporting software.

- a. debugger
- b. reusable code library
- c. visual development library
- d. integrated development environment

*ANSWER:* d

39. \_\_\_\_ is the replacement of slow arithmetic operations with faster ones.

- a. Strength reduction
- b. Constant evaluation
- c. Eliminating unnecessary operations
- d. Parse tree construction

*ANSWER:* a

40. In global optimization, the compiler looks at \_\_\_\_ segments of the program to decide how to improve performance.

- a. large
- b. small
- c. incorrect
- d. syntactical

*ANSWER:*

a

6. A computing agent must be able to act in accordance with \_\_\_\_\_ instructions.

*ANSWER:* *algorithm*

7. There is no limit to the amount of \_\_\_\_\_ available on a Turing machine.

*ANSWER:* *memory*

8. Each individual Turing machine instruction describes an operation that is \_\_\_\_\_, requiring no additional explanation, and any Turing machine is able to carry out the operation described.

*ANSWER:* *unambiguous*

9. One consequence of a(n) \_\_\_\_\_ problem related to the halting problem is that no program can be written to decide whether any given program always stops eventually, no matter what the input is.



## **Sample Paper 2**

*ANSWER: unsolvable*

10. The real value of Turing machines as models of computability is in exposing problems that are \_\_\_\_\_.

*ANSWER: uncomputable*

21. A formal basis for proofs might allow for \_\_\_\_\_ theorem-proving.

- a. unsolvable
- b. mechanical
- c. indisputable
- d. observable

*ANSWER: b*

22. The symbols for a Turing machine must come from a finite set of symbols called the tape \_\_\_\_\_.

- a. alphabet
- b. placeholder
- c. blank
- d. palette

*ANSWER: a*

23. At any point in time, only a finite number of cells in the Turing machine input contain \_\_\_\_\_ symbols.

- a. blank
- b. placeholder
- c. alphabetic
- d. nonblank

*ANSWER: d*

24. A tape is used to hold the \_\_\_\_\_ to the Turing machine.

- a. alphabet
- b. input
- c. output
- d. halting state

*ANSWER: b*

25. State \_\_\_\_\_ is always the start-up state of the Turing machine.

- a. 0
- b. 1
- c. L
- d. R

*ANSWER: b*

26. A Turing machine \_\_\_\_\_ is a collection of instructions that allow a Turing machine to carry out a certain task.

- a. program
- b. sequence

## **Sample Paper 2**

- c. algorithm
- d. tape

*ANSWER:* a

27. In a \_\_\_\_\_ diagram, circles are used to represent states.

- a. state
- b. tape
- c. unary
- d. binary

*ANSWER:* a

28. A(n) \_\_\_\_\_ takes the bits in a string and changes the 1s to 0s and the 0s to 1s.

- a. bit inverter
- b. unary converter
- c. Turing inverter
- d. incrementer

*ANSWER:* a

29. An extra bit, called a(n) \_\_\_\_\_, can be attached to the end of a string of bits.

- a. state bit
- b. odd parity bit
- c. inverted bit
- d. sentinel bit

*ANSWER:* b

30. The term unary means that we will use \_\_\_\_\_ symbol(s).

- a. one
- b. two
- c. three
- d. four

*ANSWER:* a

31. We can write a Turing machine to add 1 to any number; such a machine is often called a(n) \_\_\_\_\_.

- a. unary operator
- b. bit adder
- c. parity machine
- d. incrementer

*ANSWER:* d

32. The \_\_\_\_\_ states that if there exists an algorithm to do a symbol manipulation task, then there exists a Turing machine to do that task.

- a. Church–Turing thesis
- b. Church–Alan theorem
- c. Church–Zimmerman thesis
- d. Alan–Zimmerman thesis

## **Sample Paper 2**

*ANSWER:* a

33. A(n) \_\_\_\_ is a statement advanced for consideration and maintained by argument.

- a. algorithm
- b. contradiction
- c. thesis
- d. 5-tuple

*ANSWER:* c

34. The \_\_\_\_ thesis can never be proved because the definition of an algorithm is descriptive, not mathematical.

- a. Church–Zimmerman
- b. Church–Turing
- c. Church–Alan
- d. Alan–Zimmerman

*ANSWER:* b

35. Turing machines define the limits of \_\_\_\_, which is what can be done by symbol manipulation algorithms.

- a. computability
- b. extensibility
- c. compatibility
- d. correspondence

*ANSWER:* a

36. If a Turing machine program consists of the following four instructions:

(1,0,1,2,R)

(1,1,0,2,R)

(2,0,0,2,R)

(2,b,b,2,L)

then the configuration \_\_\_\_ is a halting configuration.

- a. ... b 1 1 b b b ... (current state = 2, symbol 1 is being read)
- b. ... b 1 1 b b b ... (current state = 1, symbol 1 is being read)
- c. ... b 1 0 b b b ... (current state = 1, symbol 0 is being read)
- d. ... b 1 0 b b b ... (current state = 2, symbol 0 is being read)

*ANSWER:* a

37. The proof by \_\_\_\_ approach assumes that a specific Turing machine does exist and then shows that this assumption leads to an impossible situation.

- a. contradiction
- b. inference
- c. deduction
- d. impossibility

*ANSWER:* a

38. We assumed that there was a Turing machine that could solve the halting problem, and this assumption led to a(n) \_\_\_\_.

- a. computable problem

## **Sample Paper 2**

- b. impossible situation
- c. unsolved problem
- d. complex solution

*ANSWER:* b

39. Unsolvable problems related to the halting problem have the following practical consequence: \_\_\_\_.
- a. a program can be written to decide whether any given program run on any given input will produce some specific output.
  - b. a program can be written to decide whether any two programs are equivalent.
  - c. a program can be written to decide whether any given program always stops eventually, no matter what the input.
  - d. no program can be written to decide whether any given program run on any given input will ever produce some specific output.

*ANSWER:* d

40. It is important to note that unsolvable problems related to the halting problem are unsolvable because of their \_\_\_\_.
- a. generality
  - b. complexity
  - c. specificity
  - d. simplicity

*ANSWER:* a

16. You maintain a \_\_\_\_ web presence to streamline transactions between you as the seller and other businesses as buyers.
- a. B2B
  - b. S2B
  - c. B2S
  - d. C2B

*ANSWER:* a

17. In the \_\_\_\_ world, customers have quick, easy, and secure access to purchasing items and paying for services through the World Wide Web.
- a. e-transactions
  - b. ecommerce
  - c. web commerce
  - d. virtual commerce

*ANSWER:* b

18. \_\_\_\_ is an online coupon site.
- a. iTunes
  - b. PayPal
  - c. Craigslist
  - d. Groupon

*ANSWER:* d

## **Sample Paper 2**

19. An \_\_\_\_ will, for a fee, design your website and manage it on an ongoing basis.
- a. application service provider
  - b. application manager
  - c. application hosting provider
  - d. application management provider

*ANSWER:* a

20. The number-one attraction to online shopping is probably \_\_\_\_.
- a. speed
  - b. lower cost
  - c. the ability to view products
  - d. convenience

*ANSWER:* d

21. As of April 2017, \_\_\_\_ had almost 169 million active registered users, and there were over 800 million listings of items for sale.
- a. Groupon
  - b. eBay
  - c. PayPal
  - d. Craigslist

*ANSWER:* b

22. Services such as Apple Pay and PayPal are examples of \_\_\_\_.
- a. electronic payment systems
  - b. automated payment systems
  - c. data-driven payment systems
  - d. network-based payment systems

*ANSWER:* a

23. \_\_\_\_ is the basis of Bitcoin cybercurrency.
- a. Blockloop
  - b. Encrypted chain
  - c. Chain looping
  - d. Blockchain

*ANSWER:* d

24. Each category of information in a database is called a(n) \_\_\_\_.
- a. element
  - b. tuple
  - c. attribute
  - d. entity

*ANSWER:* c

25. A \_\_\_\_ is an attribute or combination of attributes that uniquely identifies a tuple.
- a. secondary key

## **Sample Paper 2**

- b. primary key
- c. foreign key
- d. preferred key

*ANSWER:* b

26. Related records are kept in a \_\_\_\_\_.

- a. data file
- b. data chain
- c. record file
- d. file sheet

*ANSWER:* a

27. A \_\_\_\_\_ is one where multiple keys are needed to identify a tuple uniquely.

- a. unique primary key
- b. discrete primary key
- c. foreign primary key
- d. composite primary key

*ANSWER:* d

28. A database management system can relate information between various tables through \_\_\_\_\_ values.

- a. special
- b. prepared
- c. key
- d. primary

*ANSWER:* c

29. A \_\_\_\_\_ gives the user, or the user's application software, the ability to combine and manipulate data easily in ways that would be very difficult if the data were kept in separate and unrelated files.

- a. file
- b. database
- c. datastore
- d. data system

*ANSWER:* b

30. A \_\_\_\_\_ is a collection of databases that contain current and archived data used for research and analysis purposes rather than to manage day-to-day business transactions such as inventory control or payroll data.

- a. data mine
- b. data broker
- c. data warehouse
- d. daisy chain

*ANSWER:* c

31. \_\_\_\_\_ is the process of automatically analyzing large amounts of data to discover and interpret previously hidden patterns contained therein.

- a. Phishing

## **Sample Paper 2**

- b. Data mining
- c. Metadata searching
- d. Data warehousing

*ANSWER:* b

32. A \_\_\_\_ runs Bitcoin software that verifies (using a hash function) that the blockchain has not been altered in any way since the previous transaction, and for this service, the miner is rewarded with new bitcoins.

- a. dumpster diver
- b. Groupon bot
- c. virtual currency specialist
- d. bitcoin miner

*ANSWER:* d

33. A good DBMS incorporates the services of a \_\_\_\_ to organize the disk files in an optimal way, in order to minimize access time to the records.

- a. sophisticated file manager
- b. simple file manager
- c. special operating system service
- d. specialized file system

*ANSWER:* a

34. \_\_\_\_ allow the physical data to reside at separate and independent locations that are electronically networked together.

- a. Discrete databases
- b. Singleton databases
- c. Distributed databases
- d. Normalized databases

*ANSWER:* c

35. The term \_\_\_\_\_ expresses that we now have huge amounts of data available.

- a. data warehouse
- b. data store
- c. big data
- d. large data

*ANSWER:* c

36. A(n) \_\_\_\_\_ is a graphical ad, often with animation, placed in a prominent position on a webpage.

*ANSWER:* banner ad

37. Using multiple \_\_\_\_\_ in a single database minimizes the amount of work required to maintain consistency in the data.

*ANSWER:* tables

38. A program written in \_\_\_\_\_ asks for something to be done, but it does not contain a specific sequence of instructions on how it is to be done.

*ANSWER:* SQL

## **Sample Paper 2**

39. \_\_\_\_\_ is an online payment service, an alternative to a customer paying an online merchant by credit card.

*ANSWER:* PayPal

40. In general, issues of personal privacy and public safety are magnified enormously by the capabilities of \_\_\_\_\_ databases.

*ANSWER:* networked

16. The first commercially marketed computer was the UNIVAC I manufactured by \_\_\_\_\_.

- a. Remington **Rand**
- b. International Business Machines (IBM)
- c. Hewlett-Packard
- d. Dedicated Electronic Logical Logarithms (DELL)

*ANSWER:* a

17. On March 31, 1952, the UNIVAC I was delivered to the \_\_\_\_\_.

- a. U.S. Army
- b. U.S. Census Bureau
- c. Atomic Energy Commission
- d. General Electric

*ANSWER:* b

18. Conditions in the computing environment changed dramatically in the late 1960s due to the development of \_\_\_\_\_ and integrated circuits.

- a. parallel CPUs
- b. dedicated GPUs
- c. transistors
- d. silicon chips

*ANSWER:* c

19. In 1965, Digital Equipment Corp. (DEC) rolled out the \_\_\_\_\_, the world's first "minicomputer."

- a. UNIVAC II
- b. DEC Mark IV
- c. JDI Force
- d. PDP-8

*ANSWER:* d

20. Atari released its first product in 1975, an arcade game called \_\_\_\_\_.

- a. Ping
- b. Tetris
- c. Pong
- d. Frogger



## **Sample Paper 2**

*ANSWER:* c

21. King Kong's movements in the 1933 film were created using a manual technique called \_\_\_\_.

- a. CGI
- b. film overlay
- c. skip-motion animation
- d. stop-motion animation

*ANSWER:* d

22. In stop-motion animation, a single photograph is called a \_\_\_\_.

- a. frame
- b. block
- c. unit
- d. cell

*ANSWER:* a

23. The sequence of operations that must be completed successfully to produce a realistic three-dimensional image sequence is termed the \_\_\_\_.

- a. graphics streamline
- b. graphics pipeline
- c. graphics mode
- d. graphics perspective

*ANSWER:* b

24. Using a CGI technique called keyframing, a human animator only needs to produce only the \_\_\_\_\_ in a sequence, and the elapsed time.

- a. central cells (CC)
- b. wire-frame
- c. first and last frame
- d. Prolog algorithm

*ANSWER:* c

25. The branch of computer graphics that studies methods for creating images at a rate matching that of the **real world** is called \_\_\_\_.

- a. just-in-time graphics
- b. real-time graphics
- c. new world graphics
- d. real-world graphics

*ANSWER:* b

26. A **GPU** executes instructions in parallel with the \_\_\_\_\_, the main processor, and carries out all graphics operations including modeling, motion, rendering, and display.

- a. CPU

## **Sample Paper 2**

- b. NPU
- c. PGU
- d. GIPU

*ANSWER:* a

27. Typically, a(n) \_\_\_\_ has its own dedicated random-access memory where it stores its image data and which is separate from primary memory.

- a. CPU
- b. PPU
- c. GPU
- d. MPU

*ANSWER:* c

28. In the technique known as \_\_\_\_, first it is determined which planes can be seen from the user's point of view, based on location and opaqueness, and then only those objects visible in the next frame are rendered, omitting all operations on hidden surfaces.

- a. culling
- b. clicking
- c. slicing
- d. striping

*ANSWER:* a

29. \_\_\_\_ are fully modeled and fully rendered objects stored in a video library in video memory.

- a. Cut-outs
- b. Cut-ins
- c. Block-ins
- d. Block-outs

*ANSWER:* b

30. \_\_\_\_ games allow a large number of players, often thousands or tens of thousands, to interact, form groups, and compete against one another within a simulated virtual world.

- a. MMPRG
- b. MMRPG
- c. MMORG
- d. MMOG

*ANSWER:* d

31. The world in which the MMOG action takes place is created and managed by special computers called \_\_\_\_.

- a. game hosts
- b. game servers
- c. game clients
- d. game servlets

## **Sample Paper 2**

*ANSWER:* b

32. Users log on to the MMOG game server whenever they wish, using \_\_\_\_ software running on their home computer or laptop.

- a. client
- b. server
- c. servlet
- d. hosting

*ANSWER:* a

33. A noncompetitive MMOG is sometimes called a \_\_\_\_.

- a. nanoverse
- b. metaverse
- c. miniverse
- d. microverse

*ANSWER:* b

34. The most widely used and well-known \_\_\_\_\_ is Second Life, a virtual world created by Linden Labs in 2003.

- a. omniverse
- b. metaverse
- c. multiverse
- d. virtualverse

*ANSWER:* b

35. \_\_\_\_ is a rapidly growing area of computer and biological science research in which computers and graphics software are used to produce highly accurate two- and three-dimensional images of the human body.

- a. Medical processing
- b. Medical imaging
- c. Virtual medicine
- d. Visual medicine

*ANSWER:* b

36. In CGI, the abstract concept of motion is defined in terms of matrix \_\_\_\_\_, an algorithmic operation easily programmed on a computer.

*ANSWER:* multiplication

37. \_\_\_\_\_ means taking an object stored as a mathematical model and converting it into a fully formed, visually pleasing three-dimensional image.

*ANSWER:* Rendering, rendering

38. \_\_\_\_\_ algorithms follow millions (or billions) of light rays from their source to an object's surface and any subsequent reflections can produce truly lifelike images and take minutes or hours to render a single frame.

*ANSWER:* Ray-tracing ray tracing

## **Sample Paper 2**

39. In a(n) \_\_\_\_\_, there are thousands or millions of users simultaneously accessing dozens or hundreds of game servers across multiple communication channels.

*ANSWER:* MMOG  
massively multiplayer online game  
massively multiplayer on-line game  
MMOG (massively multiplayer online game)  
massively multiplayer online game (MMOG)  
MMO

40. \_\_\_\_\_ is an important feature of MMOGs, which must keep track of each user's activity to ensure that his or her actions do not incorrectly or inappropriately affect the actions of other players.

*ANSWER:* Game security