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IBPS SO INFORMATION TECHNOLOGY OFFICER QUIZ – 1

Directions: Study the following questions carefully and answers the questions given below:

1. Consider the following encryption algorithms?

Data Encryption Standard (DES)
Advanced Encryption Standard (AES)
Rivest Shamir Adleman (RSA)

Choose the option that correctly matches the given algorithms with the type of cryptography (public-key or private-key) utilised by them.

- A. DES & AES: private-key; RSA: public-key
- B. AES & RSA: private-key; DES: public-key
- C. DES & RSA: private-key; AES: public-key
- D. RSA: private-key; DES & AES: public-key
- E. AES: private-key; DES & RSA: public-key

2. The complete graph K_n has _____ different spanning trees.

- A. N^{n-2}
- B. $n \times n$
- C. n^n
- D. n^2
- E. None of these

3. Cloud computing is an abstraction based on the notion of pooling physical resources and presenting them as a _____ resource.

- A. real
- B. virtual
- C. cloud
- D. none of the mentioned
- E. Both 'real' and 'virtual'

4. With reference to multiprogramming OS, pick the option which is not true.

- A. Increased CPU utilization
- B. Several jobs are kept in memory simultaneously
- C. It has well-defined, fixed time constraints.
- D. If the current job needs I/O, the OS picks another job.

E. Multiprogrammed systems provide an environment in which system resources are utilized effectively.

5. This page replacement algorithm gives the lowest possible page-fault rate for a fixed number of frames –

- A. FIFO page replacement B. Optimal page replacement C. LRU page replacement
D. LFU page replacement E. MFU page replacement

6. Which of the following is a linking function?

- A. Execution of program
B. Makes address of programs known to each other
C. Accept and conversion of source code
D. Loading of program
E. None of these

7. Who Provide Connection Oriented Service for Sending a message on Network:

- A. TCP B. UDP C. IP
D. RIP E. None of these

8. For network traffic measurement we need not use:

- A. Hardware and software approach
B. Passive and active approach
C. Top to bottom approach
D. On-line and off-line approach
E. None of these

9. Which of the following graphical notations is used to describe the data flow between various processes of a system?

- A. Data flow diagram B. Data name rationalization C. Entity relation diagram
D. Data analysis diagram E. None of these

10. Which keyword is not used in java?

A. void

B. private

C. Boolean

D. static

E. None of these



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Correct answers:

1	2	3	4	5	6	7	8	9	10
A	A	B	C	B	B	A	C	A	C

Explanations:**1.**

AES is largely considered impervious to all attacks, with the exception of brute force, which attempts to decipher messages using all possible combinations in the 128, 192, or 256-bit. RSA is considered an asymmetric algorithm due to its use of a pair of keys. You've got your public key, which is what we use to encrypt our message, and a private key to decrypt it. Triple DES uses three individual keys with 56 bits each. The total key length adds up to 168 bits, but experts would argue that 112-bits in key strength are more like it.

Hence, option A is correct.

2.

Back in 1889, Cayley devised the well-known formula N^{n-2} for the number of spanning trees in the complete graph K_n . The first combinatorial proof of Cayley's formula is due to Prüfer. It can be proved that there are N^{n-2} Prüfer sequences of length $n-2$. Proof: By definition, there are n ways to choose each element of a Prüfer sequence of length $n-2$. Since there are $n-2$ elements to be determined, in total we have N^{n-2} ways to choose the whole sequence.

A spanning tree is a subset of Graph G , which has all the vertices covered with minimum possible number of edges. Hence, a spanning tree does not have cycles and it cannot be disconnected. By this definition, we can draw a conclusion that every connected and undirected Graph G has at least one spanning tree.

Hence, option A is correct.

3.

Cloud Computing is a new model for provisioning resources, for staging applications, and for platform-independent user access to services.

Cloud computing is shared pools of configurable computer system resources and higher-level services that can be rapidly provisioned with minimal management effort, often over the Internet. Cloud computing relies on sharing of resources to achieve coherence and economies of scale, similar to a public utility.

Hence, option B is correct.

4.

A multiprogramming OS is not characterized by fixed time constraints; they are an important feature of real-time OS.

Multitasking has the same meaning of multiprogramming but in a more general sense, as it refers to having multiple (programs, processes, tasks, threads) running at the same time. This term is used in modern operating systems when multiple tasks share a common processing resource (e.g., CPU and Memory).

Hence, option C is correct.

5.

Optimal page replacement gives the lowest possible page-fault rate for a fixed number of frames and will never suffer from Belady's anomaly. It replaces the page that will not be used for the longest period of time.

FIFO page replacement: This is the simplest page replacement algorithm. In this algorithm, operating system keeps track of all pages in the memory in a queue, oldest page is in the front of the queue. When a page needs to be replaced page in the front of the queue is selected for removal.

LRU page replacement: In this algorithm page will be replaced which is least recently used.

The Most Recently used algorithm evicts the most recently used document from the cache. This algorithm is used where we have to access the historical information

Least Frequently Used (LFU) page replacement policy which removes page which are least frequent used and then put a new requested page in free space. It is very simple and easy to use.

Hence, option B is correct.

6.

Every time a standard function is invoked by the high level language program, control should get transferred to the appropriate program. The linking function makes addresses of program known to each other so that such control transfers can take place during execution.

The link function deals with linking scope to the DOM. While defining a custom directive we have the option to define a link against which either we can define a function or we have the option to assign an object which will have pre & post function

Hence, option B is correct.

7.

TCP is connection Oriented Protocol. TCP (Transmission Control Protocol) is a standard that defines how to establish and maintain a network conversation via which application programs can exchange data. TCP works with the Internet Protocol (IP), which defines how computers send packets of data to each other.

UDP (User Datagram Protocol) is an alternative communications protocol to Transmission Control Protocol (TCP) used primarily for establishing low-latency and loss-tolerating connections between applications on the internet.

The Internet Protocol (IP) is the principal communications protocol in the Internet protocol suite for relaying datagrams across network boundaries. Its routing function enables internetworking, and essentially establishes the Internet.

The Routing Information Protocol (RIP) is one of the oldest distance-vector routing protocols which employ the hop count as a routing metric. RIP prevents routing loops by implementing a limit on the number of hops allowed in a path from source to destination.

Hence, option A is correct.

8.

For network traffic management does not use top to bottom approach Network traffic management uses Hardware & software approach, passive & active approach, on-line & offline approach.

Network traffic management deals with the process of monitoring and controlling the activities of network besides transforming the network into a managed resource by improving performance, efficiency, and security. It also helps to operate, administer, and maintain the network systems.

Hence, option C is correct.

9.

A DFD (Data Flow Diagram) is a graphical representation of the data in motion within a system (e.g. a business, an organization, an application) that is subject to analysis. On the highest (least detailed. level, it identifies all flows from system - external sources and to system - external destinations. With further decomposition of the system, the lower level diagrams show how data elements (that compose a data flow) are processed and passed on to subsequent processes or a store.

A simple DFD of Employee Payroll System could be—

Hence, option A is correct.

10.

Boolean is not a keyword of java.

In the Java programming language, a keyword is one of 50 reserved words that have a predefined meaning in the language; because of this, programmers cannot use keywords as names for variables, methods, classes, or as any other identifier. Of these 50 keywords, 48 are in use and 2 are not in use. Due to their special functions in the language, most integrated development environments for Java use syntax highlighting to display keywords in a different colour for easy identification.

Hence, option C is correct.



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