महाराष्ट्र लोकसेवा आयोगामार्फत सहायक प्राध्यापक, माहिती तंत्रज्ञान, अस्वायत्त शासकीय अभियांत्रिकी महाविद्यालय, महाराष्ट्र अभियांत्रिकी महाविद्यालयीन शिक्षक सेवा, गट -अ, चाळणी परीक्षा-२०१४ या परीक्षेच्या प्रश्नपत्रिकेची उत्तरतालिका उमेदवारांच्या माहितीसाठी संकेतस्थळावर प्रसिध्द करणयात आली आहे. सदर उत्तरतालिकेतील प्रश्न-उत्तरांसंबंधी उमेदवारांना निवेदन करावयाचे असल्यास त्यांनी अधिप्रमाणीत स्पष्टीकरण / संदर्भ देऊन तसेच विषय, परीक्षेचे नाव, प्रश्नसंच, प्रश्नक्रमांक यांच्या उल्लेखासह आपले लेखी निवेदन उपसचिव (गोपनीय), महाराष्ट्र लोकसेवा आयोग, बँक ऑफ इंडिया बिल्डिंग, ३ रा मजला, हुतात्मा चौक, मुंबई ४०० ००१ या पत्त्यावर टपालाने पाठवावे. यासंदर्भात दि. ०८ ऑगस्ट, २०१४ पर्यंत आयोगाकडे प्राप्त झालेल्या निवेदनांचीच दखल घेतली जाईल. तद्नंतर आलेली निवेदने विचारात घेतली जाणार नाहीत, याची कृपया नोंद घ्यावी

उत्तरतालिका - **KEY**

Notations :

1. Options shown in green color and with ✔ icon are correct.

2. Options shown in red color and with ✖ icon are incorrect.

Question Paper Name:	Assistant Professor Information Technology ACTUAL
Subject Name:	Assistant Professor Information Technology
Duration:	60

Group 1	
Group Maximum Duration :	0
Group Minimum Duration :	60
Revisit allowed for view? :	No
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Assistant Professor Information Technology	
Mandatory or Optional:	Mandatory

Question Number : 1 Question Type : MCQ

Correct : 2 Wrong : 0

Which of the following is the correct 2's complement representation of -42?

Options :

1. ✖ 1100 0110

2. ✖ 1001 0110

3. ✖ 1101 0111

4. ✔ 1101 0110

Question Number : 2 Question Type : MCQ

Correct : 2 Wrong : 0

Which of the following statements about multi-core processor is false?

Options :

1. ✖ It is a single chip containing more than one microprocessor core

2. ✔ Its bus interface and cache can not be shared between cores

3. ✖ Its cores can communicate with each other much faster than separate processors in a multiprocessor system

4. ✖ It effectively multiplies the processor's potential performance by the number of cores

Question Number : 3 Question Type : MCQ
Correct : 2 Wrong : 0

The first commercial 8-bit processor was

Options :

1. ✖ Intel 8085

2. ✔ Intel 8008

3. ✖ Zilog Z80

4. ✖ Motorola 6800

Question Number : 4 Question Type : MCQ
Correct : 2 Wrong : 0

If $(110011)_2 = (201)_x$, where x represents the base, then the value of x is

Options :

1. ✖ 4

2. ✔ 5

3. ✖ 8

4. ✖ 10

Question Number : 5 Question Type : MCQ
Correct : 2 Wrong : 0

Which of the following logic gates produces "0" as output when both inputs are same?

Options :

1. ✔ XOR

2. ✖ NOR

3. ✖ NAND

4. ✗ XNOR

Question Number : 6 Question Type : MCQ

Correct : 2 Wrong : 0

Which of the following registers keep track of the next instruction to be executed during a program execution?

Options :

1. ✗ Index Register

2. ✔ Program Counter

3. ✗ Accumulator

4. ✗ Address Register

Question Number : 7 Question Type : MCQ

Correct : 2 Wrong : 0

Von Neumann architecture is

Options :

1. ✗ MIMD

2. ✗ MISD

3. ✗ SIMD

4. ✔ SISD

Question Number : 8 Question Type : MCQ

Correct : 2 Wrong : 0

Which of the following memory uses "write through" technique for updating data?

Options :

1. ✔ Cache memory

2. ✗ Main memory

3. ✗ Secondary memory

4. ✗ Tertiary memory

Question Number : 9 Question Type : MCQ

Correct : 2 Wrong : 0

Consider a main memory of 8K bytes and Cache memory of 2K words. If associative mapping is used, then the size of each word of Cache memory is

Options :

1. ✗ 4 bits

2. ✗ 8 bits

3. ✔ 16 bits

4. ✗ 32 bits

Question Number : 10 Question Type : MCQ

Correct : 2 Wrong : 0

The value of the Boolean expression (x + x')(yy')+(z + z') is

Options :

1. ✗ 0

2. ✔ 1

3. ✗ Either 0 or 1

4. ✗ Both 0 and 1

Question Number : 11 Question Type : MCQ

Correct : 2 Wrong : 0

A computer with n-bit operation code can perform _____ possible distinct operations.

Options :

1. ✔ 2^n

2. ✗ $2^n - 1$

3. ✗ $2n$

4. ✗ $2^n + 1$

Question Number : 12 Question Type : MCQ

Correct : 2 Wrong : 0

In which of the following addressing modes, the operand explicitly appears in the instruction code?

Options :

1. ✗ Direct

2. ✗ Indirect

3. ✔ Immediate

4. ✗ Absolute

Question Number : 13 Question Type : MCQ

Correct : 2 Wrong : 0

Which of the following ratio is generally used to measure the performance of cache memory?

Options :

1. ✖ Hit ratio

2. ✔ Latency ratio

3. ✖ Miss ratio

4. ✖ Read ratio

Question Number : 14 Question Type : MCQ

Correct : 2 Wrong : 0

A relation schema R(A, B) having only two attributes "A" and "B" is always in

Options :

1. ✖ 1 NF

2. ✖ 2 NF

3. ✖ 3 NF

4. ✔ BCNF

Question Number : 15 Question Type : MCQ

Correct : 2 Wrong : 0

Let R (A, B, C, D) contains 10 tuples and S(D, X, Y) contains 15 tuples. The degree of the relation obtained through "Join" operation on R and S will be

Options :

1. ✔ 6

2. ✖ 7

3. ✖ 25

4. ✖ 150

Question Number : 16 Question Type : MCQ

Correct : 2 Wrong : 0

Which of the following Relational Algebra operations does not require union compatibility?

Options :

1. ✖ Set Difference

2. ✔ Division

3. ✖ Union

4. ✖ Intersection

Question Number : 17 Question Type : MCQ

Correct : 2 Wrong : 0

Which of the following is an example of a dense index?

Options :

1. ✖ Primary index

2. ✖ Clustering index

3. ✖ Both (a) and (b)

4. ✔ Secondary index

Question Number : 18 Question Type : MCQ

Correct : 2 Wrong : 0

In SQL 3-valued logic, considering the values of A, B, and C as "Unknown", "True", and "False", respectively, which of the following statements is False?

Options :

1. ✖ A AND B = Unknown

2. ✖ A AND C = False

3. ✖ A OR B = True

4. ✔ A OR C = False

Question Number : 19 Question Type : MCQ

Correct : 2 Wrong : 0

Which of the following levels of three-schema architecture of DBMS describes the complete details of data storage and access paths for the database?

Options :

1. ✖ Conceptual level

2. ✔ Internal level

3. ✖ External level

4. ✖ Both (a) and (b)

Question Number : 20 Question Type : MCQ

Correct : 2 Wrong : 0

In ER diagram, the cardinality ratio for a binary relationship specifies

Options :

1. ✔ the maximum number of relationship instances that an entity can participate in

2. ✖ the minimum number of relationship instances that an entity can participate in

3. ✖ the maximum number of weak entities.

4. ✖ the minimum number of weak entities

Question Number : 21 Question Type : MCQ

Correct : 2 Wrong : 0

Which of the following is not true about an SQL query?

Options :

1. ✖ A query can have more than one relations in "from" clause

2. ✖ A query may not have "where" clause

3. ✔ A query can not use aggregation functions in "select" clause

4. ✖ A query can perform numeric operations in predicates

Question Number : 22 Question Type : MCQ

Correct : 2 Wrong : 0

Ideally, relational database design should strive to achieve _____ for every relation schema.

Options :

1. ✖ 2NF

2. ✖ 3NF

3. ✖ BCNF

4. ✔ 3NF or BCNF

Question Number : 23 Question Type : MCQ

Correct : 2 Wrong : 0

In DBMS, the query optimizer module has the task of

Options :

1. ✔ producing a query execution plan

2. ✖ producing code to execute the query execution plan

3. ✖ generating parse tree of the query

4. ✖ running the query code

Question Number : 24 Question Type : MCQ

Correct : 2 Wrong : 0

 A transaction reaches its commit point

Options :

1. ✖ when all its operations that access the database have been executed successfully

2. ✖ when it executes *commit* command

3. ✖ when all its operations have been executed successfully and all the changes have been recorded in the database

4. ✔ when all its operations have been executed successfully and all the changes have been recorded in the log

Question Number : 25 Question Type : MCQ
Correct : 2 Wrong : 0

 Which of the following statements about two conflict operations in a schedule is incorrect?

Options :

1. ✖ They belong to different transactions

2. ✖ They access the same data items

3. ✖ At least one of the operations is a *write* operation

4. ✔ At least one of the operations is a *read* operation

Question Number : 26 Question Type : MCQ
Correct : 2 Wrong : 0

 In "wait-die" deadlock prevention protocol

Options :

1. ✔ an older transaction is allowed to wait on a younger transaction

2. ✖ a younger transaction is allowed to wait on an older transaction

3. ✖ an older transaction preempts the younger transaction by aborting it

4. ✗ a younger transaction preempts the older transaction by aborting it

Question Number : 27 Question Type : MCQ

Correct : 2 Wrong : 0

An aspect ratio of ¾ means that

Options :

1. ✓ a vertical line plotted with three points has same length as a horizontal line plotted with 4 points

2. ✗ a horizontal line plotted with three points has same length as a vertical line plotted with 4 points.

3. ✗ three vertical lines are same as four horizontal lines

4. ✗ three horizontal lines are same as four vertical lines

Question Number : 28 Question Type : MCQ

Correct : 2 Wrong : 0

At the end of each frame, the electron beam returns to the top left corner of the screen to begin the next frame. This phenomenon is called

Options :

1. ✓ vertical retrace

2. ✗ horizontal retrace

3. ✗ left-diagonal retrace

4. ✗ right-diagonal retrace

Question Number : 29 Question Type : MCQ

Correct : 2 Wrong : 0

Which of the following statements about beam penetration method is false?

Options :

1. ✗ It is used in random scan display systems

2. ✓ It is used in raster scan display systems

3. ✗ It only provides four colors

Two layers of phosphor are coated onto the
4. ✖ inside of the CRT screen

Question Number : 30 Question Type : MCQ
Correct : 2 Wrong : 0
Which of the following statements about shadow masking method is false?

Options :

1. ✔ It is used in random scan display systems

2. ✖ It is used in raster scan display systems

3. ✖ It gives wider range of colors than a beam penetration method

4. ✖ The CRT has three phosphor color dots at each pixel location

Question Number : 31 Question Type : MCQ
Correct : 2 Wrong : 0
Which of the following statements about plasma panel display is false?

Options :

1. ✖ It does not require refreshing

2. ✖ It is less bulky than a CRT

3. ✖ It produces very steady images without flickering

4. ✔ It requires complex addressing and wiring

Question Number : 32 Question Type : MCQ
Correct : 2 Wrong : 0
For a raster system with resolution 640 x 480, what will be the size of frame buffer to store 12 bits per pixel?

Options :

1. ✔ 450 KB

2. ✖ 3600 KB

3. ✖ 300 KB

4. ✖ 25 KB

Question Number : 33 Question Type : MCQ

Correct : 2   Wrong : 0

The aspect ratio of a raster system using 10 x 15 inches screen and 200 pixels per inch will be

Options :

1. ✗ 3:2

2. ✗ 3:4

3. ✔ 2:3

4. ✗ 4:3

Question Number : 34   Question Type : MCQ

Correct : 2   Wrong : 0

Which of the following statements is false?

Options :

1. ✗ 2D rotation and scaling is commutative

2. ✔ Simultaneous shearing in x & y directions is equal to the composition of pure shear along x-axis followed by pure shear along y-axis

3. ✗ 2D rotation above the origin is commutative

4. ✗ Scaling transformations are commutative

Question Number : 35   Question Type : MCQ

Correct : 2   Wrong : 0

Which of the following class relationships is most general but also the most semantically weak?

Options :

1. ✗ Inheritance

2. ✗ Aggregation

3. ✗ Instantiation

4. ✔ Association

Question Number : 36   Question Type : MCQ

Correct : 2   Wrong : 0

An *auto* variable is one

Options :

1. ✖ which is created at the time of invocation of a function and retains its value throughout the life of the program

2. ✔ which is created at the time of invocation of a function and retains its value until the control is within the function

3. ✖ which is same as the static variable but is placed in the stack

4. ✖ which cannot be initialized

Question Number : 37 Question Type : MCQ

Correct : 2 Wrong : 0

Which of the following programming languages has a powerful regular expression engine?

Options :

1. ✖ C

2. ✖ C++

3. ✔ Perl

4. ✖ Java

Question Number : 38 Question Type : MCQ

Correct : 2 Wrong : 0

Which of the following is not a valid function of the compiler?

Options :

1. ✔ Executable code generation

2. ✖ Syntactic analysis

3. ✖ Semantic analysis

4. ✖ Lexical analysis

Question Number : 39 Question Type : MCQ

Correct : 2 Wrong : 0

Which of the following steps is not common to both compiler and interpreter

Options :

1. ✖ Syntactic analysis

2. ✖ Semantic analysis

3. ✖ Lexical analysis

4. ✔ Code generation

Question Number : 40 Question Type : MCQ

Correct : 2 Wrong : 0

Imperative languages are

Options :

1. ✔ typed languages

2. ✖ untyped languages

3. ✖ functional languages

4. ✖ logic languages

Question Number : 41 Question Type : MCQ

Correct : 2 Wrong : 0

In C/C++, which of the following is incorrect to access the ith element of an one dimensional array x?

Options :

1. ✔ *x + i

2. ✖ *(x + i)

3. ✖ x[i]

4. ✖ i[x]

Question Number : 42 Question Type : MCQ

Correct : 2 Wrong : 0

The run-time period during which a variable has an address component is called

Options :

1. ✖ the scope of the variable

2. ✖ the storage class of the variable

3. ✔ the lifetime of the variable

4. ✖ the type of the variable

Question Number : 43 Question Type : MCQ

Correct : 2 Wrong : 0

A constant expression is one which is

Options :

1. ✔ evaluated by the compiler

2. ✖ evaluated by the linker

3. ✖ evaluated by the loader

4. ✖ evaluated during execution of the program

Question Number : 44 Question Type : MCQ

Correct : 2 Wrong : 0

Which of the following is not a valid layer of the TCP/IP model?

Options :

1. ✖ Transport layer

2. ✖ Internet layer

3. ✖ Application layer

4. ✔ Presentation layer

Question Number : 45 Question Type : MCQ

Correct : 2 Wrong : 0

The class of the IP address 192.5.48.3 is

Options :

1. ✖ A

2. ✖ B

3. ✔ C

4. ✖ D

Question Number : 46 Question Type : MCQ

Correct : 2 Wrong : 0

The main function of a Web browser is to

Options :

1. ✔ interpret HTML codes

2. ✖ compile HTML code

3. ✖ generate parse tree

4. ✗ generate executable code

Question Number : 47 Question Type : MCQ

Correct : 2 Wrong : 0

Ethernet follows

Options :

1. ✗ star topology

2. ✗ ring topology

3. ✔ bus topology

4. ✗ mesh topology

Question Number : 48 Question Type : MCQ

Correct : 2 Wrong : 0

To guarantee the detection and correction of up to 4 errors in all cases, the minimum Hamming distance in a block code must be
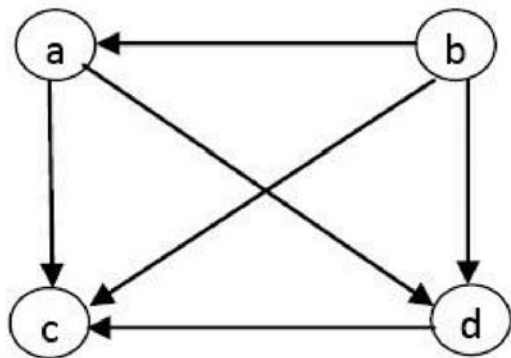
Options :

1. ✔ 5 and 9, respectively

2. ✗ 5 and 6, respectively

3. ✗ 4 and 5, respectively

4. ✗ 4 and 6, respectively

Question Number : 49 Question Type : MCQ

Correct : 2 Wrong : 0

The relation given by the following graph is

Options :

1. ✗ Symmetric

2. ✔ Transitive

3. ✖ Anti-symmetric

4. ✖ Reflexive

Question Number : 50 Question Type : MCQ
Correct : 2 Wrong : 0

Minimum number of nodes in a complete binary tree of height h is

Options :

1. ✖ $2^h - 1$

2. ✖ 2^h

3. ✔ 2^{h-1}

4. ✖ $2^{h-1} - 1$

Question Number : 51 Question Type : MCQ
Correct : 2 Wrong : 0

Which of the following data structures can be used to implement priority Queue?

Options :

1. ✖ Red Black Tree

2. ✖ Binary Search Tree

3. ✖ AVL Tree

4. ✔ Heap

Question Number : 52 Question Type : MCQ
Correct : 2 Wrong : 0

Which of the following data structure is used in *breath first search* traversal of a graph?

Options :

1. ✖ Stack

2. ✔ Queue

3. ✖ Red-Black Tree

4. ✖ AVL Tree

Question Number : 53 Question Type : MCQ
Correct : 2 Wrong : 0

Total number of Binary Trees that can be formed using 10 nodes is

Options :

1. ✖ 16500

2. ✗ 16700

3. ✓ 16796

4. ✗ 16798

Question Number : 54 Question Type : MCQ

Correct : 2 Wrong : 0

A set of vertices with no two of them adjacent to each other

Options :

1. ✗ forms a vertex cover

2. ✗ forms an edge cover

3. ✓ is independent

4. ✗ is complementary

Question Number : 55 Question Type : MCQ

Correct : 2 Wrong : 0

Which sort would prove the best, in order to make sure that a large sorted list is already in order and sort any item if it is out of order?

Options :

1. ✗ Selection sort

2. ✗ Insertion sort

3. ✓ Quick sort

4. ✗ Heap sort

Question Number : 56 Question Type : MCQ

Correct : 2 Wrong : 0

Which of the following is not a comparison-based sorting algorithm?

Options :

1. ✗ Merge sort

2. ✗ Quick sort

3. ✗ Heap sort

4. ✓ Radix sort

Question Number : 57 Question Type : MCQ

Correct : 2 Wrong : 0

The time complexity of the following function is

$$T(n) = 4T\left(\frac{n}{2}\right) + n^2 \lg n$$

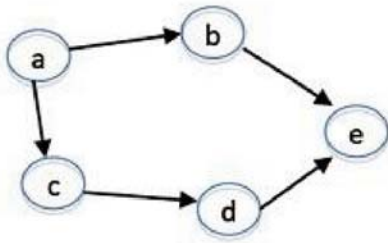**Options :**

1. ✓ $\Theta(n^2 \lg^2 n)$

2. ✗ $\Theta(n \lg n)$

3. ✗ $\Theta(n^2)$

4. ✗ $\Theta(\lg n)$

Question Number : 58 Question Type : MCQ

Correct : 2 Wrong : 0

Consider the following directed acyclic graph. How many topological orderings does it have?

Options :

1. ✗ 1

2. ✗ 2

3. ✓ 3

4. ✗ 4

Question Number : 59 Question Type : MCQ

Correct : 2 Wrong : 0

Consider an array with 50 elements. How many *move operations* will be performed for deleting first 25 elements from 25th location and remaining 25 elements from the 0th location, one by one?

Options :

1. ✗ 50

2. ✗ 25

3. ✓ 600

4. ✗ 300

Question Number : 60 Question Type : MCQ

Correct : 2 Wrong : 0

If initially there are *n* elements in a stack, then time complexity of push() operation can be

Options :

1. ✖ $O(n)$

2. ✖ $O(n \log n)$

3. ✔ $O(1)$

4. ✖ $O(n^2)$

Question Number : 61 Question Type : MCQ

Correct : 2 Wrong : 0

What will the time complexity of bubble sort if data are already in sorted order?

Options :

1. ✖ $\Theta(n \lg n)$

2. ✔ $\Theta(n)$

3. ✖ $\Theta(n^2)$

4. ✖ $\Theta(1)$

Question Number : 62 Question Type : MCQ

Correct : 2 Wrong : 0

Let G be an undirected graph on *n* nodes. If G is connected and it does not contain a cycle, then G has _____ edges.

Options :

1. ✖ n

2. ✔ n - 1

3. ✖ n + 1

4. ✖ n + 2

Question Number : 63 Question Type : MCQ

Correct : 2 Wrong : 0

Which of the following is not correct about the height of an AVL tree?

Options :

1. ✖ It is slightly more than logN

2. ✔ It is at most 1.44log(N+2)

3. ✖ It is O(logN)

4. ✖ It is O(N)

Question Number : 64 Question Type : MCQ

Correct : 2 Wrong : 0

While performing insertion sort on an array of N distinct numbers, the number of interchanges is given by

Options :

1. ✖ N(N-1)/2

2. ✔ N(N-1)/4

3. ✖ N(N+1)/2

4. ✖ N(N+1)/4

Question Number : 65 Question Type : MCQ

Correct : 2 Wrong : 0

Which of the following C++ operators can not be overloaded?

Options :

1. ✔ ::

2. ✖ ++

3. ✖ ( )

4. ✖ --

Question Number : 66 Question Type : MCQ

Correct : 2 Wrong : 0

Virtual functions are generally used for

Options :

1. ✖ static binding

2. ✔ dynamic binding

3. ✖ overloading

4. ✖ overriding

Question Number : 67 Question Type : MCQ

Correct : 2 Wrong : 0

A friend, say F of a class C, may not be

1. ✖ an external function to C

2. ✖ a member function of some other class

3. ✖ another class

4. ✔ a member of class C

Question Number : 68 Question Type : MCQ

Correct : 2 Wrong : 0

Let class Z is derived from class Y, which is derived from class X, all through public inheritance then the member function of class Z can access

Options :

1. ✔ protected data in X and Y

2. ✖ private data in X and Y

3. ✖ protected and public data only in Z

4. ✖ protected and public data only in Z and Y

Question Number : 69 Question Type : MCQ

Correct : 2 Wrong : 0

Deriving a class from an already derived class is known as

Options :

1. ✖ single inheritance

2. ✔ multilevel inheritance

3. ✖ message passing

4. ✖ virtual class derivation

Question Number : 70 Question Type : MCQ

Correct : 2 Wrong : 0

If signature of a function is int f(int, float) then which of the following pointer variables will be used to point this function?

Options :

1. ✖ int *x;

2. ✖ int (*x);

3. ✔ int (*x)(int, float);

4. ✖ int *x (int, float);

Question Number : 71 Question Type : MCQ

Correct : 2 Wrong : 0

Bug means

Options :

1. ✗ a lexical error in a program

2. ✗ a syntax error in a program

3. ✗ a semantic error in a program

4. ✓ a logical error in a program

Question Number : 72 Question Type : MCQ

Correct : 2 Wrong : 0

Which of the following is not a valid generic software development process framework activity?

Options :

1. ✗ Communication

2. ✗ Planning

3. ✗ Deployment

4. ✓ Annual maintenance contract

Question Number : 73 Question Type : MCQ

Correct : 2 Wrong : 0

Basic path testing is a

Options :

1. ✓ black-box testing

2. ✗ white-box testing

3. ✗ black-box as well as white-box testing

4. ✗ testing to derive a logical complexity measure of a procedural design

Question Number : 74 Question Type : MCQ

Correct : 2 Wrong : 0

Which of the following is not an evolutionary process model?

Options :

1. ✗ Prototyping

2. ✖ The spiral model

3. ✔ The RAD model

4. ✖ The concurrent development model

Question Number : 75 Question Type : MCQ
Correct : 2 Wrong : 0
Which of the following is not a valid phase of Adaptive Software Development (ASD) life cycle?

Options :

1. ✖ Speculation

2. ✖ Collaboration

3. ✖ Learning

4. ✔ Deployment

Question Number : 76 Question Type : MCQ
Correct : 2 Wrong : 0
Which of the following characteristics does not lead to testable software?

Options :

1. ✖ Operability

2. ✖ Decomposability

3. ✔ Complexity

4. ✖ Stability

Question Number : 77 Question Type : MCQ
Correct : 2 Wrong : 0
Which of the following is not contained in Process Control Block (PCB)?

Options :

1. ✖ Process state

2. ✖ CPU-scheduling information

3. ✖ Memory-management information

4. ✔ Process execution time

Question Number : 78 Question Type : MCQ
Correct : 2 Wrong : 0
Which of the following is not a valid benefit of multithreaded programming?

Options :

1. ✔ Reliability
2. ✖ Resource sharing
3. ✖ Responsiveness
4. ✖ Scalability

Question Number : 79 Question Type : MCQ
Correct : 2 Wrong : 0

An exception is generally caused due to

Options :

1. ✖ hardware malfunction
2. ✖ syntax error
3. ✔ run-time error
4. ✖ operating system malfunction

Question Number : 80 Question Type : MCQ
Correct : 2 Wrong : 0

Thrashing is

Options :

1. ✔ coincident of high page traffic and low CPU utilization
2. ✖ very high CPU utilization
3. ✖ high throughput
4. ✖ low average response

Question Number : 81 Question Type : MCQ
Correct : 2 Wrong : 0

Consider two free blocks of sizes 20 KB and 15 KB. If memory allocation requests are 10 KB followed by 20 KB, then which of the following techniques will satisfy both requests?

Options :

1. ✔ Best-fit
2. ✖ First-fit
3. ✖ Both (a) and (b)
4. ✖ Worse-fit

Question Number : 82 Question Type : MCQ

Correct : 2 Wrong : 0

Consider the following reference string for a memory with three frames.

7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1

If FIFO page replacement technique is applied, then the total number of page faults will be

Options :

1. ✖ 5

2. ✖ 10

3. ✔ 15

4. ✖ 20

Question Number : 83 Question Type : MCQ

Correct : 2 Wrong : 0

The disjunctive normal form of $P \wedge (P \rightarrow Q)$ is

Options :

1. ✖ $(P \wedge \neg Q) \vee (\neg P \wedge Q)$

2. ✖ $(P \vee \neg P) \wedge (P \vee Q)$

3. ✔ $(P \wedge \neg P) \vee (P \wedge Q)$

4. ✖ $(P \vee \neg Q) \wedge (\neg P \vee Q)$

Question Number : 84 Question Type : MCQ

Correct : 2 Wrong : 0

$(P \wedge \neg P) \vee Q$ is equivalent to

Options :

1. ✖ P

2. ✔ Q

3. ✖ $\neg P$

4. ✖ $\neg Q$

Question Number : 85 Question Type : MCQ

Correct : 2 Wrong : 0

If P, Q, and R are propositions "It is raining", "I have the time", and "I will go to a movie", respectively, then the propositional form of the following statement is

"If it is not raining and I have the time, then I will go to a movie"

Options :

1. ✗ $(P \wedge \neg Q) \Rightarrow R$

2. ✔ $(\neg P \wedge Q) \Rightarrow R$

3. ✗ $P \vee \neg Q) \Rightarrow R$

4. ✗ $(\neg P \vee Q) \Rightarrow R$

Question Number : 86 Question Type : MCQ

Correct : 2 Wrong : 0

Which of the following statement is incorrect?

Options :

1. ✗ If E and F are regular expressions, then E+F is also a regular expression

2. ✗ If E and F are regular expressions, then EF is also a regular expression

3. ✗ If E is a regular expression, then E^* is also a regular expression

4. ✔ If E is a regular expression, then E^+ is also a regular expression

Question Number : 87 Question Type : MCQ

Correct : 2 Wrong : 0

If G = ({S}, {a}, {S → SS}, S), then the language generated by G is

Options :

1. ✗ {SS}

2. ✗ {SSS}

3. ✗ {SSSS}

4. ✔ ϕ

Question Number : 88 Question Type : MCQ

Correct : 2 Wrong : 0

If the grammar G is given by the productions S → aSa | bSb | aa | bb | ∧, then

Options :

1. ✔ L(G) has no strings of odd length

2. ✗ L(G) has no strings of even length

3. ✗ Any string in L(G) is of length 2^n, $n \geq 0$

4. ✗ The number of strings of length 2n is 2^n+1

Question Number : 89 Question Type : MCQ

Correct : 2 Wrong : 0

The language generated by context-free grammar G=({S}, {a, b}, P, S) where P consists of S → aSbb, S → abb, is

Options :

1. ✔ $L = \{a^n b^{2n} \mid n \geq 1\}$

2. ✗ $L = \{a^n b^n \mid n \geq 1\}$

3. ✗ $L = \{a^n b^{2n} \mid n \geq 2\}$

4. ✗ $L = \{a^n b^n \mid n \geq 2\}$

Question Number : 90 Question Type : MCQ

Correct : 2 Wrong : 0

Which of the following statements about entropy is incorrect?

Options :

1. ✗ Entropy is a key measure of information

2. ✗ Entropy is a measure of the uncertainty in a random variable

3. ✗ Entropy is usually expressed by the average number of bits needed to store or communicate one symbol in a message

4. ✔ Entropy can not be used to quantify the uncertainty involved in predicting the value of a random variable

Question Number : 91 Question Type : MCQ

Correct : 2 Wrong : 0

Which of the following is not a valid assumption in the linear programming problems?

Options :

1. ✔ Multiplicity

2. ✗ Divisibility

3. ✖ Linearity

4. ✖ Non-negativity

Question Number : 92 Question Type : MCQ

Correct : 2 Wrong : 0

Whenever total supply is less than the total demand, a dummy source (row) is included in the cost matrix with

Options :

1. ✖ unit cost

2. ✔ zero cost

3. ✖ dummy demand

4. ✖ dummy supply

Question Number : 93 Question Type : MCQ

Correct : 2 Wrong : 0

Which of the following statements about Artificial Neural Network (ANN) is incorrect?

Options :

1. ✖ They are parallel computational models

2. ✖ They are fine-grained parallel implementations of non-linear static systems

3. ✔ They can not be used for speech synthesis and recognition

4. ✖ They are fine-grained parallel implementations of non-linear dynamic systems

Question Number : 94 Question Type : MCQ

Correct : 2 Wrong : 0

Consider a 3-input neuron having weights 1, 2, and 3. If the inputs are 10, 20, and 30 respectively, and the transfer function is linear with the constant of proportionality being equal to 5, then the output will be

Options :

1. ✖ 60

2. ✖ 140

3. ✖ 145

4. ✔ 700

Question Number : 95 **Question Type : MCQ**

Correct : 2 **Wrong : 0**

Which of the following statements is correct?

Options :

1. ✔ Single layer associative neural networks can perform pattern recognition

2. ✖ Single layer associative neural networks can find the parity of a picture

3. ✖ Single layer associative neural networks can determine whether two or more shapes in a picture are connected or not

4. ✖ Single layer associative neural networks can enhance the quality of a picture

Question Number : 96 **Question Type : MCQ**

Correct : 2 **Wrong : 0**

Which of the following statements about Fuzzy Logic is correct?

Options :

1. ✖ It only permits propositions having a value of truth or falsity

2. ✔ Boolean logic is a subset of fuzzy logic

3. ✖ It is same as probability theory

4. ✖ It was introduced by H. A. Mortin

Question Number : 97 **Question Type : MCQ**

Correct : 2 **Wrong : 0**

Which of the following Unix command option can be used to display the number of blocks used by a file?

Options :

1. ✖ –inode

2. ✖ –p

3. ✔ –s

4. ✖ –b

Question Number : 98 **Question Type : MCQ**

Correct : 2 Wrong : 0

By default, the Unix command "ps" will list

Options :

1. ✖ all processes running in your account

2. ✖ all processes for all users

3. ✖ processes for other users only

4. ✔ only processes running in that terminal

Question Number : 99 Question Type : MCQ
Correct : 2 Wrong : 0

A shell program is a

Options :

1. ✔ text file

2. ✖ binary file

3. ✖ linked file

4. ✖ system file

Question Number : 100 Question Type : MCQ
Correct : 2 Wrong : 0

Which of the following Unix commands can be used to terminate a process?

Options :

1. ✖ terminate

2. ✔ kill

3. ✖ interrupt

4. ✖ shutdown