HEEE Question on Fundamentals of Database system, Advanced database system and Software Engineering.

1. As an engineering product, a software can be developed for different scenarios except for
   1. A pre-specified set of procedural steps
   2. Operations in real time
   3. Expert system
   4. Routine operations

ANSWER: C

1. The critical stage of the software process as errors at that stage prolong to later cycle in the system development
   1. Structural design
   2. Project System proposal
   3. System project management
   4. System requirement specification

ANSWER: D

1. Suppose you want to develop embedded system software with probably fixed services, which software process model would be more suitable?
   1. Prototyping model
   2. Reuse oriented model
   3. Waterfall model
   4. Incremental model

ANSWER: C

1. Which of the following does not characterize prototyping process model?
   1. Confuses the customer with series of products having compromised functionalities
   2. Facilitates early involvement of user in the system process
   3. Provides better requirement capturing facility through demonstration
   4. Starts from coding/implementation stage.

ANSWER: D

1. Requirement elicitation step does not involve\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   1. Specifying system scope
   2. Detail technical representation tools
   3. Feasibility study
   4. Gathering system requirements from users

ANSWER: B

1. In UML the design process starts from
   1. State chart
   2. Use case
   3. Class diagram
   4. component diagram

ANSWER: B

1. Classes in different system components can relay message to each other through
   1. Dependency line
   2. Functions
   3. Interfaces
   4. Aggregation

ANSWER: C

1. \_\_\_\_\_\_\_\_\_\_\_\_\_The UML diagram to represent the object interaction
   1. State chart
   2. Use case
   3. Sequence diagram
   4. Class diagram

ANSWER: C

1. Which one of the following cab be used to design database schema/persistent model
   1. Class diagram
   2. Component diagram
   3. Deployment diagram
   4. State chart diagram

ANSWER: A

1. What feature of the object oriented design support evolution
   1. Aggregation relationship
   2. Independent attribute and service modification
   3. Collaboration specification
   4. Interface definition

ANSWER: B

1. The issues in coding/ implementation may not include
   1. Reusing components from open resources
   2. Configuring sub-system components
   3. Targeting host environment
   4. Documenting design model.

ANSWER: D

1. Suppose a given software product is going to be scaled up by adding new functionality and component, which testing option would you use?
   1. White box testing
   2. Beta testing
   3. Regression testing
   4. Black box testing

ANSWER: C

1. In system modeling, which model depicts a system’s static nature?
2. Data Model
3. Structural Model
4. Context Model
5. Behavioral Model

ANSWER: B

1. Assume a system having component used to generate and display some reports form database, for such scenario which testing approach is more suitable?
   1. Alpha testing
   2. Integration testing
   3. Unit testing
   4. Usability testing

ANSWER: B

1. Which of the following is not that important in process model selection?
2. Development teams experiences
3. Nature of requirements
4. Customer./user experiences
5. Project types and the associated risks

ANSWER: C

1. Given HRM system with a functional requirement such as ”*Tax calculation*”, for such scenario which testing approach is more suitable?
   1. White box testing
   2. System testing
   3. Acceptance testing
   4. Black box testing

ANSWER: A

1. In information system, which of the following is true about a database?
   1. It can be accessed by authorized users
   2. It is not that feasible for small scale organizations
   3. DBMS is used to facilitate naïve users interaction
   4. Accessing is facilitated through application software

ANSWER: C

1. In the three-level ANSI architecture, what is the major focus at conceptual level?
   1. User interaction
   2. Data relationship
   3. Storage structure
   4. Data dependency

ANSWER: C

1. \_\_\_\_\_\_\_\_\_\_\_\_is a descriptive property an entity which can be calculated from other attribute.
   1. Multi-value attribute
   2. Derived attribute
   3. Composite attribute
   4. Simple attribute

ANSWER: B

1. The three-level ANSI architecture supports the modification internal level without affecting the upper levels. This feature is specified as\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   1. Immunity of different users
   2. Physical data independency
   3. Logical data independency
   4. Domain integrity

ANSWER: B

1. Which one of the following is incorrect about the data in file based data management?
   1. It dependent on specific application program format
   2. It is less feasible for small sized system as compared to a database system
   3. It is decentralized and causes redundancy
   4. It is subjected to insertion and update anomalies

ANSWER: B

1. The concept of data model does not describe
   1. Data independency
   2. Data relationship
   3. Data Semantics
   4. Data Constraints

ANSWER: A

1. In a given company HRM system, if there is a requirement of age value to be20 -7 0 years, how would you define it in relational data model?
   1. Using referential integrity
   2. Using domain integrity constraint
   3. Using consistency integrity
   4. Using key constraint

ANSWER: B

1. Which one of the following is not the purpose of views in SQL?
   1. Used to provide customized view of data
   2. Used to replace a named/physical relation
   3. Used to provide access flexibility to database
   4. Used to apply security/hide database structure

ANSWER: B

1. Which of the following relational algebra operation necessarily require two relations\_\_\_\_\_\_\_\_\_\_\_\_.
   1. ***Π***
   2. ***Ρ***
   3. n
   4. ***σ***

ANSWER: C

1. The component of an E - R diagram that provide piece of information on user environment to be stored in a database is\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

A. Attribute

B. Entity

C. Role name

D. Symbol name

ANSWER: A

1. The process to properly define the database tables to avoid functional dependency on non-primary key attribute is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

A. Concurrency

B. Normalization

C. Abstraction

D. Integrity

ANSWER: B

1. Given relations R, S&T, which of the following operation is invalid?
   1. R U (S U T) = (R U S) U T
   2. R n S = S n R
   3. (R n S) n T = R n (S n T)
   4. R – S =S – R

ANSWER: D

1. \_\_\_\_\_\_\_\_\_\_\_\_\_used to rollback transactions into certain points while we have large number of operations in a given transaction instead of going back to where the transaction starts.
2. Begin
3. Rollback
4. Save point
5. End

ANSWER: C

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_is a type of distributed database where the hardware, operating systems or database applications may be similar at each location.
2. Homogenous distributed database
3. Relational Database Management
4. Heterogeneous distributed database
5. Object Oriented Database Management

ANSWER: A

1. The SQL statements that are automatically executed to trace certain events like update delete or executed when there is any change in the database.
2. Procedure
3. Transaction
4. Trigger
5. View

ANSWER: C

1. In a distributed database reduction of redundancy is obtained by ——————
2. Data fragmentation
3. Data Sharing
4. Data Replication
5. Minimized transaction

ANSWER: A

1. How do you use a grant command to provide privileges on SQL authorization mechanism?
2. On the entire Database
3. On a specific relation
4. On a specific tuple
5. On a specific column

ANSWER: B

1. Which one of the following is different from the other
2. CREATE
3. UPDATE
4. ALTER
5. DROP

ANSWER: B

1. To grant collective access right for large group of users in a given database, which security approach would you use?
2. Grant
3. Roles
4. Revoke
5. Trigger

ANSWER: B

1. When an unauthorized user accesses a password of other authorized users, what security failure would be this?
   1. Integrity
   2. Availability
   3. Confidentiality
   4. Consistency

ANSWER: C

1. SQL command that is used to remove physical table from a given database

A. DELETE

B. REMOVE

C. DROP

D. ALTER

ANSWER: C

1. Which of the following descriptions about relational data model is incorrect?

A. Tuples can appear in any order for the same relation

B. The database is perceived by the user as tables with logical structure of the database

C. Each cell of the relation contains exactly one and unique value.

D. There will be no duplicate tuples under relational database

ANSWER: C

1. SQL command key word that is used to rename a column of a table

A. ALTER

B. MODIFY

C. CHANGE

D. CREATE

ANSWER: A

1. Assume there is a user account table with 1000 users given similar role, if you are a database administrator and want to destroy the given role of the whole users, which security measure would be better to apply.
   1. Deleting the user account table
   2. Using the Revoke command
   3. Freezing the user interface for these users
   4. Locking all transactions

ANSWER: C

1. Tuples in a relational database would be mapped to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ object oriented database
   1. Method
   2. Object
   3. State
   4. Inheritance

ANSWER: B

1. In a DBMS environment, the group of users who do not have a direct interface with the database on the DBMS are\_\_\_\_\_\_\_\_\_\_
   1. interface designer
   2. application manager
   3. Naïve user
   4. Backup controller

ANSWER: C

1. Assume there is a user account table with 1000 users given similar role, if you are a database administrator and want to destroy the given role of five users only, which security measure would be better to apply.
   1. Using the Grant command for 995 users only
   2. Using the Revoke command for the five users
   3. Deactivating the tuple of those five users on the user account table
   4. Locking specific transactions for those users

ANSWER: C

1. Considering the following query commands to be executed in ‘ABC’ database, what would be the output?

***create table stdinfo(id int, Fname varchar(20),Lname varchar(20),primary key(id) );***

***insert into stdinfo values ('12','Alice','BOB');***

* 1. Table will be created and one raw affected
  2. Table will not be created
  3. Table will be created and no raw affected
  4. In correct syntax

ANSWER : A

1. Considering the following query commands to executed in ‘ABC’ database, what would be the output

***create table stdinfo(id int, Fname varchar(20),Lname varchar(20),primary key(id) );***

***insert into stdinfo values ('1s','Alice','Bob');***

* 1. Table will be created and one raw affected
  2. Table will not be created
  3. Table will be created and no raw affected
  4. In correct syntax

ANSWER: C

1. Suppose the user interface for group of users to a given database is not functioning properly, which security issue would be affected in this case?
   1. Integrity
   2. Consistency
   3. Availability
   4. Secrecy

ANSWER: C

1. Changes occurring in a particular transaction will be hidden to any other transaction until it has been committed. This property is named\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   1. Integrity
   2. Consistency
   3. Atomicity
   4. Isolation

ANSWER: D

1. In database system, which of the following changes less frequently
   1. Database state
   2. Database instance
   3. Relation schema
   4. View schema

ANSWER: C

1. Which of the following concept is not part of ANSI?
   1. Specifying multiple immune views
   2. Facilitating data independency
   3. Mapping between levels
   4. Specifying number of users in each view

ANSWER: D

1. After a given transaction completes successfully, the changes it has made to the database persist (permanent), even if there are system failures.
   1. Consistency
   2. Durability
   3. Maintainability
   4. Atomicity

ANSWER: B

1. Select the correct statement about activity diagrams.  
   A. Do not tell who does what and are difficult to trace back to object models.  
   B. Used to depict workflow for a particular business activity  
   C. Used to discover parallel activities  
   D. Used to specify the interaction of a single object
2. What is a collection of operations that specify a service of class or component?  
   A. Interface  
   B. Relationship  
   C. Actor  
   D. Use Case
3. Which one of the following is **not** suitable for accommodating any change?  
   A. RAD Model  
   B. Waterfall Model  
   C. Build & Fix Model  
   D. Prototyping Model
4. Agile Software Development is based on:  
   A. Linear Development  
   B. Incremental Development  
   C. Iterative prototyping Development  
   D. Incremental prototyping
5. What is the major drawback of the Spiral Model?  
   A. Higher amount of risk analysis  
   B. Doesn't work well for smaller projects  
   C. Additional functionalities are added later on  
   D. Strong approval and documentation control
6. Which one of the following is not correct about the data in a database system?  
   A. It is designed to meet the information needs of specific client  
   B. It is dependent on a user interface application program format  
   C. It is a centrally managed resource  
   D. It is sharable resource among different users
7. In the three-level ANSI architecture, what is the major focus at the external level?  
   A. Specifying data relationship  
   B. Specifying a user interaction  
   C. Specifying storage structure  
   D. Specifying data dependency
8. A descriptive property of an entity which can be calculated from other attribute is:  
   A. Virtual attribute  
   B. Time varying attribute  
   C. Derived attribute  
   D. Simple attribute
9. In a given bank, if there is a requirement of a customer’s minimum balance amount to be  
   50$, how can you define it in relational data model?  
   A. Specifying as a referential integrity constraint  
   B. Specifying as a default valued attribute  
   C. Specifying as an enterprise level integrity constraint  
   D. Specifying as a unary relationship
10. Which one of the following is used to provide the description/catalog of data in a database system?  
    A. Schema  
    B. Metadata  
    C. Information  
    D. Instances
11. Which one of the following doesn’t allow functional dependency of an attribute on non- primary key?  
    A. First normal form  
    B. Second normal form  
    C. Third normal form  
    D. BCNF normal form
12. Assume transaction A holds a shared lock R. If transaction B also requests for a shared lock on R, then it will\_\_\_\_\_\_\_\_\_\_  
    A. result in a deadlock situation  
    B. immediately be granted.  
    C. immediately be rejecting  
    D. None of the above
13. In a database transaction, the procedure which enforces a given transaction to either be  
    committed or aborted is known as \_\_\_\_\_\_\_\_\_\_\_\_.  
    A. Integrity  
    B. Consistency  
    C. Atomicity  
    D. Independency
14. Which of the following is generally used for performing tasks like creating the structure of the relations, deleting relation?  
    A. DML(Data Manipulation Language)  
    B. DCL Data control Language  
    C. TCL Transaction control Language  
    D. DDL(Data Definition Language)
15. A relational algebra used to specify a subset of attributes from a relation is:  
    A. Set difference(-)  
    B. Select(σ)  
    C. Projection(π)  
    D. Natural Join (⋈)
16. Which one of the following is different from the other?  
    A. CREATE  
    B. UPDATE  
    C. ALTER  
    D. DROP
17. What is Software?
    1. Software is documentation and configuration of data
    2. Software is a set of programs, documentation & configuration of data
    3. Software is a set of programs
    4. Software is asset of data structure having manual and procedure
18. Which of the items listed below is not one of the software engineering layers?
19. Process
20. Manufacturing
21. Methods
22. Tools
23. Which of the following is not necessary to apply agility to the software process?
24. Eliminate the use of project planning and testing
25. Only essential work products are produced
26. Process allows team to streamline tasks
27. Uses incremental product delivery strategy
28. Which of the following a UML diagram used creating a system analysis model?
29. Activity diagram
30. Class diagram
31. Data flow diagram
32. State chart diagram
33. Which one of the following is true about the entity relationship diagram?
34. Depicts relationships between data objects
35. Depicts functions that transfer the data flow
36. Indicates how data are transformed by the system
37. Indicates system reactions to external events
38. Class responsibilities are defined by\_\_\_\_\_\_\_\_\_.
39. its attributes only
40. its collaborators only
41. its operations only
42. both its attributes and operations
43. Software feasibility is based on which one of the following?
    1. Business and marketing concerns
    2. Scope, constraints, and market
    3. Technology, time, finance, resources
    4. Financial ability of the developers

1. Consider “a system where, a heat sensor detects an intrusion and alerts the security company.” What kind of a requirement the system is providing?
2. Non- Functional
3. Functional
4. Exiting requirement
5. Requirement validation
6. Which of the following is not included in architectural design decisions?
7. Distribution of the system
8. Type of application
9. Architectural style
10. Testing the system
11. Software testing with real data in real environment is known as
12. Beta testing
13. Regression testing
14. Alpha testing
15. Black testing
16. Acceptance testing is also known as
17. White box testing
18. Alpha testing
19. Grey box testing
20. Beta testing
21. Which of the following system modeling depicts the static nature of the system?
22. Behavioral model
23. Context model
24. Structural model
25. Data model
26. Which of the following is included in SRS?
27. Delivery schedule
28. Cost
29. Staffing
30. Design constraint
31. Which of the following describes “Is-a-Relationship”?
32. Dependency
33. Aggregation
34. Inheritance
35. Encapsulation
36. Which one of the following is not the purpose of stored procedure in SQL?
37. Used to provide customized manipulation of data
38. Used to replace a named/physical relation
39. Used to provide access flexibility to database
40. Used to apply security/hide database structure

ANSWER :B

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_is the set of allowable values for attributes.
   1. Schema
   2. Domain
   3. integrity
   4. Cardinality

ANSWER :B

1. The select, project and rename operation are\_\_\_\_\_\_\_\_\_\_\_\_.
   1. Unary Operation
   2. Binary operation
   3. N-nary operator
   4. Ternary operator

ANSWER :A

1. While considering a file based approach and database approach which one of the following is an advantage of file based approach over database approach?
2. controlled redundancy of data
3. suitable for small scaled data
4. compatible file format
5. suitable for large scaled data

ANSWER:B

1. The number of entity types participating in a relationship is referred to as
2. Role of relationship
3. Cardinality of relationship
4. Degree of relationship
5. Attribute of relationship

ANSWER :B

1. Which of the following may not be used to enhance database security?
   1. Implementing views
   2. Implementing triggers
   3. Implementing query optimization
   4. Implementing stored procedures

ANSWER :C

1. The component of an E - R diagram that defines user environment about which you store data is\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
   * 1. Attribute name
     2. Entity name
     3. Role name
     4. Symbol name

ANSWER :B

1. The actual data in a database may change quite frequently. For example a data in a student database, we add student or enter a new grade for a student. The data in the database at a particular moment in time is called
2. Database state
3. Database schema
4. Database record
5. Database point

ANSWER:A

1. A functional dependency between two (or more) non key attributes in a relation defines a\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. Weak dependency
3. Partial dependency
4. Simple dependency
5. Transitive dependency

ANSWER:D

1. The process to properly define the database tables to provide flexibility, minimize redundancy to ensure data integrity is called\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. Concurrency
3. Normalization
4. Abstraction
5. Integrity

ANSWER:B