**1. 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 a GROUP BY clause  
**Q:** An SQL query can contain a HAVING clause only if it has a 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 apper in the SELECT clause

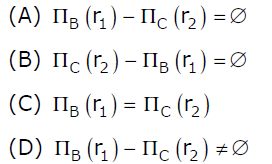
(A) P and R  
(B) P and S  
(C) Q and R  
(D) Q and S

Answer (C)

**2. Given the basic ER and relational models, which of the following is INCORRECT?**  
(A) An attribute of an entity can have more than one value  
(B) An attribute of an entity can be composite  
(C) In a row of a relational table, an attribute can have more than one value  
(D) In a row of a relational table, an attribute can have exactly one value or a NULL value

Answer (C)

3. **Suppose (A, B) and (C,D) are two relation schemas. Let r1 and r2 be the corresponding relation instances. B is a foreign key that refers to C in r2. If data in r1 and r2 satisfy referential integrity constraints, which of the following is ALWAYS TRUE?**



Answer (A)

**4. Which of the following is TRUE?**  
(A) Every relation in 2NF is also in BCNF  
(B) A relation R is in 3NF if every non-prime attribute of R is fully functionally dependent on every key of R  
(C) Every relation in BCNF is also in 3NF  
(D) No relation can be in both BCNF and 3NF

Answer (C)

**5. Consider the following transactions with data items P and Q initialized to zero:**

T1: read (P) ;

read (Q) ;

if P = 0 then Q : = Q + 1 ;

write (Q) ;

T2: read (Q) ;

read (P) ;

if Q = 0 then P : = P + 1 ;

write (P) ;

**Any non-serial interleaving of T1 and T2 for concurrent execution leads to**  
(A) A serializable schedule  
(B) A schedule that is not conflict serializable  
(C) A conflict serializable schedule  
(D) A schedule for which a precedence graph cannot be drawn

Answer (B)

**6. Consider the above tables A, B and C. How many tuples does the result of the following SQL query contains?**

SELECT A.id

FROM A

WHERE A.age > ALL (SELECT B.age

FROM B

WHERE B. name = "arun")

(A) 4  
(B) 3  
(C) 0  
(D) 1

Answer (B)

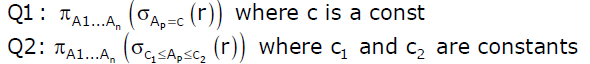
**7. Consider a relational table with a single record for each registered student with the following attributes.**

**i. Registration\_Number:< Unique registration number for each registered student**  
**ii. UID: Unique Identity number, unique at the national level for each citizen**  
**iii. BankAccount\_Number: Unique account number at the bank. A student can have multiple accounts or joint accounts. This attributes stores the primary account number**  
**iv. Name: Name of the Student**  
**v. Hostel\_Room: Room number of the hostel**

**Which of the following options is INCORRECT?**  
(A) BankAccount\_Number is a candidate key   
(B) Registration\_Number can be a primary key   
(C) UID is a candidate key if all students are from the same country   
(D) If S is a superkey such that S ∩ UID is NULL then S ∪ UID is also a superkey

Answer (A)

**8. Consider a relational table r with sufficient number of records, having attributes A1, A2,…, An and let 1 <= p <= n. Two queries Q1 and Q2 are given below.**



**The database can be configured to do ordered indexing on Ap or hashing on Ap. Which of the following statements is TRUE?**   
(A) Ordered indexing will always outperform hashing for both queries   
(B) Hashing will always outperform ordered indexing for both queries   
(C) Hashing will outperform ordered indexing on Q1, but not on Q2   
(D) Hashing will outperform ordered indexing on Q2, but not on Q1.

Answer (C)

**9. Database table by name Loan\_Records is given below.**

Borrower Bank\_Manager Loan\_Amount

Ramesh Sunderajan 10000.00

Suresh Ramgopal 5000.00

Mahesh Sunderajan 7000.00

**What is the output of the following SQL query?**

SELECT Count(\*)

FROM ( (SELECT Borrower, Bank\_Manager

FROM Loan\_Records) AS S

NATURAL JOIN (SELECT Bank\_Manager,

Loan\_Amount

FROM Loan\_Records) AS T );

(A) 3   
(B) 9   
(C) 5   
(D) 6

Answer (C)

**10. Consider a database table T containing two columns X and Y each of type integer. After the creation of the table, one record (X=1, Y=1) is inserted in the table.**

**Let MX and My denote the respective maximum values of X and Y among all records in the table at any point in time. Using MX and MY, new records are inserted in the table 128 times with X and Y values being MX+1, 2\*MY+1 respectively. It may be noted that each time after the insertion, values of MX and MY change. What will be the output of the following SQL query after the steps mentioned above are carried out?**

SELECT Y FROM T WHERE X=7;

(A) 127   
(B) 255   
(C) 129   
(D) 257

Answer (A)

1. In the following pairs of OSI protocol layer/sub-layer and its functionality, the INCORRECT pair is
2. Network layer and Routing
3. Data Link Layer and Bit synchronization
4. Transport layer and End-to-end process communication
5. Medium Access Control sub-layer and Channel sharing

Answer: b

1. Identify the correct order in which the following actions take place in an interaction between a web browser and a web server.
2. The web browser requests a webpage using HTTP.
3. The web browser establishes a TCP connection with the web server.
4. The web server sends the requested webpage using HTTP.
5. The web browser resolves the domain name using DNS. (A) 2-1-4-3

(B) 3-2-4-1

(C ) 4–2–1-3

(D) 1-2-3-4

Answer: c

1. A graphical HTML browser resident at a network client machine Q accesses a static HTML webpage from a HTTP server S. The static HTML page has exactly one static embedded image which is also at S. Assuming no caching, which one of the following is correct about the HTML webpage loading (including the embedded image)?
2. Q needs to send at least 2 HTTP requests to S, each necessarily in a separate TCP connection to server S
3. Q needs to send at least 2 HTTP requests to S, but a single TCP connection to server S is sufficient
4. A single HTTP request from Q to S is sufficient, and a single TCP connection between Q and S is necessary for this
5. A single HTTP request from Q to S is sufficient, and this is possible without any TCP connection between Q and S

Answer : b

1. Consider a LAN with four nodes S1, S2, S3 and S4. Time is divided into fixed-size slots, and a node can begin its transmission only at the beginning of a slot. A collision is said to have occurred if more than one node transmit in the same slot. The probabilities of generation of a frame in a time slot by S1, S2, S3 and S4 are 0.1, 0.2, 0.3 and 0.4, respectively. The probability of sending a frame in the first slot without any collision by any of these four stations is

. (A) 0.1234

(B) 0.2368

(C ) 0.4404

(D) 0.6798

Answer: c

**15.** Suppose that the stop-and-wait protocol is used on a link with a bit rate of 64 kilobits per second and 20 milliseconds propagation delay. Assume that the transmission time for the acknowledgment and the processing time at nodes are negligible. Then the minimum frame size in bytes to achieve a link utilization of at least 50% is bytes.

(A) 80

(B) 225

(C) 320

(D) 450

Answer: c

**16.** Determine the maximum length of the cable (in km) for transmitting data at a rate of 500 Mbps in an Ethernet LAN with frames of size 10,000 bits. Assume the signal speed in the cable to be 2,00,000 km/s.

(A) 1 (B) 2 (C) 2.5 (D) 5

Answer: b

1. Which one of the following fields of an IP header is NOT modified by a typical IP router?
2. Checksum
3. Source address
4. Time to Live (TTL)
5. Length

Answer: b

1. In the network 200.10.11.144/27, the fourth octet (in decimal) of the last IP address of the network which can be assigned to a host is

(A) 158

(B) 255

(C) 222

(D) 223

Answer: a

1. Suppose two hosts use a TCP connection to transfer a large file. Which of the following statements is/are **False** with respect to the TCP connection?
2. If the sequence number of a segment is m, then the sequence number of the subsequent segment is always m+1.
3. If the estimated round trip time at any given point of time is t sec, the value of the retransmission timeout is always set to greater than or equal to t sec.
4. The size of the advertised window never changes during the course of the TCP connection.
5. The number of unacknowledged bytes at the sender is always less than or equal to the advertised window
6. 3 only
7. 1 and 3 only
8. 1 and 4 only
9. 2 and 4 only

Answer: b

1. A link has a transmission speed of 10^6 bits/sec. It uses data packets of size 1000 bytes each. Assume that the acknowledgment has negligible transmission delay, and that its propagation delay is the same as the data propagation delay. Also assume that the processing delays at nodes are negligible. The efficiency of the stop-and-wait protocol in this setup is exactly 25%. The value of the one-way propagation delay (in milliseconds) is .
2. 8
3. 12
4. 16
5. 32

Answer: b

|  |  |  |
| --- | --- | --- |
| 21. | Ensuring the protection of data by preventing the unauthorised disclosure of information, called as | |
| a) authentication | | b) confidentiality |
| c) integrity | | d) non-repudiation |
| Answer: b | | |
| 22. | Ensuring that the data is not modified during transit, is called as | |
| a) authentication | | b) confidentiality |
| c) integrity | | d) non-repudiation |
| Answer: c | | |
| 23. | For being a prime, if then | |
| a) | | **b**) |
| c) | | d) |
| Answer: b | | |
|  |  | |
|  | |  |
|  | |  |
|  | | |
| 24. | Which statement is false, regarding gcd(b,c) | |
| a) it is the least positive value of bx+cy, for all x,y integers | | b) it is the greatest positive value of bx+cy, for x,y integers |
| c) it is the positive common divisor of b & c | | d) it is divisible by every common divisor of b & c |
| Answer: b | | |
| 25. | GCD can be expressed as linear combination of their inputs. | |
| a) true | | b) false |
| c) for some inputs | | d) none |
| Answer: a | | |
| 26. | GCD() is | |
| a) 1, for all | | b) 1, for all |
| c) | | d) 0 |
| Answer: b | | |
| 27. | For an integers, implies | |
| a) divides | | b) divides |
| c) divides | | d) divides |
| Answer: c | | |
| 28. | For an integers, if and then | |
| a) | | b) |
| c) | | d) none |
| Answer: b | | |
| 29. | If then | |
| a) | | b) |
| c) | | d) |

Answer: d

1. Which of the following algorithms is not based on greedy method ?
   1. All pair shortest paths b. Kruskal’s algorithm c. Huffman Coding d. Dijkstra’s shortest path algorithm

Answer – a

1. Which of the traversals on a *directed graph* cannot be used to detect a cycle ?
   1. Depth First Traversal b. Breadth-first traversal c. Topological Sort d. None of the above

Answer – b

1. Which pair of the following pairs mentions the algorithms with SAME order of worst case time complexity?
2. Bubble sort, Merge Sort (b) Merge sort, Quick sort (c) Insertion sort, Quick sort (d) Bubble sort, Heap sort

Answer – c

1. For the Mergesort or Quicksort problem, which of the following recurrence relation best describes its time complexity (input size: n)?

(a) T(n) = 2T(n/2) + k, where k is a constant (b) T(n) = T(n/2) + n

(c) T(n) = 2T(n/2) + n (d) T(n) = T(n/2) + k, where k is a constant

Answer – c

1. Which of the following algorithms is the best sorting algorithm considering space as well as time ?

(a) Modified Bubble Sort (b) Mergesort (c) Heapsort (d) Quicksort

Answer – c

1. Which pair of the following pairs mentions the algorithms with DIFFERENT order of worst case time complexity?
2. Heap Sort, Merge Sort (b) Merge sort, Quick sort (c) Insertion sort, Quick sort (d) Bubble sort, Selection sort

Ans: (b)

1. Time complexity of an algorithm T(n) is described as: T(1)=1, and T(n)=T(n-1)+(n) where n ≥ 1 denotes the input size. Then algorithm is of the order :

(a) log(n)

(b) n

(c) n2

(d) n log(n)

Ans: (c)

1. For the binary search problem, which of the following recurrence relation best describes its time complexity (input size: n)?

(a) T(n) = 2T(n/2) + k, where k is a constant

(b) T(n) = T(n/2) + n

(c) T(n) = 2T(n/2) + n

(d) T(n) = T(n/2) + k, where k is a constant

Ans: (d)

1. Which of the following trees is best suited for range search ?

a) B+ tree

b) AVL tree

c) Splay tree

d) Red-Black Tree

Answer is a)

1. Which of the following is not a height balanced structure.
2. AVL tree
3. B tree
4. B+ tree
5. Binary Search Tree

Answer – d

1. With what data structure can a priority queue be implemented in the most efficient way?  
   a) Array  
   b) List  
   c) Heap  
   d) All of the mentioned

**Answer – c**

1. The number of binary trees with 6 nodes are
2. 84 B. 132 C. 144 D. 112

The answer is B.

1. *Heapsort* is an array sorting algorithm. The algorithm involves two steps, *Heapify* (to create heap) and *Ordering*(converts heap to sorted array). The respective complexities for *Heapsort,* *Heapify* and *Ordering* for array of size n, are as follows :
   1. O(n2), O(n2), O(n2)
   2. O(n2), O(n2), O(nlogn)
   3. O(nlogn), O(n2), O(nlogn)
   4. O(nlogn), O(nlogn), O(nlogn)

The answer is D.

1. Which of the algorithms below may not traverse all nodes in a directed graph in some specific situations
   1. Breadth-First Traversal
   2. Depth-First Traversal
   3. Topological Sort
   4. None of the above

The answer is C

1. Huffman coding algorithm is an example of
   1. Greedy algorithm
   2. Dynamic programming
   3. Backtracking
   4. None of the above

The answer is A

1. The worst case complexity for sorting elements in a binary search tree with n elements is
   1. O(n)
   2. O(n2)
   3. O(nlogn)
   4. O(logn)

The answer is A.

1. In a binary tree, every node has either 0 or 2 children. The number of nodes with 2 children in the tree is 5. Total number of nodes in the tree are
2. 11 B. 10 C. 16 D. 32

The answer is A

1. Which of the following attributes of text box control allow to limit the maximum character?
2. size
3. len
4. maxlength
5. All of the Above

Ans. C

1. Which of the following is a container?
2. <SELECT>
3. <BODY>
4. <INPUT>
5. Both A & B

Ans. D

1. <DT> is designed to fit a single line but <DD> will accept
2. Lines of text
3. Full paragraph
4. Words
5. Request

Ans. B

1. The tag which allows you to rest other HTML tags within the description is
2. <TH>
3. <TD>
4. <TR>
5. <CAPTION>

Ans. D

1. <BASE> is designed to appear only between
2. <HEAD>
3. <TITLE>
4. <BODY>
5. <FORM>

Ans. A

1. To open a link in a new browser window the tag is
2. < a href = “url” target = “new”>
3. <a hred = “url” target = “\_blank”>
4. <a href = “url”.new>
5. Both B & C

Ans. B

1. URL includes
2. Protocol type
3. Path of resource
4. Domain name & Port number
5. All of the Above

Ans. D

1. In HTML, colour code #FF7F3F represents a colour in which intensity levels of primary

colours are

1. Red = 255, Green = 127, and Blue = 63
2. Green = 255, Blue = 127, and Red = 63
3. Blue = 255, Green = 127, and Red = 63
4. Invalid colour code

Ans. A

1. During Internet communication, “cookie” is used for
2. Storing authentication information at sever side for entire session
3. Storing authentic information at client side for entire session
4. Detection of Intrusion at client side for entire session
5. Detection of Intrusion at server side for entire session

Ans. A

1. Basic XML can be described as :
2. A hierarchical structure of tagged elements, attributes, and text.
3. All the HTML tags plus a set of new XML only tags.
4. Object – oriented structure of rows and columns.
5. Processing Instructions (PIs) for text data.

Ans. A

1. Which of the following is a characteristic of an overloaded method?
   1. it must have a fixed number of parameters
   2. it could never be a constructor
   3. it shares a name with another method in the same class
   4. it always returns void

Answer : c

1. Which of the following is a true statement regarding a constructor?
   1. it has no return type
   2. its return type changes based on how you write it
   3. its return type is void
   4. its return type is int

Answer: a

1. Which two of the following statements are true about constructors:
2. A constructor has no return type and is therefore a void method.
3. A constructor has the same name as the class.
4. A class can have more than one constructor.
5. Constructors are called like any other method.
   1. III and IV
   2. I and II
   3. II and III
   4. I and IV

Answer: c

1. The basic idea of is that it allows the same program instruction to mean different things in different contexts.
   1. object oriented programming
   2. polymorphism
   3. encapsulation
   4. inheritance

Answer: b

1. Complete the following Java statement to allow the instance of the Scanner class to read keyboard input.

Scanner keyboard = new Scanner( );

* 1. System.out
  2. System.in
  3. System.keyboard
  4. System.input

Answer: b

1. Which subclass of Throwable is an exception checked at compile time?
   1. NullPointerException
   2. RuntimeException
   3. IOException
   4. ArrayIndexOutOfBoundsException

Answer: c

1. When would you use a private constructor?
2. When you get bored with public
3. If you want to disallow instantiation of that class from outside that class
4. If you want to protect your class's members from outside modification
5. Never, it's not allowed

Answer: b

1. Which of the following is **true** about RuntimeException and its subclasses?
2. If a method throws a RuntimeException, the use of the try/catch block is optional.
3. The FileIOException class is a subclass of RuntimeException.
4. In general, handling of RuntimeException should be done at compile time.
5. In general, RuntimeException must be caught with a try/catch block.

Answer: a

1. The time taken by the disk arm to locate the specific address of a sector for getting information is called \_\_\_\_\_\_\_\_\_\_.

1 Rotational Latency

2 Seek Time

3 Search Time

4 Response Time

Ans ) 2

1. Which file system does Windows 95 typically use ?

1 FAT16

2 FAT32

3 NTFS

4 LMFS

Ans ) 2

1. Identify the odd thing in the services of operating system.

1 Accounting

2 Protection

3 Error detection and correction

4 Dead lock handling

Ans ) 3

1. \_\_\_\_\_\_ allocates the largest hole (free fragmant) available in the memory.

1 Best Fit

2 Worst Fit

3 First Fit

4 None of the above

Ans ) 2

1. Which of the following is not advantage of multiprogramming?

1 Increased throughput

2 Shorter response time

3 Decreased operating system overhead

4 Ability to assign priorities to jobs

Ans ) 3

1. In \_\_\_\_\_\_ OS, the response time is very critical.

1 Multitasking

2 Batch

3 Online

4 Real-time

Ans ) 4

1. An optimal scheduling algorithm in terms of minimizing the average waiting time of a given set of processes is \_\_\_\_\_\_\_\_.

1 FCFS scheduling algorithm

2 Round robin scheduling algorithm

3 Shorest job - first scheduling algorithm

4 None of the above

Ans ) 3

1. A major problem with priority scheduling is \_\_\_\_\_\_\_\_\_.

1 Definite blocking

2 Starvation

3 Low priority

4 None of the above

Ans ) 2

1. Which technique was introduced because a single job could not keep both the CPU and the I/O devices busy?

1 Time-sharing

2 SPOOLing

3 Preemptive scheduling

4 Multiprogramming

Ans ) 4

1. Inter process communication can be done through \_\_\_\_\_\_\_\_\_\_.

1 Mails

2 Messages

3 System calls

4 Traps

Ans ) 2

1. Which of the following derivations does a top-down parser use while parsing an input string?

a) Leftmost derivation

b) Leftmost derivation in reverse

c) Rightmost derivation

d) Rightmost derivation in reverse

Answer: a

1. 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?

a) Assembly

b) Parsing

c) Relocation

d) Symbol resolute

Answer: c

1. Given the following expression grammar:

E -> E \* F | F+E | F

F -> F-F | id

which of the following is true?

a) \* has higher precedence than +

b) – has higher precedence than \*

c) + and — have same precedence

d) + has higher precedence than \*

Answer: b

1. Match the following.

P. Regular expression 1. Syntax analysis

Q. Pushdown automata 2. Code generation

R. Dataflow analysis 3. Lexical analysis

S. Register allocation 4. Code optimization

a) P-4. Q-1, R-2, S-3

b) P-3, Q-1, R-4, S-2

c) P-3, Q-4, R-1, S-2

d) P-2, Q-1, R-4, S-3

Answer: b

1. Which one of the following is a top-down parser?

a) Recursive descent parser

b) Operator precedence parser

c) An LR(k) parser

d) An LALR(k) parser

Answer: a

1. The grammar A → AA | (A) | e is not suitable for predictive-parsing because the grammar is?

a) Ambiguous

b) Left recursive

c) Right recursive

d) An operator grammar

Answer: b

1. For a sentence n + n × n, the handles in the right-sentential form of the reduction are \_\_\_\_\_\_\_\_\_\_

a) n, E + n and E + n × n

b) n, E + n and E + n × n

c) n, n + n and n + n × n

d) n, E + n and E × n

Answer: d

1. YACC builds up \_\_\_\_\_\_\_\_\_\_

a) SLR parsing table

b) Canonical LR parsing table

c) LALR parsing table

d) None of the mentioned

Answer: c

1. The action of parsing the source program into proper syntactic classes is called \_\_\_\_\_\_\_\_\_\_

a) Syntax Analysis

b) Lexical Analysis

c) Interpretation analysis

d) General Syntax Analysis

Answer: b

1. A top down parser generates \_\_\_\_\_\_\_\_\_\_

a) Rightmost Derivation

b) Right most derivation in reverse

c) Left most derivation

d) Left most derivation in reverse

Answer: c

1. A grammar that produces more than one parse tree for some sentence is called \_\_\_\_\_\_\_\_\_\_

a) Ambiguous

b) Unambiguous

c) Regular

d) None of the mentioned

Answer: a

1. Which one of the following statement is FALSE?

(A) Context-free languages are closed under union

(B) Context-free languages are closed under concatenation

(C) Context-free languages are closed under intersection

(D) Context-free languages are closed under Keene closure

Answer: c

1. The CFG

S---> aS | bS | a | b

Is equivalent to regular expression?

(A) (a + b)

(B) (a + b) (a + b)\*

(C) (a + b) (a + b)

(D) (a + b)\*

Answer: b

1. Which of the following is false?

(a) The languages accepted by FA’s are regular languages.

(b) Every DFA is an NFA.

(c) There are some NFA’s for which no DFA can be constructed.

(d) If L is accepted by an NFA with e transition then L is accepted by an NFA without e transition

Answer: c

1. Which of the following are regular languages?
2. The language {wlw ∈ a, b)\*, w has an odd number of b’s).
3. The language {wlw ∈ (a, b)\*, w has an even number of b’s).

(iii) The language {wlw ∈ (a, b)\*. w has an even number of b’s and odd number of a’s).

(a) (i) and (ii) only

(b) (i) only

(c) (ii) only

(d) All of these

Answer: d

1. What is regular expression corresponding to the language of strings of even lengths over the alphabet of (a, b)?

(a) (aa + bb + ba + ab)\*

(b) (aa + bb)

(c) (ab + bb + ba)\*

(d) a\*b\*a\*b\*

Answer: a

1. How many minimum number of states are required in the DFA (over the alphabet (a, b)) accepting all the strings with the number ofa’s divisible by 4 and number of b’s divisible by 5?

(a) 20

(b) 9

(c) 7

(d) 15

Answer: a

1. Which of the following is undecidable?

(a) Equivalence of regular languages

(b) Equivalence of context free languages

(c) Finiteness check on context free language

(d) Emptiness of regular languages

Ans: b

1. Suppose L₁ = (10. 1) and L₂ = (011, 11). How many distinct elements are there in L= L₁L₂

(a) 4

(b) 3

(c) 2

(d) 1

Answer: a

1. Strings generated by(1+01)\* does not contain the substring

(a) 10

(b) 11

(c) 01

(d) 00

Ans: d

1. Consider the two regular languages:

L₁ = (a +b)\* a and L₂ = b(a + b)\*

The intersection of L₁ and L₂ is given by

(a) (a + b)\*ab

(b) ab(a + b)\*

(c) a(a + b)\*b

(d) b(a + b)\*a

Answer: d

1. Consider the following statements:

X: For any language either a language L or its compliment L’ must be finite.

Y: DFA for language which contains epsilon must have initial state as final state.

Z: Non-deterministic finite automata is more powerful than deterministic finite automata.

Which of the following statement(s) is/are correct?

(A) only X

(B) only Y

(C) only Z

(D) all of the above.

Answer: b

1. Which of the following is not decidable?

(A) A Turing machine prints specific letter.

(B) A Turing machine computes product of two numbers.

(C) An arbitrary Turing machine halts after fifty steps.

(D) A Turing machine computes sum of two numbers.

Answer: a

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

(a) S is a subset of T

(b) T is a subset of S

(c) S=T

(d) S intersection T=Ø

Answer: c

1. Let L denotes the language generated by the grammar S – OSO/00. Which of the following is true?

(a) L = Ø

(b) L is regular but not Ø

(c) L is context free but not regular

(d) L is not context free

Ans: b

1. Which of the following statements in true?

(a) If a language is context free it can always be accepted by a deterministic push-down automaton

(b) The union of two context free languages is context free

(c) The intersection of two context free languages is context free

(d) The complement of a context free language is context free

Ans: b

1. Which of the following CFG's can't be simulated by an FSM?

(A) S --> Sa | b

(B) S --> aSb | ab

(C) S --> abX, X --> cY, Y --> d | aX

(D) S--> aS | b

Ans: b