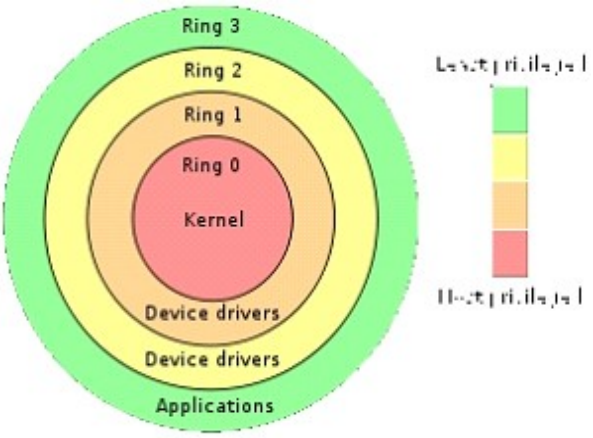
system. This is generally hardware-enforced by some CPU architectures that provide different CPU modes at the hardware or microcode level. Rings are arranged in a hierarchy from most privileged (most trusted, usually numbered zero) to least privileged (least trusted, usually with the highest ring number). On most operating systems, Ring 0 is the level with the most privileges and interacts most directly with the physical hardware such as the CPU and memory.

Special gates between rings are provided to allow an outer ring to access an inner ring's resources in a predefined manner, as opposed to allowing arbitrary usage. Correctly gating access between rings can improve security by preventing programs from one ring or privilege level from misusing resources intended for programs in another. For example, spyware running as a user program in Ring 3 should be prevented from turning on a web camera without informing the user, since hardware access should be a Ring 1 function reserved for device drivers. Programs such as web browsers running in higher numbered rings must request access to the network, a resource restricted to a lower numbered ring.

Ring Architecture



Ring Architecture
All of the other answers are incorrect because they are detractors.

References:
OIG CBK Security Architecture and Models (page 311)
https://en.wikipedia.org/wiki/Ring_%28computer_security%29

QUESTION 388
The control of communications test equipment should be clearly addressed by security policy for which of the following reasons?

A. Test equipment is easily damaged.
B. Test equipment can be used to browse information passing on a network.
C. Test equipment is difficult to replace if lost or stolen.
D. Test equipment must always be available for the maintenance personnel.

Correct Answer: B
Explanation:
Test equipment must be secured. There are equipment and other tools that if in the wrong hands could be used to "sniff" network traffic and also be used to commit fraud. The storage and use of this equipment should be detailed in the security policy for this reason.

The following answers are incorrect:

Test equipment is easily damaged. Is incorrect because it is not the best answer, and from a security point of view not relevent.
Test equipment is difficult to replace if lost or stolen. Is incorrect because it is not the best answer, and from a security point of view not relevent.
Test equipment must always be available for the maintenance personnel. Is incorrect because it is not the best answer, and from a security point of view not relevent.

References:
OIG CBK Operations Security (pages 642 - 643)

QUESTION 389
Which of the following statements pertaining to the security kernel is incorrect?

A. The security kernel is made up of mechanisms that fall under the TCB and implements and enforces the reference monitor concept.
B. The security kernel must provide isolation for the processes carrying out the reference monitor concept and they must be tamperproof.
C. The security kernel must be small enough to be able to be tested and verified in a complete and comprehensive manner.
D. The security kernel is an access control concept, not an actual physical component.

Correct Answer: D
Explanation:
The reference monitor, not the security kernel is an access control concept.

The security kernel is made up of software, and firmware components that fall within the TCB and implements and enforces the reference monitor concept. The security kernel mediates all access and functions between subjects and objects. The security kernel is the core of the TCB and is the most commonly used approach to building trusted computing systems.

There are three main requirements of the security kernel:

It must provide isolation for the processes carrying out the reference monitor concept, and the processes must be tamperproof.
It must be invoked for every access attempt and must be impossible to circumvent. Thus, the security kernel must be implemented in a complete and foolproof way.
It must be small enough to be able to be tested and verified in a complete and comprehensive manner.

The following answers are incorrect:
The security kernel is made up of mechanisms that fall under the TCB and implements and enforces the reference monitor concept. Is incorrect because this is the definition of the security kernel.

The security kernel must provide isolation for the processes carrying out the reference monitor concept and they must be tamperproof. Is incorrect because this is one of the three requirements that make up the security kernel.

The security kernel must be small enough to be able to be tested and verified in a complete and comprehensive manner. Is incorrect because this is one of the three requirements that make up the security kernel.

QUESTION 390
Which of the following is best defined as a circumstance in which a collection of information items is required to be classified at a higher security level than any of the individual items that comprise it?

A. Aggregation
B. Inference
C. Clustering
D. Collision

Correct Answer: A
Explanation:
The Internet Security Glossary (RFC2828) defines aggregation as a circumstance in which a collection of information items is required to be classified at a higher security level than any of the individual items that comprise it. Source: SHIREY, Robert W., RFC2828: Internet Security Glossary, may 2000.

QUESTION 391
Which of the following are NOT a countermeasure to traffic analysis?

A. Padding messages.
B. Eavesdropping.
C. Sending noise.
D. Faraday Cage

Correct Answer: B
Explanation:
Eavesdropping is not a countermeasure, it is a type of attack where you are collecting traffic and attempting to see what is being send between entities communicating with each other.

The following answers are incorrect:

Padding Messages. Is incorrect because it is considered a countermeasure you make messages uniform size, padding can be used to counter this kind of attack, in which decoy traffic is sent out over the network to disguise patterns and make it more difficult to uncover patterns.
Sending Noise. Is incorrect because it is considered a countermeasure, tansmitting non-informational data elements to disguise real data.

Faraday Cage Is incorrect because it is a tool used to prevent emanation of electromagnetic waves. It is a very effective tool to prevent traffic analysis.

QUESTION 392
Whose role is it to assign classification level to information?

A. Security Administrator
B. User
C. Owner
D. Auditor

Correct Answer: C
Explanation:
The Data/Information Owner is ultimately responsible for the protection of the data. It is the Data/Information Owner that decides upon the classifications of that data they are responsible for.

The data owner decides upon the classification of the data he is responsible for and alters that classification if the business need arises.

The following answers are incorrect:

Security Administrator. Is incorrect because this individual is responsible for ensuring that the access right granted are correct and support the polices and directives that the Data/Information Owner defines.
User. Is Incorrect because the user uses/access the data according to how the Data/Information Owner defined their access.
Auditor. Is incorrect because the Auditor is responsible for ensuring that the access levels are appropriate. The Auditor would verify that the Owner classified the data properly.

References:
CISSP All In One Third Edition, Shon Harris, Page 121

QUESTION 393
Which of the following is based on the premise that the quality of a software product is a direct function of the quality of its associated software development and maintenance processes?

A. The Software Capability Maturity Model (CMM)
B. The Spiral Model
C. The Waterfall Model
D. Expert Systems Model

Correct Answer: A
Explanation:
The Capability Maturity Model (CMM) is a service mark owned by Carnegie Mellon University (CMU) and refers to a development model elicited from actual data. The data was collected from organizations that contracted with the U.S. Department of Defense, who funded the research, and became the foundation from which CMU created the Software Engineering Institute (SEI). Like any model, it is an abstraction of an existing system.

The Capability Maturity Model (CMM) is a methodology used to develop and refine an organization's software development process. The model describes a five-level evolutionary path of increasingly organized and systematically more mature processes. CMM was developed and is promoted by the Software Engineering Institute (SEI), a research and development center sponsored by the U.S. Department of Defense (DoD). SEI was founded in 1984 to address software engineering issues and, in a broad sense, to advance software engineering methodologies. More specifically, SEI was established to optimize the process of developing, acquiring, and maintaining heavily software-reliant systems for the DoD. Because the processes involved are equally applicable to the software industry as a whole, SEI advocates industry-wide adoption of the CMM.

The CMM is similar to ISO 9001, one of the ISO 9000 series of standards specified by the International Organization for Standardization (ISO). The ISO 9000 standards specify an effective quality system for manufacturing and service industries; ISO 9001 deals specifically with software development and maintenance. The main difference between the two systems lies in their respective purposes: ISO 9001 specifies a minimal acceptable quality level for software processes, while the CMM establishes a framework for continuous process improvement and is more explicit than the ISO standard in defining the means to be employed to that end.

CMM's Five Maturity Levels of Software Processes

At the initial level, processes are disorganized, even chaotic. Success is likely to depend on individual efforts, and is not considered to be repeatable, because processes would not be sufficiently defined and documented to allow them to be replicated. At the repeatable level, basic project management techniques are established, and successes could be repeated, because the requisite processes would have been made established, defined, and documented.
At the defined level, an organization has developed its own standard software process through greater attention to documentation, standardization, and integration. At the managed level, an organization monitors and controls its own processes through data collection and analysis.
At the optimizing level, processes are constantly being improved through monitoring feedback from current processes and introducing innovative processes to better serve the organization's particular needs.

When it is applied to an existing organization's software development processes, it allows an effective approach toward improving them. Eventually it became clear that the model could be applied to other processes. This gave rise to a more general concept that is applied to business processes and to developing people.

CMM is superseded by CMMI
The CMM model proved useful to many organizations, but its application in software development has sometimes been problematic. Applying multiple models that are not integrated within and across an organization could be costly in terms of training, appraisals, and improvement activities. The Capability Maturity Model Integration (CMMI) project was formed to sort out the problem of using multiple CMMs.

For software development processes, the CMM has been superseded by Capability Maturity Model Integration (CMMI), though the CMM continues to be a general theoretical process capability model used in the public domain. CMM is adapted to processes other than software development

The CMM was originally intended as a tool to evaluate the ability of government contractors to perform a contracted software project. Though it comes from the area of software development, it can be, has been, and continues to be widely applied as a general model of the maturity of processes (e.g., IT Service Management processes) in IS/IT (and other) organizations.

Source:
http://searchsoftwarequality.techtarget.com/sDefinition/0,,sid92_gci930057,00.html
http://en.wikipedia.org/wiki/Capability_Maturity_Model

QUESTION 394
Which of the following is a not a preventative control?

A. Deny programmer access to production data.
B. Require change requests to include information about dates, descriptions, cost analysis and anticipated effects.
C. Run a source comparison program between control and current source periodically.
D. Establish procedures for emergency changes.

Correct Answer: C
Explanation:
Running the source comparison program between control and current source periodically allows detection, not prevention, of unauthorized changes in the production environment. Other options are preventive controls.
Source: Information Systems Audit and Control Association, Certified Information Systems Auditor 2002 review manual, chapter 6: Business Application System Development, Acquisition,