



UGC-NET

PAPER -III

NEW PATTERN

OBJECTIVE TYPE QUESTION BANK

Computer Science

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PRACTICE SET – 1

1. What is the total number of edges in the complete graph on n vertices?
(a) n (b) ${}^n C_2$
(c) $n^n C_2$ (d) $n(n-1)$
2. Which of the following statement is false?
(a) A tree with n nodes has $n-1$ edges.
(b) A labeled rooted binary tree can be uniquely constructed given its post order and preorder traversal result.
(c) A complete binary tree with n internal nodes has $(n+1)$ leaves.
(d) The maximum number of nodes in a binary tree of height h is $2^{h+1} - 1$.
3. A graph G on n vertices has a Hamiltonian circuit if for any two vertices u and v of G that are not adjacent, the degree of u plus the degree of v should be :
(a) Equal to $n+1$.
(b) Less than or equal to n .
(c) Greater than or equal to $n+1$
(d) Greater than or equal to n
4. Which of the following statement is false?
A graph G with n vertices is a tree if :
(a) G is connected and is circuitless.
(b) G is connected and has n edges.
(c) G is minimally connected graph.
(d) G is circuitless and has $n-1$ edges.
5. How many pendant vertices are there in any tree?
(a) One (b) None
(c) At least one (d) At least two
6. Which of the following statement is false?
(a) The complete graph of five vertices is planar.
(b) Kuratowski's second graph is non planar.
(c) A graph in which all vertices are of equal degree is a regular graph.
(d) The distance between vertices of a connected graph is a metric
7. What is the maximum number of the edges can a simple graph with n vertices and k components have?
(a) $n - k$ (b) $(n-k)(n-k+1)$
(c) $(n-k)(n-k+1)/2$ (d) $(n+k+1)$

Read the following passage carefully and answer the following (Q.Nos. 8-11) questions :

In computing, SISD (single instruction, single data) is a term referring to a computer architecture in which a single processor, a uniprocessor, executes a single instruction stream, to operate on data stored in a single memory. This corresponds to the von Neumann architecture.

SISD is one of the four main classifications as defined in Flynn's taxonomy. In this system classifications are based upon the number of concurrent instructions and data streams present in the computer architecture. According to Michael J. Flynn, SISD can have concurrent processing characteristics. Instruction fetching and pipelined execution of instructions are common examples found in most modern SISD computers.

In computing, MISD (multiple instruction, single data) is a type of parallel computing architecture where many functional units perform different operations on the same data. Pipeline architectures belong to this type, though a purist might say that the data is different after processing by each stage in the pipeline. Fault-tolerant computers executing the same instructions redundantly in order to detect and mask errors, in a manner known as task replication, may be considered to belong to this type. Not many instances of this architecture exist, as MIMD and SIMD are often more appropriate for common data parallel techniques. Specifically, they allow better scaling and use of computational resources than MISD does. However, one prominent example of MISD in computing are the Space Shuttle flight control computers.

8. Von Neumann architecture is

- (a) SISD (b) SIMD
(c) MIMD (d) MISD

9. To achieve parallelism, one needs a minimum of

- (a) 2 processors
(b) 3 processors
(c) 4 processors
(d) none of the above

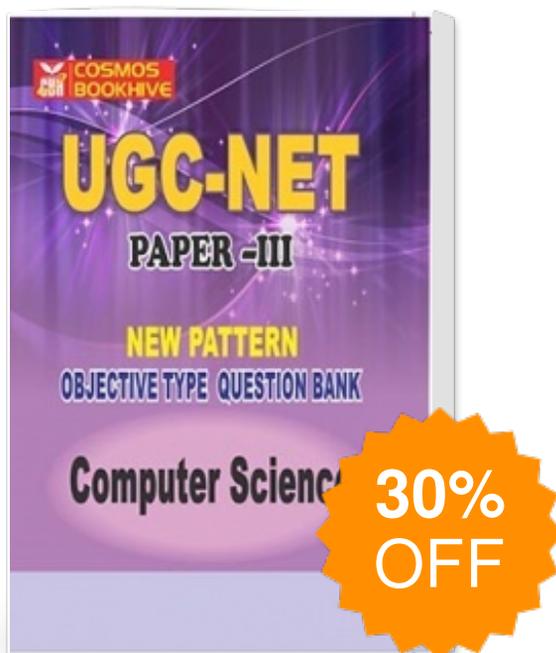
10. SIMD can be used for
 (a) railway reservation
 (b) weather forecasting
 (c) matrix multiplication
 (d) b and c only
11. A typical application of MIMD is
 (a) railway reservation
 (b) weather forecasting
 (c) matrix multiplication
 (d) all of the above
12. From a given tautology, another tautology can be derived by interchanging
 (a) 0 and 1
 (b) AND and OR
 (c) 0 and 1 & AND and OR
 (d) impossible to always derive
13. Which of the following logical operations produce a 0 if the three inputs 1, 1, 0, are given
 (a) OR (b) and
 (c) exclusive-or (d) exclusive-nor
 (e) b, c and d only
14. Choose the correct answer.
 If X is a boolean variable then
 (a) $0 + X = X$ (b) $1 + X = X$
 (c) $X + X = X$ (d) $X + X' = 0$
 (e) (a) and (c)
15. Even if a particular implementation doesn't limit the number of characters in an identifier, it is advisable to be concise because
 (a) chances of typographic errors are more
 (b) it may be processed by assembler, loaders, etc., which may have their own rules that may contradict the language rules
 (c) by being concise, one can be mnemonic
 (d) only a and b
16. The minimum number of temporary variables needed to swap the contents of two variables is
 (a) 1 (b) 2
 (c) 3 (d) 0
17. The purpose of the following program fragment
 $b = s + b;$
 $s = b - s;$
 $b = b - s;$
 where s, b are two integers is to
 (a) transfer the contents of s to b
 (b) transfer the contents of b to s
 (c) exchange (swap) the contents of s and b
 (d) negate the contents of s and b
18. Consider the function
 $\text{find}(\text{int } x, \text{int } y)$
 $\{\text{return } ((x < y) ? 0 : (x - y));\}$
 The call $\text{find}(a, \text{find}(a, b))$ can be used to find
 (a) maximum of a, b
 (b) positive difference of a, b
 (c) sum of a, b
 (d) minimum of a, b
19. Which of the following calls, find the positive difference of a, b?
 (a) $\text{find}(a, b) + \text{find}(b, a)$
 (b) $\text{find}(a, \text{find}(a, b))$
 (c) $a + \text{find}(a, b)$
 (d) $b + \text{find}(a, b)$
20. If integer needs two bytes of storage, then maximum value of an unsigned integer is
 (a) $2^{16} - 1$ (b) $2^{15} - 1$
 (c) 2^{16} (d) 2^{15}
21. If integer needs two bytes of storage, then maximum value of a signed integer is
 (a) $2^{16} - 1$ (b) $2^{15} - 1$
 (c) 2^{16} (d) 2^{15}
22. Queries to a database
 (a) are written in English
 (b) can use aggregate functions like SUM and COUNT
 (c) both (a) and (b)
 (d) All of the above
 (e) None of the above
23. Goals for the design of the logical schema include
 (a) avoiding data inconsistency
 (b) being able to construct queries easily
 (c) being able to access data efficiently
 (d) All of the above
 (e) None of the above
24. A form can be used to
 (a) modify records
 (b) delete records
 (c) format printed output
 (d) All of the above
 (e) None of the above
25. Versatile report generators can provide
 (a) Columnar totals (b) Subtotals

- (c) Calculations
(d) All of the above
(e) None of the above
26. A list in alphabetical order
(a) is in descending order
(b) is in ascending order
(c) is the result of a sort operation
(d) both (b) and (c)
(e) None of the above
27. In any hierarchy of data organization, the smallest entity to be processed as a single unit is called.
(a) data field (b) data record
(c) data file (d) database
(e) None of the above
28. The activity of a file
(a) is a low percentage of number of records added or deleted from a file
(b) if high, reduces processing efficiency for sequential and non-sequential files
(c) is a measure of the percentage of existing record updated during a run
(d) refers to how closely the files fit into the allocated
(e) None of the above
29. In conventional file systems the term refers to the smallest item of data with some practical meaning—
(a) Record (b) File
(c) Field (d) Table
30. A 'C data structure called a structure is a group of items in which each item is identified by its own identifier, each of which is known as a member of a structure. Member is also known as—
(a) Information (b) Field
(c) Record (d) Data type
31. A is used to capture some specific property of the object.
(a) Field (b) Object
(c) Entity (d) Class
32. Collection of fields is called—
(a) Information (b) Object
(c) Record (d) Datatype
33. A in C language is also known as record.
(a) Array (b) Structure
(c) Pointer (d) Enum
34. If every record of a file contains pairs for the same set of attributes, the file is said to contain—
(a) Identical file
(b) Homogeneous records
(c) Homogeneous file
(d) None of these
35. A is a collection of identical record type occurrences pertaining to an entity set and is labelled to identify the entity set.
(a) Record (b) Field
(c) File (d) None of these
36. FDDI is a
(a) ring network
(b) star network
(c) mesh network
(d) bus based network
(e) None of the above
37. How many pairs of stations can simultaneously communicate on Ethernet LAN?
(a) 1 (b) 3
(c) 2 (d) multiple
(e) None of the above
38. A modem that is attached to the telephone system by jamming the phone's handset into two flexible receptacles in the coupler?
(a) gateway
(b) time-division multiplexer
(c) acoustic coupler
(d) bridge
(e) None of the above
39. Which of the following allows devices on one network to communicate with devices on another network?
(a) multiplexer (b) gateway
(c) t-switch (d) modem
(e) None of the above
40. A station in a network forwards incoming packets by placing them on its shortest output queue. What routing algorithm is being used?
(a) flooding (b) hot potato routing
(c) static routing (d) delta routing
(e) None of the above
41. The communication mode that supports data in

- both directions at the same time is
 (a) simplex (b) half-simplex
 (c) full-duplex (d) multiplex
 (e) None of the above
42. Modulation is the process of
 (a) sending a file from one computer to another computer
 (b) converting digital signals to analog signals
 (c) converting analog signals to digital signals
 (d) echoing every character that is received
 (e) None of the above
43. Which of the following is/are the advantage(s) of modular programming?
 (a) Easy debugging
 (b) Modules can be reused in other programs
 (c) The program is much easier to change
 (d) Easy to compile
 (e) None of the above
44. Fork is
 (a) increasing the priority of a task
 (b) the creation of a new job
 (c) the creation of a new process
 (d) the dispatching of a task
 (e) None of the above
45. When did IBM release the first version of disk operating system DOS version 1.0?
 (a) 1981 (b) 1983
 (c) 1982 (d) 1984
 (e) None of the above
46. Which of the following are loaded into main memory when the computer is booted?
 (a) internal command instructions
 (b) external command instructions
 (c) word processing instructions
 (d) utility programs
 (e) none of the above
47. IBM released its first PC in 1981. Name the operating system which was most popular at that time?
 (a) MS-DOS (b) OS/360
 (c) PC-DOS (d) CP/M
 (e) None of the above
48. Page fault frequency in an operating system is reduced when the
 (a) processes tend to be I/O-bound
 (b) size of pages is reduced
 (c) processes tend to be CPU-bound
 (d) locality of reference is applicable to the process
 (e) None of the above
49. What is the name of the operating system for the laptop computer called MacLite?
 (a) MS-DOS (b) DOS
 (c) Windows (d) OZ
 (e) None of the above
50. Which of the following tools can be used to keep track of evolving versions of a file?
 (a) make (b) yacc
 (c) sccs (d) dv
51. The . (dot) shell command
 (a) can take command line argument
 (b) will fork a child shell to execute the named shell script
 (c) can be used to change the environment of the current shell
 (d) all of the above
52. m4
 (a) .is a macro processor
 (b) can be used to preprocess C code
 (c) can be used to preprocess assembly language program
 (d) all of the above
53. The first thing that is searched when a command references a file is its
 (a) i-node
 (b) inode number
 (c) permission setting
 (d) none of the above
54. cc command sequentially invokes
 (a) preprocessor, compiler and link editor
 (b) compiler and link editor
 (c) preprocessor, compiler, assembler and link editor
 (d) compiler, assembler and link editor
55. Among directory entry, i-node and the file contents, which will be changed when a file is updated?
 (a) Only directory entry and file contents
 (b) Only i-node and file contents
 (c) All the three
 (d) None of the above
56. The cc command

- (a) can take more than one argument
 (b) can have arguments with .c or .o extension
 (c) creates .o files by default when more than one argument with .c extension is present
 (d) if provided with more than one argument, immediately terminates if the first argument fails to compile successfully
 (e) only a, b and c
57. System Study involves :
 (a) study of an existing system
 (b) identifying current deficiencies and establishing new goals
 (c) documenting the existing system
 (d) All of the above
 (e) None of the above
58. A feasibility study :
 (a) includes a statement of the problems
 (b) includes no solution
 (c) considers a single solutions
 (d) a list of alternative solution
 (e) None of the above
59. In Data Structure, main characteristic of “ring” is :
 (a) last record points to the first record
 (b) many records point to one record
 (c) first record points only to the last record
 (d) All of the above
 (e) None of the above
60. A graphic representation of an information system is called :
 (a) flow chart (b) pictogram
 (c) data flow diagram (d) histogram
 (e) None of the above
61. The approach used in top-down analysis and design is :
 (a) to identify the top level functions by combining many smaller components into a single entity
 (b) to identify a top level function and then create a hierarchy of lower level modules and components
 (c) to prepare flowcharts after programming has been completed
 (d) All of the above
 (e) None of the above
62. During which of the following phases, the requirement analysis is performed?
 (a) system design phase
 (b) system development phase
 (c) system analysis phase
 (d) system investigation phase
 (e) None of the above
63. Structured programming involves :
 (a) functional modularisation
 (b) decentralisation of program activity
 (c) localisation of errors
 (d) centralized processing
 (e) None of the above
64. PERT and CPM are :
 (a) assignment techniques
 (b) network techniques
 (c) project evaluation techniques
 (d) All of the above
 (e) None of the above
65. Which of the following is most responsible for the inability of auditors to uncover computer crimes?
 (a) the auditor’s lack of knowledge in computer technology
 (b) the prohibitively expensive audit procedures needed to detect computer frauds
 (c) the relatively small average take of computer frauds
 (d) the client’s concern that the public will learn of the crime
 (e) None of the above
66. Hungarian Method is a way of solving Operations Research problems in :
 (a) Linear Programming by Graphical Method
 (b) Simplex Method
 (c) Assignment Method
 (d) Transportation Method
 (e) None of the above
67. EDI uses _____ to differentiate between original message and copy of that message.
 (a) CRC check (b) Time stamping
 (c) Error check (d) None of the above
68. The way of thinking that might facilitate attainment of a single, integrated information system is the :
 (a) marketing concept
 (b) marketing grid

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