106 PU Ph D Computer Science & Engineering

135 PU_2016_106
Which join refers to join records from the write table that have no matching key in the left table?

○ Full outer join

○ Right outer join

○ Left outer join

○ Half outer join

113 PU_2016_106new
Identify the correct order in which the following actions take place in an interaction between a web browser and a web server.

1. The web browser requests a webpage using HTTP.
2. The web browser establishes a TCP connection with the web server.
3. The web server sends the requested webpage using HTTP.
4. The web browser resolves the domain name using DNS.

○ 4,2,1,3

○ 1,2,3,4

○ 4,1,2,3

○ 2,4,1,3

102 PU_2016_106
The process of assigning load addresses to the various parts of the program and adjusting the code and data in the program to reflect the assigned addresses is called as

_____.

○ Relocation

○ Assembly

○ Symbol resolution

○ Parsing

100 PU_2016_106new
Which of the following pairs have DIFFERENT expressive power?

○ Single-tape Turing machine and multi-tape Turing machine

○ Deterministic push down automata (DPDA) and Non-deterministic push down automata (NPDA)

○ Deterministic single-tape Turing machine and Non-deterministic single-tape Turing machine

○ Deterministic finite automata (DFA) and Non-deterministic finite automata (NFA)

118 PU_2016_106
Which of the following is a self complementing code?

○ Gray code

○ Binary code

○ 5211

○ 8421 code

132 PU_2016_106
Which of the following is not a property of transactions?

○ Dependability

○ Isolation

○ Concurrency

○ Atomicity

117 PU_2016_106
Zero address instruction format is used in _____.

○ RISC architecture

○ CISC architecture

○ Stack-organized architecture
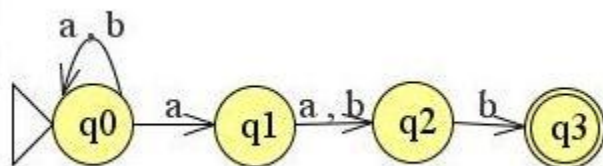
○ Von-Neuman architecture

110 PU_2016_106new
Let G be a graph with n vertices and m edges. What is the tightest upper bound on the running time of Depth First Search on G, when G is represented as an adjacency matrix?

○ (n)

○ (nm^2)

○ (n^2)

○ (n+m)

106 PU_2016_106
Which regular expression best describes the language accepted by the following FSM?

○ (abb)*

○ (a+b)*a(a+b)*b(a+b)*

○ (a+b)*

○ (a+b)*a(a+b)b

139 PU_2016_106new
Which of the following involves context switch?

○ processor

○ thread

○ SPOOL

○ none of these

112 PU_2016_106
One of the major difference between a combinational logic circuit such as a decoder and a storage circuit such as an RS latch is that:-

○ The storage circuit has no propagation delay

○ The storage circuit requires a different class of gates

○ The storage circuit uses feedback

○ The storage circuit requires a clock input

128 PU_2016_106
The intersection operator is used to get the _____ tuples.

○ Common

○ All

○ Repeating

○ Different

131 PU_2016_106new
Which of the following is valid?

(a) Pointers can be added
(b) Pointers can be subtracted
(c) Integers can be added to pointers.

○ a and b are correct

○ a is correct

○ a and c are correct

○ all are correct

134 PU_2016_106
Which is a join condition that contains an equality operator?

○ Cartesian

○ Equijoins

○ Cross Join

○ Cartesian Join

144 PU_2016_106new
In a signed magnitude notation, what is the minimum value that can be represented with 8 bits?

○ -128

○ 0

○ -255

○ -127

108 PU_2016_106new

An algorithm to find the length of the longest monotonically increasing sequence of numbers in an array $A[0:n-1]$ is given below.

Let L_i denote the length of the longest monotonically increasing sequence starting at index i in the array.

Initialize $L_{n-1} = 1$.

For all i such that $0 \leq i \leq n-2$

$$L_i = \begin{cases} 1 + L_{i+1} & \text{if } A[i] < A[i+1] \\ 1 & \text{Otherwise} \end{cases}$$

Finally the length of the longest monotonically increasing sequence is $\text{Max}(L_0, L_1, ..., L_{n-1})$.

Which of the following statements is TRUE?

○ The algorithm uses dynamic programming paradigm

○ The algorithm has a linear complexity and uses branch and bound paradigm

○ The algorithm uses divide and conquer paradigm

○ The algorithm has a non-linear polynomial complexity and uses branch and bound paradigm

126 PU_2016_106
Which of the following field type is used to store photograph of employees?

○ OLE

○ Photo

○ Memo

○ Picture

119 PU_2016_106
Which of the following logic families is well suited for high speed operations?

○ ECL

○ MOS

○ TTL

○ CMOS

135 PU_2016_106new
Which of the following access specifiers are accessible from own class, from derived class and from objects outside the class?

○ private and public

○ private

○ protected

○ public

127 PU_2016_106new
The statement "The size of a struct is always equal to the sum of the sizes of its members" is:-

○ depends on struct

○ invalid

○ can't say

○ valid

109 PU_2016_106

The language $L = \{a^{n^2} \mid n \geq 1\}$ is ----------------.

○ Regular

○ Context Free but not regular

○ Context Free and regular

○ Not Context Free

116 PU_2016_106new
What is the Cartesian product of A = {1, 2} and B = {a, b}?

○ {(1, 1), (a, a), (2, a), (1, b)}

○ {(1, a), (1, b), (2, a), (b, b)}

○ {(1, a), (2, a), (1, b), (2, b)}

○ {(1, 1), (2, 2), (a, a), (b, b)}

103 PU_2016_106new
The minimum number of D flip-flops needed to design a mod-258 counter is:-

○ 9

○ 8

○ 512

○ 258

109 PU_2016_106new
We are given a set of n distinct elements and an unlabeled binary tree with n nodes. In how many ways can we populate the tree with the given set so that it becomes a binary search tree?

○ n^2

○ 0

○ n!

○ 1

110 PU_2016_106
Which of the following is Chomsky Normal Form (NT stands for Non terminal and T for terminal)?

○ NT → String of NT

○ NT → String of exactly two NT

○ NT → (String of T)(String of NT)

○ NT → String of NT and T

122 PU_2016_106
PAL circuit consists of:-

○ Programmable OR & Fixed AND Logic

○ Fixed OR & fixed AND logic

○ Fixed OR & programmable AND logic

122 PU_2016_106new
If i=5, what is the output for printf ("%d%d%d", ++i,i,i++)?

○ 6,5,6

○ 5,6,7

○ 6,6,7

○ 7,6,5

123 PU_2016_106
The average time required to reach a storage location in memory and obtain its contents is called _____.

○ Latency time

○ Turnaround time

○ Access time

○ Response time

102 PU_2016_106new

The simplified SOP (Sum of Product) form of the Boolean expression

$(P+\bar{Q}+\bar{R}).(P+\bar{Q}+R).(P+Q+\bar{R})$ is:

○ $\left(P+\bar{Q}.\bar{R}\right)$

○ $\left(\bar{P}.Q+R\right)$

○ $\left(\bar{P}.Q+\bar{R}\right)$

○ $\left(P.Q+R\right)$

118 PU_2016_106new
How many strings of length less than 4 contains the language described by the regular expression (x+y)*y(a+ab)*?

○ 10

○ 7

○ 12

○ 11

101 PU_2016_106

Given the following statements:

S1: If L is a regular language then the language $\{uv \mid u \in L, v \in L^R\}$ is also regular.

S2: L = $\{ww^R\}$ is a regular language.

Which of the following is true?

○ Both S1 and S2 are not correct

○ Both S1 and S2 are correct

○ S1 is correct and S2 is not correct

○ S1 is not correct and S2 is correct

106 PU_2016_106new
Let the page fault service time be 10 ms in a computer with average memory access time being 20 ns. If one page fault is generated for every 10^6 memory accesses, what is the effective access time for the memory?

○ 30 ns

○ 23 ns

○ 35 ns

○ 21 ns

100 PU_2016_106
The identification of common sub-expression and replacement of run-time computations by compile-time computations is _____.

○ Constant folding

○ Local optimization

○ Loop optimization

○ Data flow analysis

115 PU_2016_106
In a non-vectored interrupt, the address of interrupt service routine is:-

○ Supplied by the interrupting I/O device

○ Assigned to a fixed memory location

○ Obtained from interrupt address table

○ Obtained through Vector address generator device

35 of 100
121 PU_2016_106
An effective solution to the power consumption problem lies in using _____ transistors to implement Ics.

○ PMOS

○ NMOS & PMOS

○ TTL shottky

○ NMOS

36 of 100
129 PU_2016_106new
X=malloc(Y). Which of the following statement is correct?

○ Y points to the memory allocated

○ X is the size of the memory allocated

○ X points to the memory allocated

○ none of these

37 of 100
141 PU_2016_106
A binary tree whose every node has either zero or two children is called:-

○ Binary search tree

○ Complete binary tree

○ Binary tree

○ None of above

38 of 100
117 PU_2016_106new
What is the cardinality of the set of odd positive integers less than 10?

○ 10

○ 3

○ 20

○ 5

39 of 100
125 PU_2016_106new

What is the output generated by the following program?

```
#include <stdio.h>
main()
{
int a, count;
int func(int);
for(count=1;count<=5;++count)
{
a=func(count);
printf("%d",a);
}}
int func(int x)
{
int y;
y=x*x;
return (y);
}
```

○ 1234567

○ 9162514

○ 1491625

○ 2516941

114 PU_2016_106new
Consider a hash table with 9 slots. The hash function is h(k) = k mod 9. The collisions are resolved by chaining. The following 9 keys are inserted in the order: 5, 28, 19, 15, 20, 33, 12, 17,10. The maximum, minimum, and average chain lengths in the hash table, respectively, are:-

○ 4, 1, and 0

○ 3, 0, and 2

○ 3, 0, and 1

○ 1, 2, and 1

134 PU_2016_106new
Which of the following is used to represent an object that invokes a member function?

○ scope resolution operator

○ #symbol

○ assignment operator

○ 'this'

132 PU_2016_106new

int *i;

float *f;

char *c;

Which are the valid castings?

○ (float) &c

○ (int) &c

○ (char) &ib

○ none of these

138 PU_2016_106
A deadlock exists in the system if and only if the wait-for graph contains a _____.

○ Direction

○ Rotation

○ Bi-direction

○ Cycle

105 PU_2016_106new
The lexical analysis for a modem computer language such as Java needs the power of which one of the following machine models in a necessary and sufficient sense?

○ Non-deterministic pushdown automata

○ Finite state automata

○ Turing machine

○ Deterministic pushdown automata

137 PU_2016_106new
The process of creating a specific class from a class template is called:-

○ instant class

○ function template

○ template instantiation

instantiation

136 PU_2016_106new
The destructor for the class integer can be defined as:-

○ integer()

○ ~integer{}()

○ ~integer(){}

○ ~integer

140 PU_2016_106
Linked lists are best suited:-

○ for dynamically changing data and data size

○ for dynamically changing data size

○ for dynamically changing data

○ for relatively permanent collections of data

126 PU_2016_106new
C programming allows:-

○ a) only call by value

○ b) only call by reference

○ c) both a & b

○ d) only call by value and sometimes call by reference

114 PU_2016_106
Which Logic circuit is used for addressing memory?

○ Multiplexer

○ Direct memory access circuit

○ Full adder

○ Decoder

120 PU_2016_106new
Regular expression are:-

○ Type 2 language

○ Type 1 language

○ Type 0 language

○ Type 3 language

124 PU_2016_106new

For the following statement, find the values generated for p and q.

```
int p=0, q=1;
p=q++;
p=++q;
p=q--;
p=--q;
```

○ 1,2

○ 1,1

○ 0,0

○ 3,2

129 PU_2016_106
The union operation automatically _____, unlike the select clause.

○ Eliminates duplicate

○ Eliminates unique tuples

○ Adds common tuples

○ Adds tuples

121 PU_2016_106new
_____ states are called the halt states.

○ ACCEPT AND START

○ ACCEPT and REJECT

○ ACCEPT and READ

○ ACCEPT AND WRITE

104 PU_2016_106

Let S and T be the language over $\Sigma = \{a,b\}$ represented by the regular expressions $(a+b*)*$ and $(a+b*)$ respectively. Which of the following is true?

○ $S \cap T = \phi$

- $T \subset S$
- $S = T$
- $S \subset T$

125 PU_2016_106
Von Neumann architecture is _____.

- MISD
- SISD
- SIMD
- MIMD

130 PU_2016_106
The number of attributes in a relation is called its:-

- Tuples
- Degree
- Cardinality
- Entity

144 PU_2016_106
The depth of a complete binary tree is given by:-

- Dn = n log2n
- Dn = log2n+1
- Dn = n log2n+1
- Dn = log2n

138 PU_2016_106new
The declarations for the manipulators are available in:-

- iomanip.h
- iostream.h
- conio.h
- stdio.h

137 PU_2016_106
The deadlock state can be changed back to stable state by using _____ statement.

- Savepoint

○ Rollback

○ Commit

○ Deadlock

107 PU_2016_106

Which of the following are regular sets?

(i) $\{a^n b^{2m} \mid n \geq 0, m \geq 0\}$

(ii) $\{a^n b^m \mid n = 2m\}$

(iii) $\{a^n b^m \mid n \neq m\}$

(iv) $\{xcy \mid x, y \in \{a, b\}^*\}$

○ (iv) only

○ (i) only

○ (i) and (ii)

○ (i) and (iv)

167 PU_2016_106new

A web server sends a program to be stored on the user's hard drive called a _____ frequently without a disclosure or the user's content.

○ website

○ server

○ datastore

○ cookie

118 PU_2016_106-2

Which of the following is used for code versioning?

○ GetHub

○ GitHub

○ Registry

○ TCP/IP

116 PU_2016_106-2

In the context of .NET, the intermediate code is called:-

○ Mega Code

○ MSIM

○ MSIL

○ Byte Code

123 PU_2016_106-2
If the bit rate for a 16-QAM signal is 4000 bps, what is the baud rate?

○ 1200

○ 1000

○ 6400

○ 400

113 PU_2016_106-2
The technique used to enhance the visual appearance of a web page is called:-

○ DSS

○ CSS

○ BlueDesign

○ Styler

163 PU_2016_106new
Which of the following is a keyword for handling exception in JAVA?

○ try

○ static

○ final

○ obj

124 PU_2016_106-2
Given an AM radio signal with a bandwidth of 10 KHz and the highest-frequency component at 705 KHz, what is the frequency of the carrier signal?

○ 715 KHz

○ 710 KHz

○ 700 KHz

○ 705 KHz

110 PU_2016_106-2
Which of the following is a Deep learning toolkit:-

○ Rubber

○ Theano

○ BOSS

○ CAD

169 PU_2016_106new
A situation where a business is selling online to an individual consumer is:-

○ E-Business

○ banner

○ Business-to-Consumer E-Commerce

○ Business-to-Business E-Commerce

161 PU_2016_106new
Name the operator which is automatically overloaded in JAVA.

○ *

○ -

○ +

○ none of these

112 PU_2016_106-2
ECMA stands for:-

○ European Computer Manufacturer Association

○ Electronic Computer Memory Adapter

○ Electrical Computer Manager Application

○ European Computer Military Adapter

176 PU_2016_106new
A B-Tree of order m is an m-way search tree with:-

○ the root of the tree having more than m subtrees

○ all leaves of the tree on the same level

○ each node, except for root and leaves, having less than m/2 subtrees

○ all its leaves connected to form a linked list

173 PU_2016_106new
A network node consisting of both hardware and software that isolates a private network from public networks is:-

○ intermediary

○ internet mall

○ fare tracker

○ firewall

166 PU_2016_106new
How are the risks documented in SDLC?

○ RMMM

○ using RIS

○ using MIS

○ KPA

160 PU_2016_106new
What are the two primitive operations of semaphore?

○ SIGNAL & WAIT

○ BUSY & WAIT

○ FREE & SIGNAL

○ WAIT & FREE

115 PU_2016_106-2
Apache is a:-

○ Web Server

○ Web Manager

○ Web Protocol

○ Web Client

119 PU_2016_106-2
The hybrid mobile apps shall be developed using:-

○ GTK

○ Ionic

○ Ada

○ Pascal

171 PU_2016_106new
Computer-to-Computer direct transfer of standard business documents is:-

○ EDI (Electronic data interchange)

○ EFT (Electronic Fund transfer)

○ Electronic distributor

○ e-broker

79 of 100
177 PU_2016_106new
A browser is a software tool that helps:-

○ linking of application program modules

○ viewing of application information

○ debugging of application software

○ developing application programs

80 of 100
121 PU_2016_106-2
Generation of intermediate code based on an abstract machine model is useful in compilers because:-

○ Syntax directed translations can be written for intermediate code generation

○ It enhances the portability of the front end of the compiler

○ It is not possible to generate code for real machines directly from high level language

○ It makes implementation of lexical analysis and syntax analysis easier

81 of 100
195 PU_2016_106new
Which of the following is used to minimize data errors when data is transferred?

○ checksum

○ check bit

○ patching

○ transmit

82 of 100
193 PU_2016_106new
A MODEM is connected in between a telephone line and a:-

○ serial port

○ parallel port

○ computer

○ adapter

83 of 100
137 PU_2016_106-2
The addressing mode which makes use of in-direction pointers is _____.

○ Offset addressing mode

○ Indirect addressing mode

○ Index addressing mode

○ Relative addressing mode

84 of 100
183 PU_2016_106new
Which of the following is not an asymptotic notation?

○ Omega

○ Big 'oh'

○ Theta

○ Alpha

85 of 100
187 PU_2016_106new
In OSI network architecture, the routing is performed by:-

○ sessions layer

○ physical layer

○ transport layer

○ network layer

86 of 100
186 PU_2016_106new
Internet-based broadcasting of audio and video content is:-

○ webonomics

○ webhosting

○ web content design

○ webcasting

87 of 100
140 PU_2016_106-2
Consider the usual algorithm for determining whether a sequence of parentheses is balanced. What is the maximum number of parentheses that will appear on the stack AT ANY ONE TIME when the algorithm analyzes: (()(())(()))

○ 1

○ 3

○ 2

○ 4

88 of 100
159 PU_2016_106-2
Which one is true about clustered index?

○ Clustered index is built by default on unique key columns

○ Clustered index is not associated with table

○ Clustered index is not built on unique key columns

○ Clustered index is on non-numeric domain

89 of 100
143 PU_2016_106-2
Which is the most appropriate matching for the following pairs?

X: Indirect addressing 1: Loops
Y: Immediate addressing 2: Pointers
Z: Auto decrement addressing 3. Constants is:-

○ X-1 Y-3 Z-2

○ X-3 Y-2 Z-1

○ X-3 Y-1 Z-2

○ X-2 Y-3 Z-1

90 of 100
189 PU_2016_106new
End-to-End connectivity is provided from host-to-host in _____.

○ hub

○ router

○ physical layer

○ transport layer

91 of 100
181 PU_2016_106new
Which of the following is not a memory management scheme?

○ paging memory

○ critical region

○ mutual exclusion

○ lock

92 of 100
135 PU_2016_106-2
The throughput of a super scalar processor is:-

○ 1

○ less than 1

○ More than 1

○ Between 1 to 2

191 PU_2016_106new
A device that links two homogeneous packet-broadcast local networks is:-

○ hub

○ bridge

○ repeater

○ router

198 PU_2016_106new
The time required for the fetching and execution of one sample machine instruction is:-

○ throughput

○ seek time

○ access time

○ CPU cycle

141 PU_2016_106-2
Huffman codes are the applications of _____ with minimal weighted external path length obtained by an optimal set.

○ MST

○ BST

○ Weighted Graph

○ Binary tree

131 PU_2016_106-2
Which of the following could not be an Ethernet multicast destination?

○ 83:32:21:21:4D:34

○ B7:7B:6C:DE:10:00

○ 7B:AA:C1:23:45:32

○ 7C:56:21:1A:DE:F4

133 PU_2016_106-2
You are working with a network that has the network ID 192.168.10.0. What subnet should you use that supports up to 25 hosts and a maximum number of subnets?

○ 255.255.255.240

○ 255.255.255.252

○ 255.255.255.224

○ 255.255.255.248

98 of 100
130 PU_2016_106-2
The maximum throughput for pure ALOHA is:-

○ 12.4

○ 18.4

○ 18.1

○ 12.1

99 of 100
197 PU_2016_106new
The symbols used in assembly language are:-

○ 0 and 1

○ codes

○ mnemonics

○ #

100 of 100
138 PU_2016_106-2
The principle that a function can always be replaced by its value (irrespective of the context) without changing the meaning is called:-

○ Unbinding

○ Referential transparency

○ Orthogonality

○ Context-free