PU Ph D Computer Science and Engineering

198 PU_2015_106
Which of the following is done in the physical layer of the ATM network?

○ Cell multiplexing and de-multiplexing

○ Transmission frame generation/recovery

○ Monitoring of the user information field for bit errors and possible corrective actions

○ Generic flow control

219 PU_2015_106
_____ is a sentence which is true under all interpretations.

○ Tautology

○ Logic+

○ Contradiction

○ Raster

200 PU_2015_106
The first argument of a scanf() function in C language is:-

○ Control string

○ Escape sequence

○ Keyword

○ Address of a variable

216 PU_2015_106
Which among the following is not a major component of Artificial Intelligence Systems?

○ Knowledge

○ Looping

○ Learning

○ Reasoning

210 PU_2015_106
The Performance of the pure Aloha protocol is:-

○ Less than Seven Percent

○ Less than Twenty Percent

○ Less than Five Percent

Zero

193 PU_2015_106

The maximum number of edges in a bipartite graph on 12 vertices is _____.

○ 36

○ 24

○ 48

○ 12

190 PU_2015_106

Consider a system with byte-addressable memory, 32 bit logical addresses, 4 kilobyte page size and page table entries of 4 bytes each. The size of the page table in the system in megabytes is _____.

○ 3

○ 6

○ 4

○ 5

120 PU_2015_106

The storage class 'static' can be used to:-

○ Restrict the scope of an external identifier

○ Provide privacy to a set of functions

○ Preserve the exit value of variables

○ All of these

212 PU_2015_106

RAID implies:-

○ Mechanism for ensuring reliability

○ Independent read and writes

○ Disks operated in parallel

○ All of these

162 PU_2015_106

What is the function of the preamble in an Ethernet network?

○ Error checking

○ Clock synchronization

C Broadcast

C Collision avoidance

11 of 100
182 PU_2015_106
Which of the following is a Groupware server?

C Transaction server

C File server

C Database server

C Mail server

12 of 100
194 PU_2015_106
Which one of the following fields of an IP header is NOT modified by a typical IP router?

C Time To Live (TTL)

C Checksum

C Length

C Source address

13 of 100
170 PU_2015_106
Which file transfer protocol uses TCP and establishes two virtual circuits between the local and remote server?

C TELNET

C NFS

C TFTP

C FTP

14 of 100
202 PU_2015_106
Functions of Lexical analyzer are:-

C Removing white space

C Removing constants, identifiers and keywords

C Removing comments

C All of these

15 of 100
204 PU_2015_106
The idea of automation with a stack as auxiliary storage:-

C Deterministic automata

☐ Finite automata

☐ Push down automata

☐ Non deterministic automata

181 PU_2015_106
What is the protocol used by a Mail Client to connect to a Mail server?

☐ SIP

☐ IMAP4

☐ FTP

☐ H.323

121 PU_2015_106
Pumping lemma is generally used for proving:-

☐ A given grammar is regular

☐ A given grammar is not regular

☐ Whether two given regular expressions are equivalent or not

☐ All of these

130 PU_2015_106
If d is the level of the leaf nodes, the total number of nodes in a completely binary tree is given by:-

☐ $2^{d-1} + 1$

☐ $2^{d+1} - 1$

☐ $2^{d-1} - 1$

☐ $2^{d+1} + 1$

150 PU_2015_106
The Fan-out of nodes can be increased by using a technique called _____.

☐ Postfix compression

☐ Prefix compression

☐ Node compression

☐ Infix compression

209 PU_2015_106
A fault simulation testing technique is:-

☐ Stress testing

○ White box testing

○ Black box testing

○ Mutation test

21 of 100
119 PU_2015_106
What is atomicity?

○ All transactions must be committed

○ All transactions must be rolled back

○ After transaction is committed the change must persist

○ All transactions are either committed or rolled back

22 of 100
188 PU_2015_106
Which of the following logic families is well suited for high speed operations?

○ CMOS

○ TTL

○ ECL

○ MOS

23 of 100
207 PU_2015_106
Which of the following techniques is a hardware technique used in high performance computer systems to exploit certain types of parallelism in instruction processing?

○ Networking

○ Multiprocessing

○ Pipelining

○ Multitasking

24 of 100
131 PU_2015_106
The systems developed to automatically translate text-based addresses to numeric IP addresses is called:-

○ SNL

○ LSN

○ DNS

○ WWW

25 of 100
201 PU_2015_106
Which of the following sorting algorithm is of divide-and-conquer type?

- ⬜ Bubble sort
- ⬜ Selection sort
- ⬜ Quick sort
- ⬜ Insertion sort

165 PU_2015_106

Given two sine waves A and B, if the frequency of A is twice that of B, the period of B is _____ that of A.

- ⬜ One half
- ⬜ Twice
- ⬜ The same as
- ⬜ Indeterminate form

203 PU_2015_106

When to stop testing and release the software to customers should be decided on the basis of:-

- ⬜ Market conditions
- ⬜ Test cost
- ⬜ Availability of resources
- ⬜ Test metrics

147 PU_2015_106

Expand LSN.

- ⬜ Local Sequence Number
- ⬜ Log Sequence Number
- ⬜ Log Secure Number
- ⬜ Logical Secure Number

217 PU_2015_106

In the context of Agents, if the next state of the environment is NOT determined by only the current state, then the scenario is called as:-

- ⬜ Heuristic
- ⬜ Stochastic
- ⬜ Deterministic
- ⬜ Z-Order

122 PU_2015_106
An R-S Latch is a:-

☐ One clock delay element

☐ Buffer circuit

☐ Sequential circuit element

☐ One bit memory element

208 PU_2015_106
Which of the following techniques/data structures are not suitable in terms of reducing page faults?

☐ Hashing

☐ Pointers

☐ Binary search

☐ All of these

197 PU_2015_106
The output of the following C program is _____.

```c
void f1 (int a, int b) {
int c;
 c=a; a=b; b=c;
}
void f2 (int *a, int *b) {
int c;
 c=*a; *a=*b;*b=c;
}
int main( ) {
int a=4, b=5, c=6;
f1 (a, b);
f2 (&b, &c);
printf ("%d", c-a-b);
}
```

☐ 5

☐ 6

☐ 3

☐ 4

160 PU_2015_106
In the XMODEM protocol, the sender waits for what character from the receiver before beginning transmission?

◯ WACK

◯ ACK

◯ RVI

◯ NAK

191 PU_2015_106
The maximum number of super keys for the relation schema R (E, F, G, H) with E as the key is _____.

◯ 4

◯ 12

◯ 8

◯ 16

213 PU_2015_106
To insert an element in an ordered list of elements, which of the data structures gives the minimum time complexity?

◯ Circular queue

◯ Stack

◯ Array

◯ Linked list

156 PU_2015_106
Let G be a finite connected planar graph with at least 3 vertices. Then G has:-

◯ Every vertex of degree 6

◯ Every vertex of degree 6 or more

◯ At least one vertex of degree 5 or less

◯ At least one vertex of degree 6 or less

123 PU_2015_106
In a fixed-partition memory strategy, what causes internal fragmentation?

◯ An inordinate number of thread stacks in one address space

◯ Mismatches between memory requests and the size of the memory partitions

◯ High stress computation

○ All of these

196 PU_2015_106
Which of the following pairs of protocols can use multiple TCP connections between the same client and the server?

○ HTTP, FTP

○ HTTP, TELNET

○ FTP, SMTP

○ HTTP, SMTP

195 PU_2015_106
The baud rate is _____.

○ Equal to twice the bandwidth of an ideal channel

○ Always equal to the bit transfer rate

○ Not equal to the signaling rate

○ Equal to half of the bandwidth of an ideal channel

192 PU_2015_106
Given two sorted lists of size m and n respectively. The number of comparisons needed in the worst case by the merge sort algorithm is:-

○ max(m,n)

○ min(m,n)

○ m+n-1

○ mn

177 PU_2015_106
Which of the following agrees with the Virtual memory concept?

○ The process size can exceed total memory size and can still be executed

○ Reduces the performance of the system

○ Page conversion is not possible

○ All of these

148 PU_2015_106
What is the use of a dirty page table?

○ To minimize unnecessary redo during recovery

○ To minimize unnecessary undo during backup

To minimize unnecessary redo during backup

To minimize unnecessary undo during recovery

211 PU_2015_106
Shadow copy scheme is used for ensuring:-

Consistency

Atomicity & durability

Concurrency

Flexibility

215 PU_2015_106
In a multi-stage graph, finding a minimum cost path using the forward approach:-

The codes of the nodes are calculated forward from the sink

The codes of the nodes are calculated backward from the source

The codes of the nodes are calculated forward from the source

The cost of the nodes are calculated backward from the sink

112 PU_2015_106
The tasks(s) of the lexical analysis phase is (are):-

To build a uniform symbol table

To parse the source program into the basic elements or tokens of the language

To build a literal table and an identifier table

All of these

105 PU_2015_106
Identify the addressing mode where the content of the program counter is added to the address part of the instructions in order to get effective address.

Indexed addressing mode

Base register addressing mode

Register indirect addressing mode

Relative addressing mode

155 PU_2015_106
Picard's method in numerical solution of differential equations is based on:-

Successive integration

C Backward interpolation

C Forward interpolation

C Converging sequences of successive approximations

48 of 100
161 PU_2015_106
When transmitting odd-parity coded symbols, the number of bits that are zeroes in each symbol is:-

C Zero

C Odd

C Unknown

C Even

49 of 100
218 PU_2015_106
Which of the following is a recent improvement in the machine learning domain?

C Wide Learning

C Long Learning

C Deep Learning

C Lattice Learning

50 of 100
206 PU_2015_106
Arrays are best data structures:-

C For insert and delete the elements at any stage

C For relatively permanent collections of data

C For frequent modification of elements

C For the size of the structure and the data in the structure are constantly changing

51 of 100
178 PU_2015_106
Demand paging refers to the _____.

C A page is brought into memory only when a location on that page is actually referenced during execution

C Pages other than the one demanded by a page fault are brought in

C A page is brought into memory prior to execution

C All of these

52 of 100
180 PU_2015_106
Which two files are used during operation of the DBMS?

○ Data dictionary and transaction log

○ Data dictionary and query language

○ Data manipulation language and query language

○ Query language and utilities

53 of 100
199 PU_2015_106
In databases, locking level is also called as:-

○ Granularity

○ S lock

○ X lock

○ Dead lock

54 of 100
179 PU_2015_106
In Semaphores Special variable of Primitive Wait(s) is used:-

○ To communicate a signal

○ To receive a signal

○ To transmit a signal

○ To block a signal

55 of 100
169 PU_2015_106
Which of the following is true about the IP address?

○ It was established as a user-friendly interface

○ It is divided into exactly two classes

○ It is 32 bits long

○ It contains a fixed-length host ID

56 of 100
149 PU_2015_106
Moving process from a main memory to a disk is called:-

○ Spooling

○ Swapping

○ Caching

○ Scheduling

57 of 100
185 PU_2015_106

In one of the codes for transfer of numbers, the code for the succeeding number differs from that of the number only in the change of a single digit. The code under consideration is:-

○ ASCII

○ BCD

○ Excess 3 Code

○ Gray Code

214 PU_2015_106
Which of the following TCP/IP protocol allows an application program on one machine to send a datagram to an application program on another machine?

○ VMTP

○ SMTP

○ UDP

○ X.25

205 PU_2015_106
MSI stands for:-

○ Medium Scale Intelligent Circuits

○ Medium System Integrated Circuits

○ Medium System Intelligent Circuits

○ Medium Scale Integrated Circuits

104 PU_2015_106
In a memory system, four 256 x 8 PROM chips are used to make total memory of size 1024 × 4. What is the number of address bus lines?

○ 8

○ 10

○ 16

○ 4

258 PU_2015_106
Propositional logic is:-

○ Compositional

○ Declarative

○ Context independent

○ All of these

229 PU_2015_106
Which switching statically reserves the required bandwidth in advance?

◻ Packet Switching

◻ Hybrid Switching

◻ Mixed Switching

◻ Circuit Switching

231 PU_2015_106
Page fault frequency in an operating system is reduced when the:-

◻ Size of pages is reduced

◻ Processes tend to the I/O-bound

◻ Locality of reference is applicable to the process

◻ Processes tend to be CPU-bound

259 PU_2015_106
Conceptual Graphs consists of:-

◻ Alpha Nodes

◻ Logic Nodes

◻ Relation Nodes

◻ Beta Nodes

232 PU_2015_106
A COCOMO model stands for:-

◻ Complete Cost Estimation Model

◻ Comprehensive Cost Estimation Model

◻ Constructive Cost Estimation Model

◻ Common Cost Estimation Model

257 PU_2015_106
Which of the following is false?

◻ Backtracking algorithms do not have best case, worst case and average case behaviors

◻ Greedy Technique algorithms do not have best case, worst case and average case behaviors

◻ Dynamic Programming algorithms do not have best case, worst case and average case behaviors

Branch and Bound Technique algorithms do not have best case, worst case and average case behaviors

230 PU_2015_106
Example of processor-pool based on distributed computing system is:-

○ Sprite system

○ Internet

○ Xerox PARC

○ Amoeba

224 PU_2015_106
In a minimum heap with N nodes, the cost of removing the minimum element in the heap is:-

○ O(Log N)

○ O(N Log N)

○ $O(N^2)$

○ O(2 Log N)

251 PU_2015_106
What is the function of the active monitor on a token-ring LAN?

○ Check the frame reservation field

○ Remove frames that have circulated the ring

○ Check frame priority

○ Remove frames whose priority value equals their reservation value

233 PU_2015_106
In the direct-communication discipline, each process that wants to communicate must _____ name the _____ of the communication.

○ Explicitly ; recipient or sender

○ Implicitly ; recipient or sender

○ Implicitly ; recipient and sender

○ Explicitly ; recipient and sender

239 PU_2015_106
A LEX source program is a specification of a lexical analyzer, consisting of a set of _____.

○ Regular expressions

○ Sub expressions

□ Keywords

□ Common tokens

240 PU_2015_106
Which of the following is the disadvantage of cloud-based database systems?

□ Difficulty in obtaining locks on remote data

□ Difficult to Access data to another physical machine

□ Ensuring atomic transaction commit via two-phase commit is not easy

□ All of these

234 PU_2015_106
A _____ graph is one in which every cycle has unique entry.

□ System

□ Flow

□ DAG

□ Reducible

228 PU_2015_106
Tuples in the relational data model are required to be unordered because:-

□ It makes implementation easier

□ It makes the database more efficient

□ The user should not be burdened with having to remember which tuple is next

□ The relational model is based on set theory and sets are unordered collections of entities

246 PU_2015_106
Directly minimizing squared-error can lead to an effect called _____.

□ Under-fitting

□ Over-fitting

□ Regularization

□ Normalization

245 PU_2015_106
Which of the following statements is / are true?

□ The goal of regression is to learn a mapping from one real-valued space to another

□ Linear regression is the simplest form of regression

○ Linear regression is easy to understand, often quite effective, and very efficient to learn and use.

○ All of these

241 PU_2015_106
Which of the following statements is true?

○ Reinforcement learning, in which an agent (e.g., a robot or controller) seeks to learn the optimal actions to take based the outcomes of past actions

○ Supervised Learning, in which the training data is labeled with the correct answer

○ Unsupervised learning, in which we are given a collection of unlabeled data, which we wish to analyze and discover patterns within

○ All of these

220 PU_2015_106
Which of the following component of a database is responsible for ensuring the atomicity and durability properties of transaction?

○ Concurrency control

○ Recovery manager

○ Resource control

○ Transaction monitors

238 PU_2015_106
Which of the following does not belong to activation record for a procedure?

○ Arg count

○ Old value

○ Return value

○ Formal parameters

250 PU_2015_106
Let A be a stochastic matrix of type n × n. Then:-

○ Trace of A = 0

○ 1 is an Eigen value for A

○ Trace of A = 1

○ Trace of A = n

268 PU_2015_106

What does the following declaration mean?

int (*ptr)[10];

○ ptr is an array of 10 integers

○ ptr is a pointer to an array of 10 integers

○ ptr is array of pointers to 10 integers

○ ptr is an pointer to array

276 PU_2015_106
Which one of the following is true for a CPU having a single interrupt request line and a single interrupt grant line?

○ Neither vectored interrupt nor multiple interrupting devices are possible

○ Vectored interrupts and multiple interrupting devices are both possible

○ Vectored interrupts are not possible but multiple interrupting devices are possible

○ Vectored interrupt is possible but multiple interrupting devices are not possible

291 PU_2015_106
_____ refers to the ability to have more than one method with the same signature in an inheritance hierarchy.

○ Polymorphism

○ Inheritance

○ Abstraction

○ Multiple Inheritance

286 PU_2015_106
What does the concept route aggregation mean when one talks about using variable subnet masking?

○ Calculating the available host addresses in the AS

○ Reclaiming unused space by means of changing the subnet size

○ Combining routes to multiple networks into one supernet

○ Deleting unusable addresses through the creation of many subnets

267 PU_2015_106
Which of the following system integrate multiple heterogeneous data sources, providing an integrated global view of the data and providing query facilities?

○ Global mediator systems

○ Local mediator systems

○ Laccase mediator systems

Mediator systems

271 PU_2015_106
Consider the set H of all 3 x 3 matrices of the type:-

$$\begin{bmatrix} a & f & e \\ 0 & b & d \\ 0 & 0 & c \end{bmatrix}$$

Where a, b, c, d, e and f are real numbers and abc ≠ 0. Under the matrix multiplication operation, the set H is:-

A group

A semigroup but not a monoid

Neither a group nor a semigroup

A monoid but not a group

292 PU_2015_106
Which of the following instructions will not be allowed in Kernel mode?

Set the timer-of-day clock

Disable interrupts

Change memory map

Reset the timer

289 PU_2015_106
Which of the following is true?

P: Every relation is 3NF is also in BCNF
Q: A relation R is in 3NF if every non-prime attribute of R is fully functionally dependent on every key of R
R: Every relation in BCNF is also in 3NF
S: No relation can be in both BCNF and 3NF

S

P

Q

R

270 PU_2015_106
How many 8-bit characters can be transmitted per second over a 9600 baud serial communication link using asynchronous mode of transmission with one start bit, eight data bits, two stop bits, and one parity bit?

600

○ 1200

○ 800

○ 876

90 of 100
269 PU_2015_106
Which of the following grammar rules violate the requirements of an operator grammar? Here P, Q, R are non-terminals and r, s, t are terminals.

(i) P → QR
(ii) P → Q s R
(iii) P → ε
(iv) P → Q t R r

○ (i) only

○ (iii) and (iv) only

○ (ii) and (iii) only

○ (i) and (iii) only

91 of 100
288 PU_2015_106
Which of the following statements are true?

(1) The problem of determining whether there exists a cycle in an undirected graph is in P.
(2) The problem of determining whether there exists a cycle in an undirected graph is in NP.
(3) If a problem Q is NP-Complete, there exists a non-deterministic polynomial time algorithm to solve Q.

○ 2 and 3 only

○ 1 and 2 only

○ 1, 2 and 3

○ 1 and 3 only

92 of 100
280 PU_2015_106
A CPU generally handles an interrupt by executing an interrupt service routine:-

○ As soon as an interrupt is raised

○ By checking the interrupt register after finishing the execution of the current instruction

○ By checking the interrupt register at the end of fetch cycle

○ By checking the interrupt register at fixed time intervals

93 of 100
287 PU_2015_106
Which of the following statements are true about an SQL query?

P: An SQL query can contain a HAVING clause even if it does not have a GROUP BY clause
Q: An SQL query can contain a HAVING clause only if it has GROUP BY clause

R: All attributes used in the GROUP BY clause must appear in the SELECT clause
S: Not all attributes used in the GROUP BY clause need to appear in the SELECT clause

○ Q and R

○ Q and S

○ P and R

○ P and S

94 of 100
277 PU_2015_106
What is the main purpose of the secondary ring in FDDI protocol?

○ The secondary alternates with the primary in transmission of data

○ If the primary ring fails, the primary makes a wrap connection with the secondary to heal the ring

○ If the primary ring fails, the secondary takes over

○ The secondary is used to send emergency messages when the primary is busy

95 of 100
260 PU_2015_106
Let π_A be a problem that belongs to the class NP. Then which one of the following is true?

○ If π_A is NP-hard, then it is NP-complete

○ There is no polynomial time algorithm for π_A

○ If π_A can be solved deterministically in polynomial time, then P = NP

○ π_A may be undecidable

96 of 100
290 PU_2015_106
For computers based on three-address instruction formats, each address field can be used to specify which of the following:

S1: A memory operand
S2: A processor register
S3: An implied accumulator register

○ Only S2 and S3

○ S1, S2 and S3

○ Either S2 or S3

○ Either S1 or S2

97 of 100
293 PU_2015_106
In a client/server environment new technology can be incorporated into the system. This feature is categorized as:-

○ Scalability

○ Interoperability

○ Affordability

○ Adaptability

278 PU_2015_106
The performance of a scatter-net degrades as the number of piconets is increased. Degradation is caused by _____ probability that two, or more, devices may simultaneously attempt transmission using _____.

○ A decreased ; a different carrier frequency

○ A decreased ; the same carrier frequency

○ An increased ; the same carrier frequency

○ An increased ; the different carrier frequency

275 PU_2015_106
The varying characteristics of transmission lines:-

○ Enable a fixed block size to be optimum for use on all circuits

○ Enable a long block size to be optimum on noisy circuits

○ Enable a short block size to be optimum on non-noisy circuits

○ Enable a variable block size to be optimum for use on all circuits

279 PU_2015_106
Rendezvous refers to _____.

○ The condition in which, the receiver is not in the network

○ The condition in which, the sender is able to access the medium on priority basis

○ The condition in which, both, the sender and receiver are blocked until the message is delivered

○ The condition in which, the sender is able to access the medium at any time