CS8494 SOFTWARE ENGINEERING

Common for CSE(4th Sem) & IT(5th Sem)

Regulations 2017

UNIT I SOFTWARE PROCESS AND AGILE DEVELOPMENT

TOPIC 1.1 INTRODUCTION TO SOFTWARE ENGINEERING, SOFTWARE PROCESS

1. Choose the correct option in terms of Issues related to professional responsibility
a) Confidentiality
b) Intellectual property rights
c) Both Confidentiality & Intellectual property rights
d) Managing Client Relationships

Answer: c
Explanation: Engineers should normally respect the confidentiality of their employers or clients irrespective of whether or not a formal confidentiality agreement has been signed.
They should be aware of local laws governing the use of intellectual property such as patents, copyright, etc.

2. "Software engineers should not use their technical skills to *misuse* other people's computers."Here the term *misuse* refers to:
a) Unauthorized access to computer material
b) Unauthorized modification of computer material
c) Dissemination of viruses or other malware
d) All of the mentioned

Answer: d
Explanation: None.

3. Explain what is meant by *PRODUCT* with reference to one of the eight principles as per the ACM/IEEE Code of Ethics ?
a) The product should be easy to use
b) Software engineers shall ensure that their products and related modifications meet the highest professional standards possible
c) Software engineers shall ensure that their products and related modifications satisfy the client
d) It means that the product designed /created should be easily available

Answer: b
Explanation: None.

4. Identify an ethical dilemma from the situations mentioned below:
a) Your employer releases a safety-critical system without finishing the testing of the system
b) Refusing to undertake a project
c) Agreement in principle with the policies of senior management
d) All of the mentioned

Answer: a
Explanation: None.

5. Identify the correct statement: "Software engineers shall
a) act in a manner that is in the best interests of his expertise and favour."
b) act consistently with the public interest."
c) ensure that their products only meet the

SRS."
d) all of the mentioned

Answer: b
Explanation: Software engineers shall act in a manner that is in the best interests of their client and employer consistent with the public interest and shall ensure that their products and related modifications meet the highest professional standards possible.Thus options a & c are ruled out.

6. Select the incorrect statement: "Software engineers should
a) not knowingly accept work that is outside your competence."
b) not use your technical skills to misuse other people's computers."
c) be dependent on their colleagues."
d) maintain integrity and independence in their professional judgment."

Answer: c
Explanation:None.

7. Efficiency in a software product does not include _____
a) responsiveness
b) licensing
c) memory utilization
d) processing time

Answer: b
Explanation: Licensing of a software product comes under corporate part of the software company.

8. As per an IBM report, "31%of the project get cancelled before they are completed, 53% overrun their cost estimates by an average of 189% and for every 100 projects, there are 94 restarts".What is the reason for these statistics ?
a) Lack of adequate training in software engineering
b) Lack of software ethics and understanding
c) Management issues in the company
d) All of the mentioned

Answer: a
Explanation: Option b & c are a part of Software Engineering as a subject,hence option a covers them both.

9. The reason for software bugs and failures is due to
a) Software companies
b) Software Developers
c) Both Software companies and Developers
d) All of the mentioned

Answer: c
Explanation: Software companies are responsible for making policies and providing working atmosphere for the software development, so in turn these companies become a part of software development process.Bugs from developers side is no new thing. Thus option c answers the question.

10. Company has latest computers and state-of the- art software tools, so we shouldn't worry about the quality of the product.
a) True
b) False

Answer: b
Explanation: The infrastructure is only one of the several factors that determine the quality of the product.

TOPIC 1.2 PERSPECTIVE AND SPECIALIZED PROCESS MODELS

1. Build & Fix Model is suitable for programming exercises of _____ LOC (Line of Code).
a) 100-200
b) 200-400
c) 400-1000
d) above 1000

Answer: a
Explanation: Build & Fix Model is suitable

for small projects & programming exercises of 100 or 200 lines.

2. RAD stands for
a) Relative Application Development
b) Rapid Application Development
c) Rapid Application Document
d) None of the mentioned

Answer: b
Explanation: None.

3. Which one of the following models is not suitable for accommodating any change?
a) Build & Fix Model
b) Prototyping Model
c) RAD Model
d) Waterfall Model

Answer: d
Explanation: Real projects rarely follow the sequential flow that the Waterfall Model proposes.

4. Which is not one of the types of prototype of Prototyping Model?
a) Horizontal Prototype
b) Vertical Prototype
c) Diagonal Prototype
d) Domain Prototype

Answer: c
Explanation: Their is no such thing as Diagonal Prototype whereas other options have their respective definitions.

5. Which one of the following is not a phase of Prototyping Model?
a) Quick Design
b) Coding
c) Prototype Refinement
d) Engineer Product

Answer: b
Explanation: A prototyping model generates only a working model of a system.

6. Which of the following statements regarding Build & Fix Model is wrong?
a) No room for structured design
b) Code soon becomes unfixable & unchangeable
c) Maintenance is practically not possible
d) It scales up well to large projects

Answer: d
Explanation: Build & Fix Model is suitable for 100-200 LOC

7. RAD Model has
a) 2 phases
b) 3 phase
c) 5 phases
d) 6 phases

Answer: c
Explanation: RAD Model consists of five phases namely:Business modeling,Data modeling,Process modeling,Application generation and Testing & Turnover.

8. What is the major drawback of using RAD Model?
a) Highly specialized & skilled developers/designers are required
b) Increases reusability of components
c) Encourages customer/client feedback
d) Increases reusability of components, Highly specialized & skilled developers/designers are required

Answer: d
Explanation: The client may create an unrealistic product vision leading a team to over or under-develop functionality.Also, the specialized & skilled developers are not easily available.

9. SDLC stands for
a) Software Development Life Cycle
b) System Development Life cycle
c) Software Design Life Cycle
d) System Design Life Cycle

Answer: a
Explanation: None.

10. Which model can be selected if user is involved in all the phases of SDLC?
a) Waterfall Model
b) Prototyping Model
c) RAD Model
d) both Prototyping Model & RAD Model

Answer: c
Explanation: None.

TOPIC 1.3 INTRODUCTION TO AGILITY-AGILE PROCESS

1. Select the option that suits the Manifesto for Agile Software Development
a) Individuals and interactions
b) Working software
c) Customer collaboration
d) All of the mentioned

Answer:d
Explanation: None.

2. Agile Software Development is based on
a) Incremental Development
b) Iterative Development
c) Linear Development
d) Both Incremental and Iterative Development

Answer:d
Explanation: The software is developed in increments with the customer specifying the requirements to be included in each increment and the highest priority is to satisfy the customer through early and continuous delivery of valuable software. They are iterative because they work on one iteration followed by improvements in next iteration

3. Which on of the following is not an agile method?
a) XP
b) 4GT
c) AUP
d) All of the mentioned

Answer:b
Explanation: The 4GT approach does not incorporate iteration and the continuous feedback,which is the fundamental aspect of an agile method.

4. Agility is defined as the ability of a project team to respond rapidly to a change.
a) True
b) False

Answer:b
Explanation: The aim of agile methods is to reduce overheads in the software process and to be able to respond quickly to changing requirements without excessive rework.

5. How is plan driven development different from agile development ?
a) Outputs are decided through a process of negotiation during the software development process
b) Specification, design, implementation and testing are interleaved
c) Iteration occurs within activities
d) All of the mentioned

Answer:c
Explanation: A plan-driven approach to software engineering is based around separate development stages with the outputs to be produced at each of these stages planned in advance.

6. How many phases are there in Scrum ?
a) Two
b) Three
c) Four
d) Scrum is an agile method which means it does not have phases

Answer:b
Explanation: There are three phases in Scrum.The initial phase is an outline planning phase followed by a series of sprint cycles and project closure phase.

7. Agile methods seem to work best when team members have a relatively high skill level.
a) True
b) False

Answer:a
Explanation: None.

8. Which of the following does not apply to agility to a software process?
a) Uses incremental product delivery strategy
b) Only essential work products are produced
c) Eliminate the use of project planning and testing
d) All of the mentioned

Answer:c
Explanation: Testing is a major part of each software development process which can't be avoided.

9. Which three framework activities are present in Adaptive Software Development(ASD) ?
a) analysis, design, coding
b) requirements gathering, adaptive cycle planning, iterative development
c) speculation, collaboration, learning
d) all of the mentioned

Answer:c
Explanation: None.

10. In agile development it is more important to build software that meets the customers' needs today than worry about features that might be needed in the future.
a) True
b) False

Answer:a
Explanation: None.

TOPIC 1.4 EXTREME PROGRAMMING-XP PROCESS

1. Incremental development in Extreme Programming (XP) is supported through a system release once every month.
a) True
b) False

Answer: b
Explanation: Incremental development is supported through small, frequent system releases.

2. In XP, as soon as the work on a task is complete, it is integrated into the whole system.
a) True
b) False

Answer: a
Explanation: XP follows a continuous integration approach.After any such integration, all the unit tests in the system must pass.

3. In XP Increments are delivered to customers every _____ weeks.
a) One
b) Two
c) Three
d) Four

Answer: b
Explanation: Extreme Programming (XP) takes an 'extreme' approach to iterative development.New versions may be built several times per day, hence delivering the increment for approval every 2nd week after testing the new version.

4. User requirements are expressed as _____ in Extreme Programming.
a) implementation tasks
b) functionalities
c) scenarios
d) none of the mentioned

Answer: c
Explanation: User requirements are expressed as scenarios or user stories.These

are written on cards and the development team break them down into implementation tasks. These tasks are the basis of schedule and cost estimates.

5. Is a customer involved test development and validation in XP ?
a) Yes
b) No
c) It may vary from Customer to Customer
d) None of the mentioned

Answer: c
Explanation: The role of the customer in the testing process is to help develop acceptance tests for the stories that are to be implemented in the next release of the system.However, people adopting the customer role have limited time available and so cannot work full-time with the development team. They may feel that providing the requirements was enough of a contribution and so may be reluctant to get involved in the testing process.

6. Programmers prefer programming to testing and sometimes they take shortcuts when writing tests. For example, they may write incomplete tests that do not check for all possible exceptions that may occur.
a) True
b) False

Answer: a
Explanation: In XP Some tests can be very difficult to write incrementally.For example, in a complex user interface, it is often difficult to write unit tests for the code that implements the 'display logic' and workflow between screens.

7. Tests are automated in Extreme Programming.
a) True
b) False

Answer: a
Explanation: Automated test harnesses are used to run all component tests each time that a new release is built.

8. In XP an automated unit test framework is used to write tests for a new piece of functionality before that functionality itself is implemented.
a) True
b) False

Answer: a
Explanation: XP follows Test-first development approach.

9. Developers work individually on a release and they compare their results with other developers before forwarding that release to customers.
a) True
b) False

Answer: b
Explanation: XP follows the principle of pair programming which means developers work in pairs, checking each other's work and providing the support to always do a good job.

10. Which four framework activities are found in the Extreme Programming(XP) ?
a) analysis, design, coding, testing
b) planning, analysis, design, coding
c) planning, design, coding, testing
d) planning, analysis, coding, testing

Answer: c
Explanation: XP involves the mentioned four activities, and in the same in order.

UNIT II REQUIREMENTS ANALYSIS AND SPECIFICATION

TOPIC 2.1 SOFTWARE REQUIREMENTS: FUNCTIONAL AND NON-FUNCTIONAL, USER REQUIREMENTS, SYSTEM REQUIREMENTS, SOFTWARE REQUIREMENTS DOCUMENT

1. Which one of the following is a functional requirement ?
a) Maintainability
b) Portability
c) Robustness
d) None of the mentioned

Answer: d
Explanation: All are non-functional requirements representing quality of the system. Functional requirements describe what the software has to do.

2. Which one of the following is a requirement that fits in a developer's module ?
a) Availability
b) Testability
c) Usability
d) Flexibility

Answer: b
Explanation: A developer needs to test his product before launching it into the market.

3. "Consider a system where, a heat sensor detects an intrusion and alerts the security company." What kind of a requirement the system is providing ?
a) Functional
b) Non-Functional
c) Known Requirement
d) None of the mentioned

Answer: a
Explanation: Functional requirements describe what the software has to do.

4. Which of the following statements explains portability in non-functional requirements?
a) It is a degree to which software running on one platform can easily be converted to run on another platform
b) It cannot be enhanced by using languages, OS' and tools that are universally available and standardized
c) The ability of the system to behave consistently in a user-acceptable manner when operating within the environment for which the system was intended
d) None of the mentioned

Answer: a
Explanation: Option c is termed as reliability and option e refers to efficiency.

5. Functional requirements capture the intended behavior of the system.
a) True
b) False

Answer: a
Explanation: The behavior of functional requirements may be expressed as services, tasks or functions the system is required to perform.

6. Choose the incorrect statement with respect to Non-Functional Requirement(NFR).
a) Product-oriented Approach – Focus on system (or software) quality
b) Process-oriented Approach – Focus on how NFRs can be used in the design process
c) Quantitative Approach – Find measurable scales for the functionality attributes
d) Qualitative Approach – Study various relationships between quality goals

Answer: c
Explanation: Quantitative Approaches in NFRs are used to find measurable scales for the quality attributes like efficiency, flexibility, integrity, usability etc.

7. How many classification schemes have been developed for NFRs ?

a) Two
b) Three
c) Four
d) Five

Answer: d
Explanation: Software Quality Tree [Boehm 1976], Roman [IEEE Computer 1985], Process-Product-External considerations [Sommerville 1992], Mc Call's NFR list and Dimensions of Quality–Components of FURPS+ are the five classification schemes for NFRs.
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8. According to components of FURPS+, which of the following does not belong to S ?
a) Testability
b) Speed Efficiency
c) Serviceability
d) Installability

Answer: b
Explanation: Speed Efficiency belong to Performance (P) in FURPS+ .

9. Does software wear & tear by decomposition ?
a) Yes
b) No

Answer: b
Explanation: Unlike hardware, software is reliable.

10. What are the four dimensions of Dependability ?
a) Usability, Reliability, Security, Flexibility
b) Availability, Reliability, Maintainability, Security
c) Availability, Reliability, Security, Safety
d) Security, Safety, Testability, Usability

Answer: c
Explanation: All the traits of option c sync with dependability.

11. Choose the correct statement on how NFRs integrates with Rational Unified Process ?
a) System responds within 4 seconds on average to local user requests and changes in the environment
b) System responds within 4 seconds on average to remote user requests and changes in the environment
c) All of the mentioned
d) None of the mentioned

Answer: b
Explanation: System response to a local user is 2 seconds on average.

TOPIC 2.2 REQUIREMENT ENGINEERING PROCESS: FEASIBILITY STUDIES,

1. Which of the following is not a diagram studied in Requirement Analysis ?
a) Use Cases
b) Entity Relationship Diagram
c) State Transition Diagram
d) Activity Diagram

Answer: d
Explanation: Activity Diagram comes under the design phase of SDLC.

2. How many feasibility studies is conducted in Requirement Analysis ?
a) Two
b) Three
c) Four
d) None of the mentioned

Answer: b
Explanation: Economic feasibility (cost/benefit analysis), Technical feasibility (hardware/software/people, etc.) and Legal feasibility studies are done in Requirement Analysis.

3. How many phases are there in Requirement Analysis ?

a) Three
b) Four
c) Five
d) Six

Answer: c
Explanation: Problem Recognition, Evaluation and Synthesis (focus is on what not how), Modeling, Specification and Review are the five phases.

4. Traceability is not considered in Requirement Analysis.
a) True
b) False

Answer: b
Explanation: Requirements traceability is concerned with documenting the life of a requirement and providing bi-directional traceability between various associated requirements, hence requirements must be traceable.

5. Requirements analysis is critical to the success of a development project.
a) True
b) False
c) Depends upon the size of project
d) None of the mentioned

Answer: a
Explanation: Requirements must be actionable, measurable, testable, related to identified business needs or opportunities, and defined to a level of detail sufficient for system design.

6. _____ and _____ are the two issues of Requirement Analysis.
a) Performance, Design
b) Stakeholder, Developer
c) Functional, Non-Functional
d) None of the mentioned

Answer: b
Explanation: Option a and c are the types of requirements and not the issues of requirement analysis..

7. The requirements that result from requirements analysis are typically expressed from one of three perspectives or views.WhaT is that perspective or view ?
a) Developer
b) User
c) Non-Functional
d) Physical

Answer: d
Explanation: The perspectives or views have been described as the Operational, Functional, and Physical views.All three are necessary and must be coordinated to fully understand the customers' needs and objectives.

8. Requirements Analysis is an Iterative Process.
a) True
b) False

Answer: a
Explanation: Requirements analysis is conducted iteratively with functional analysis to optimize performance requirements for identified functions, and to verify that synthesized solutions can satisfy customer requirements.

9. Coad and Yourdon suggested _____ selection characteristics that should be used as an analyst considers each potential object for inclusion in the requirement analysis model.
a) Three
b) Four
c) Five
d) Six

Answer: d
Explanation: Retained information, Needed services, Multiple attributes, Common attributes, Common operations and Essential

requirements are the six criterion mentioned by Coad and Yourdon.

10. Requirements should specify 'what' but not 'how'.
a) True
b) False

Answer: a
Explanation: 'What' refers to a system's purpose, while 'How' refers to a system's structure and behavior.

TOPIC 2.3 REQUIREMENTS ELICITATION AND ANALYSIS, REQUIREMENTS VALIDATION, REQUIREMENTS MANAGEMENT

1. What are the types of requirements ?
a) Availability
b) Reliability
c) Usability
d) All of the mentioned

Answer: d
Explanation: All the mentioned traits are beneficial for an effective product to be developed.

2. Select the developer-specific requirement ?
a) Portability
b) Maintainability
c) Availability
d) Both Portability and Maintainability

Answer: d
Explanation: Availability is user specific requirement.

3. Which one of the following is not a step of requirement engineering?
a) elicitation
b) design
c) analysis
d) documentation

Answer: b
Explanation: Requirement Elicitation, Requirement Analysis, Requirement Documentation and Requirement Review are the four crucial process steps of requirement engineering.Design is in itself a different phase of Software Engineering.

4. FAST stands for
a) Functional Application Specification Technique
b) Fast Application Specification Technique
c) Facilitated Application Specification Technique
d) None of the mentioned

Answer: c
Explanation: None.

5. QFD stands for
a) quality function design
b) quality function development
c) quality function deployment
d) none of the mentioned

Answer: c
Explanation: None.

6. A Use-case actor is always a person having a role that different people may play.
a) True
b) False

Answer: b
Explanation: Use-case Actor is anything that needs to interact with the system, be it a person or another (external) system.

7. The user system requirements are the parts of which document ?
a) SDD
b) SRS
c) DDD
d) SRD

Answer: b
Explanation: Software requirements specification (SRS), is a complete description

of the behaviour of a system to be developed and may include a set of use cases that describe interactions the users will have with the software.

8. A stakeholder is anyone who will purchase the completed software system under development.
a) True
b) False

Answer: b
Explanation: Stakeholders are anyone who has an interest in the project. Project stakeholders are individuals and organizations that are actively involved in the project, or whose interests may be affected as a result of project execution or project completion.

9. Conflicting requirements are common in Requirement Engineering, with each client proposing his or her version is the right one.
a) True
b) False

Answer: a
Explanation: This situation is seen in every field of work as each professional has his/her way of looking onto things & would argue to get his/her point approved.

10. Which is one of the most important stakeholder from the following ?
a) Entry level personnel
b) Middle level stakeholder
c) Managers
d) Users of the software

Answer: d
Explanation: Users are always the most important stakeholders.After all, without users or customers, what's the point of being in business?.

TOPIC 2.4 CLASSICAL ANALYSIS: STRUCTURED

SYSTEM ANALYSIS, PETRI NETS- DATA DICTIONARY

1. SA/SD features are obtained from which of the methodologies?
a) Constantine and Yourdon methodology
b) DeMarco and Yourdon methodology
c) Gane and Sarson methodology
d) All of the mentioned

Answer: d
Explanation: None.

2. Which of the following is not an activity of Structured Analysis (SA) ?
a) Functional decomposition
b) Transformation of a textual problem description into a graphic model
c) All the functions represented in the DFD are mapped to a module structure
d) All of the mentioned

Answer: c
Explanation: The module structure is the software architecture.

3. To arrive at a form which is suitable for implementation in some programming language is the purpose of
a) Structured Analysis (SA)
b) Structured Design (SD)
c) Detailed Design (DD)
d) None of the mentioned

Answer: b
Explanation: None.

4. The results of structured analysis can be easily understood by ordinary customers.
a) True
b) False

Answer: a
Explanation: The results of structured analysis directly represents customer's perception of the problem and uses customer's terminology for naming different functions and data.

5. Structured Analysis is based on the principle of Bottom-Up Approach.
a) True
b) False

Answer: b
Explanation: Structured Analysis follows uses decomposition approach.

6. The context diagram is also known as
a) Level-0 DFD
b) Level-1 DFD
c) Level-2 DFD
d) All of the mentioned

Answer: a
Explanation: Context diagram captures the various entities external to the system interacting with it and data flow occurring between the system and the external entities.

7. A directed arc or line in DFD represents
a) Data Store
b) Data Process
c) Data Flow
d) All of the mentioned

Answer: c
Explanation: It resembles data flow in the direction of the arrow.

8. A DFD is always accompanied by a data dictionary.
a) True
b) False

Answer: a
Explanation: A data dictionary lists all data items appearing in a DFD including definition and data names.

9. Which of the following is a function of CASE Tool?
a) Supporting Structured analysis and design (SA/SD)
b) Maintaining the data dictionary
c) Checking whether DFDs are balanced or not
d) All of the mentioned

Answer: a
Explanation: None.

10. Data Store Symbol in DFD represents a
a) Physical file
b) Data Structure
c) Logical file
d) All of the mentioned

Answer: d
Explanation: A logical file can be a data structure or a physical file on disk.

UNIT III SOFTWARE DESIGN

TOPIC 3.1 DESIGN PROCESS , DESIGN CONCEPTS-DESIGN MODEL, DESIGN HEURISTIC , ARCHITECTURAL DESIGN

1. Why does architectural design occurs during product design?
a) Stakeholders must convinced that their needs will be met, which may be difficult without demonstrating how the engineers plan to build the product
b) Product designers must judge the feasibility of their designs
c) Project planners must have some idea about what software must be built to create schedules and allocate resources
d) All of the mentioned

Answer: d
Explanation: All of the mentioned factors are reason for the occurrence of architectural design during product design.

2. What kind of investments does organization have in order to make most of by the software architects in their design?
a) Libraries
b) Standards and guidelines
c) Software tools
d) All of the mentioned

Answer: d
Explanation: Organizations investment such as libraries, standards and guidelines, software tools, and people with particular skills that software architects are expected to make the most of during its design.

3. Which of the following is true?
a) The input of architectural design process is SAD
b) The output of architectural design process is SRS
c) The input of architectural design process is SRS
d) None of the mentioned

Answer: c
Explanation: The input of architectural design process is SRS and its output is SAD.

4. Which of these steps are followed in architectural design process?
a) Analyze SRS
b) Evaluate Candidate Architectures
c) Select architecture and finalize architecture
d) All of the mentioned

Answer: d
Explanation: All of the mentioned steps are followed in architectural design process.

5. Which of these are the content for SAD?
a) Product Overview
b) Architectural Models
c) Architectural design rationale
d) All of the mentioned

Answer: d
Explanation: Contents of SRS includes product overview, architectural models, architectural design rationale, mapping between models.

6. Which of these are included in the product overview for SAD?
a) product vision, assumptions, constraints
b) product scope
c) target markets, business requirements
d) product vision, assumptions, constraints, target markets & business requirements

Answer: d
Explanation: Product overview includes product vision, assumptions, constraints, target markets and business requirements.

7. Which amount the following is correct?
a) Architectural models explains the main design decisions made in arriving the architecture
b) Architectural design rationale presents architecture, using variety of models to represent different aspects or views
c) Mapping between models says sometimes it is difficult to connect different architectural models
d) All of the mentioned

Answer: c
Explanation: The incorrect statements are architectural modes presents architecture, using variety of models to represent different aspects or views and Architectural design rationale explains the main design decisions made in arriving the architecture.

8. What are the categories in which quality attributes are divided in?
a) Development Attributes
b) Operational Attributes
c) Functional Attributes
d) Development & Operational Attributes

Answer: d
Explanation: Quality attributes are divided into two major categories development and operational attributes.

9. Which of these comes under development attribute?
a) Maintainability
b) Reusability
c) Performance
d) Maintainability & Reusability

Answer: d
Explanation: Maintainability, Reusability comes under Development attributes.

10. Which of these comes under operational attributes?
a) Performance
b) Availability
c) Reliability
d) All of the mentioned

Answer: d
Explanation: All of the mentioned comes under operational attributes.

TOPIC 3.2 ARCHITECTURAL STYLES, ARCHITECTURAL DESIGN, ARCHITECTURAL MAPPING USING DATA FLOW

1. What makes a good architecture?
a) The architecture may not be the product of a single architect or a small group
b) The architect should have the technical requirements for the system and an articulated and prioritized list of qualitative properties
c) The architecture may not be well documented
d) All of the mentioned

Answer: b
Explanation: The architecture should be the product of a single architect or a small group, The architecture should be well documented.

2. What does a typical top level architecture consists of?
a) Prop Loss Model(MOPD)
b) Reverb Model(MODR)
c) Control Process
d) All of the mentioned

Answer: d
Explanation: A typical top level architecture consists of all the mentioned components.

3. Which among the following are valid questions raised for the top level architectural model?
a) What is the nature of components?
b) What is the significance of the links?
c) What is the significance of the layout?
d) All of the mentioned

Answer: d
Explanation: All of the mentioned are the valid questions.

4. Which of the following are correct statements?
a) An architecture may or may not defines components
b) An architecture is not dependable on requirements
c) An architecture is foremost an abstraction of a system that suppresses details of the components that do not affect how they are used
d) All of the mentioned

Answer: c
Explanation: An architecture defines components, An architecture is dependable on requirements.

5. What does “Every software system has an architecture” implies?
a) System itself is a component
b) Architecture an exist independently of its description or specification
c) All the system to be stable should posses an architecture
d) None of the mentioned

Answer: c
Explanation: All the system to be stable should posses an architecture, a system

without architecture is unstable hence every software system has an architecture.

6. What is architectural style?
a) Architectural style is a description of component types
b) It is a pattern of run-time control
c) It is set of constraints on architecture
d) All of the mentioned

Answer: d
Explanation: An architectural style is a description of component types and pattern of run-time control, It is set of constraints on architecture.

7. What is a Reference Model?
a) It is a division of functionality together with data flow between the pieces
b) It is a description of component types
c) It is standard decomposition of a known problem into parts that cooperatively solve a problem
d) It is a division of functionality together with data flow between the pieces, It is standard decomposition of a known problem into parts that cooperatively solve a problem

Answer: d
Explanation: A reference model is division of functionality together with data flow between the pieces and standard decomposition of a known problem into parts that cooperatively solve a problem.

8. What is Reference architecture?
a) It is a reference model mapped onto software components
b) It provided data flow with comments
c) It provides data flow with pieces
d) It is a reference model mapped onto software components & data flow with comments

Answer: d
Explanation: Reference architecture is a reference model mapped onto software components and data flow with components.

9. Which of the following is incorrect for Reference model, architectural styles and reference architecture?
a) They are not architectures
b) They are useful steps towards an architecture
c) They are set of early design decisions
d) None of the mentioned

Answer: d
Explanation: All of the mentioned are correct.

10. Which of the following can be considered regarding client and server?
a) Client and server is an architectural style
b) Client and server may be considered as an architectural style
c) Client and server is not an architectural style
d) None of the mentioned

Answer: a
Explanation: Client and server is an architectural style.

11. Which of the statements truly concludes client and server relation with architectural styles?
a) They are component types and their coordination is described in terms of protocols that server uses to communicate with each of its clients
b) Multiple client cannot exist at an instance
c) Architecture are countless for client and server but their architectural styles are different
d) All of the mentioned

Answer: a
Explanation: Multiple client can exist at an instance and Architectural styles are countless for client and server but their architectures are different.

12. Which of the following is incorrect?
a) A reference model divides the functionality
b) A reference architecture is the mapping of

that functionality onto system decomposition
c) All of the mentioned
d) None of the mentioned

Answer: d
Explanation: All of the mentioned are correct.

13. What truly describes the reference architecture decomposition?
a) A reference architecture is the mapping of that functionality onto system decomposition may be one to one
b) A reference architecture is the mapping of that functionality onto system decomposition is many to one
c) A reference architecture is the mapping of that functionality onto system decomposition is many to many
d) None of the mentioned

Answer: a
Explanation: A reference architecture is the mapping of that functionality onto system decomposition may be one to one.

14. Which of the following is true?
a) Architecture is low level design
b) Architecture is mid level design
c) Architecture is high level design
d) None of the mentioned

Answer: c
Explanation: Architecture is high level design.

15. What is Architecture?
a) Architecture is components
b) Architecture is connectors
c) Architecture is constraints
d) All of the mentioned

Answer: d
Explanation: Architecture is components,connectors and constraints.

TOPIC 3.3 USER INTERFACE DESIGN: INTERFACE ANALYSIS, INTERFACE DESIGN

1. Which of the following is golden rule for interface design?
a) Place the user in control
b) Reduce the user's memory load
c) Make the interface consistent
d) All of the mentioned

Answer: d
Explanation: These golden rules actually form the basis for a set of user interface design principles that guide this important software design activity.

2. Which of the following is not a design principle that allow the user to maintain control?
a) Provide for flexible interaction
b) Allow user interaction to be interrupt-able and undo-able
c) Show technical internals from the casual user
d) Design for direct interaction with objects that appear on the screen

Answer: c
Explanation: The user interface should move the user into the virtual world of the application.

3. Which of the following is not a user interface design process?
a) User, task, and environment analysis and modeling
b) Interface design
c) Knowledgeable, frequent users
d) Interface validation

Answer: c
Explanation: These are the end user for whom the product is being built.

4. When users are involved in complex tasks, the demand on _____ can be significant.

a) short-term memory
b) shortcuts
c) objects that appear on the screen
d) all of the mentioned

Answer: a
Explanation: The interface should be designed to reduce the requirement to remember past actions and results.

5. Which of the following option is not considered by the Interface design?
a) the design of interfaces between software components
b) the design of interfaces between the software and human producers and consumers of information
c) the design of the interface between two computers
d) all of the mentioned

Answer: c
Explanation: None

6. A software might allow a user to interact via
a) keyboard commands
b) mouse movement
c) voice recognition commands
d) all of the mentioned

Answer: d
Explanation: All the mentioned input mediums are available today.

7. A software engineer designs the user interface by applying an iterative process that draws on predefined design principles.
a) True
b) False

Answer: a
Explanation: The statement is true.

8. What incorporates data, architectural, interface, and procedural representations of the software?
a) design model
b) user's model
c) mental image
d) system image

Answer: a
Explanation: The requirements specification may establish certain constraints that help to define the user of the system, but the interface design is often only incidental to the design model.

9. What establishes the profile of end-users of the system?
a) design model
b) user's model
c) mental image
d) system image

Answer: b
Explanation: To build an effective user interface, all design should begin with an understanding of the intended users, including their profiles of their age, physical abilities, education, etc.

10. What combines the outward manifestation of the computer-based system , coupled with all supporting information that describe system syntax and semantics?
a) mental image
b) interface design
c) system image
d) interface validation

Answer: c
Explanation: When the system image and the system perception are coincident, users generally feel comfortable with the software and use it effectively.

TOPIC 3.4 COMPONENT LEVEL DESIGN: DESIGNING CLASS BASED COMPONENTS, TRADITIONAL COMPONENTS

1. Which of the following is not a construct?
a) sequence

b) condition
c) repetition
d) selection

Answer: d
Explanation: Sequence implements processing steps that are essential in the specification of any algorithm. Condition provides the facility for selected processing based on some logical occurrence, and repetition allows for looping.

2.Which of the following steps is applied to develop a decision table?
a) List all actions that can be associated with a specific procedure
b) List all conditions during execution of the procedure
c) Define rules by indicating what action(s) occurs for a set of conditions
d) All of the mentioned

Answer: d
Explanation: A decision table includes action stub and a condition stub with a set of rules.

3. _____ is a pidgin(simplified version of a language that develops as a means of communication between two or more groups that do not have a language in common)
a) program design language
b) structured English
c) pseudocode
d) all of the mentioned

Answer: d
Explanation: The difference between PDL and a real programming language lies in the use of narrative text embedded directly within PDL statements.

4. Which of the following term is best defined by the statement:"The ability to represent local and global data is an essential element of component-level design."?
a) Data representation
b) Logic verification
c) "Code-to" ability
d) Automatic processing

Answer: a
Explanation: None.

5. A software component
a) Implements some functionality
b) Has explicit dependencies through provides and required interfaces
c) Communicates through its interfaces only
d) All of the mentioned

Answer: d
Explanation: All the options identify with features of a software component.

6. Which diagram evolved from a desire to develop a procedural design representation that would not allow violation of the structured constructs?
a) State transition diagram
b) Box diagram
c) ER diagram
d) None of the mentioned

Answer: b
Explanation: None.

7. A _____ executes the loop task first, then tests a condition and repeats the task until the condition fails.
a) repeat until
b) condition
c) do while tests
d) if then-else

Answer: a
Explanation: None.

8. Which of the following is not a characteristics of box diagram?
a) functional domain
b) arbitrary transfer of control is impossible
c) recursion is easy to represent
d) providing a notation that translates actions and conditions

Answer: d
Explanation: This functionality is covered by UML diagrams.

9. The_____ is represented as two processing boxes connected by an line (arrow) of control.
a) Repetition
b) Sequence
c) Condition
d) None of the mentioned

Answer: b
Explanation: None.

10. Which of the following term is best defined by the statement "Notation that can be input directly into a computer-based development system offers significant benefits."?
a) Machine readability
b) Maintainability
c) Structure enforcement
d) Overall simplicity

Answer: a
Explanation: Readability is processing input.

UNIT IV TESTING AND MAINTENANCE

TOPIC 4.1 SOFTWARE TESTING FUNDAMENTALS-INTERNAL AND EXTERNAL VIEWS OF TESTING-WHITE BOX TESTING - BASIS PATH

1. Which of the following term describes testing?
a) Finding broken code
b) Evaluating deliverable to find errors
c) A stage of all projects
d) None of the mentioned

Answer: b
Explanation: Software testing is the process of evaluation a software item to detect differences between given input and expected output.

2. What is Cyclomatic complexity?
a) Black box testing
b) White box testing
c) Yellow box testing
d) Green box testing

Answer: b
Explanation: Cyclomatic complexity measures the amount of decision logic in the program module.Cyclomatic complexity gives the minimum number of paths that can generate all possible paths through the module.

3. Lower and upper limits are present in which chart?
a) Run chart
b) Bar chart
c) Control chart
d) None of the mentioned

Answer: a
Explanation: A run chart is used to monitor the behavior of a variable over time for a process or system. Run charts graphically display cycles, trends, shifts, or non-random patterns in behavior over time. It contains lower and upper limits.

4. Maintenance testing is performed using which methodology?
a) Retesting
b) Sanity testing
c) Breadth test and depth test
d) Confirmation testing

Answer: c
Explanation: Maintenance Testing is done on the already deployed software. The deployed software needs to be enhanced, changed or migrated to other hardware. The Testing done during this enhancement, change and

migration cycle is known as maintenance testing.

5. White Box techniques are also classified as
a) Design based testing
b) Structural testing
c) Error guessing technique
d) None of the mentioned

Answer: b
Explanation: The structural testing is the testing of the structure of the system or component. Structural testing is often referred to as 'white box' or 'glass box' or 'clear-box testing' because in structural testing we are interested in what is happening 'inside the system/application'.

6. Exhaustive testing is
a) always possible
b) practically possible
c) impractical but possible
d) impractical and impossible

Answer: c
Explanation: Exhaustive testing is the testing where we execute single test case for multiple test data.It means if we are using single test case for different product or module under manual testing.
testing .

7. Which of the following is/are White box technique?
a) Statement Testing
b) Decision Testing
c) Condition Coverage
d) All of the mentioned

Answer: d
Explanation: Statement testing, decision testing, condition coverage all of them uses white box technique.

8. What are the various Testing Levels?
a) Unit Testing
b) System Testing
c) Integration Testing
d) All of the mentioned

Answer: d
Explanation: Unit, system, integration testing all of them are levels in testing.

9. Boundary value analysis belong to?
a) White Box Testing
b) Black Box Testing
c) White Box & Black Box Testing
d) None of the mentioned

Answer: b
Explanation: Boundary value analysis is based on testing at the boundaries between partitions and checks the output with expected output.

10. Alpha testing is done at
a) Developer's end
b) User's end
c) Developer's & User's end
d) None of the mentioned

Answer: a
Explanation: Alpha testing takes place at the developer's end. Developers observe the users and note problems. Alpha testing is testing of an application when development is about to complete. Minor design changes can still be made as a result of alpha testing.

TOPIC 4.2 TESTING-CONTROL STRUCTURE TESTING-BLACK BOX TESTING

1. Which of the following term describes testing?
a) Finding broken code
b) Evaluating deliverable to find errors
c) A stage of all projects
d) None of the mentioned

Answer: b
Explanation: Software testing is the process of evaluation a software item to detect

differences between given input and expected output.

2. What is Cyclomatic complexity?
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TOPIC 4.3 REGRESSION TESTING UNIT TESTING , INTEGRATION TESTING VALIDATION TESTING SYSTEM TESTING AND DEBUGGING

1. Software Debugging is a set of activities that can be planned in advance and conducted systematically.
a) True
b) False

Answer: b
Explanation: Software Testing is a set of such activities.

2. Which of the following is not a software testing generic characteristics?
a) Different testing techniques are appropriate at different points in time
b) Testing is conducted by the developer of the software or an independent test group
c) Testing and debugging are different activities, but debugging must be accommodated in any testing strategy
d) None of the mentioned

Answer: a
Explanation: None.

3. ITG stands for
a) instantaneous test group
b) integration testing group
c) individual testing group
d) independent test group

Answer: d
Explanation: The role of an independent test group (ITG) is to remove the inherent problems
associated with letting the builder test the thing that has been built.

4. By collecting _____ during software testing, it is possible to develop meaningful guidelines to halt the testing process.
a) Failure intensity
b) Testing time
c) Metrics
d) All of the mentioned

Answer: c
Explanation: It answers questions like: "When are we done with testing?".

5. Which of the following issues must be addressed if a successful software testing strategy is to be implemented?
a) Use effective formal technical reviews as a filter prior to testing
b) Develop a testing plan that emphasizes "rapid cycle testing."
c) State testing objectives explicitly
d) All of the mentioned

Answer: d
Explanation: All the mentioned options are carried out for the purpose.

6. Test cases should uncover errors like
a) Nonexistent loop termination
b) Comparison of different data types
c) Incorrect logical operators or precedence
d) All of the mentioned

Answer: a
Explanation: Test cases should uncover errors such as all the explained options and much more.

7. Which of the following errors should not be tested when error handling is evaluated?
a) Error description is unintelligible
b) Error noted does not correspond to error encountered
c) Error condition causes system intervention prior to error handling
d) Error description provide enough information to assist in the location of the cause of the error

Answer: a
Explanation: Actually, error description does not provide enough information to assist in the location of the cause of the error.

8. What is normally considered as an adjunct to the coding step
a) Integration testing
b) Unit testing
c) Completion of Testing
d) Regression Testing

Answer: b
Explanation: After source level code has been developed, reviewed, and verified for correspondence to component level design, unit test case design begins.

9. Which of the following is not regression test case?
a) A representative sample of tests that will exercise all software functions
b) Additional tests that focus on software functions that are likely to be affected by the change
c) Tests that focus on the software components that have been changed
d) Low-level components are combined into clusters that perform a specific software sub-function

Answer: d
Explanation: Regression testing may be conducted manually, by re-executing a subset of all test cases or using automated capture or playback tools

10. Which testing is an integration testing approach that is commonly used when "shrink-wrapped" software products are being developed?
a) Regression Testing
b) Integration testing
c) Smoke testing
d) Validation testing

Answer: c
Explanation: Smoke testing is designed as a pacing mechanism for time-critical projects, allowing the software team to assess its project on a frequent basis.

11. In which testing level the focus is on customer usage?
a) Alpha Testing
b) Beta Testing
c) Validation Testing
d) Both Alpha and Beta

Answer: d
Explanation: Alpha testing is done at developer's end while beta testing is done at user's end.

12. Validation refers to the set of tasks that ensure that software correctly implements a specific function.
a) True
b) False

Answer: b
Explanation: Its verification, while validation refers to a different set of tasks that ensure that the software that has been built is traceable to customer requirements.

TOPIC 4.4 SOFTWARE IMPLEMENTATION TECHNIQUES: CODING PRACTICES-REFACTORING-MAINTENANCE AND REENGINEERING

TOPIC 4.5 BPR MODEL-REENGINEERING PROCESS MODEL

1. What are the problems with re-structuring?
a) Loss of comments
b) Loss of documentation
c) Heavy computational demands
d) All of the mentioned

Answer: b
Explanation: Restructuring doesn't help with poor modularisation where related components are dispersed throughout the code.

2. Which of the following is not a module type?
a) Object modules
b) Hardware modules
c) Functional modules
d) Process support modules

Answer: a
Explanation: Except option a all other are module types.

3. Reverse engineering of data focuses on
a) Internal data structures
b) Database structures
c) ALL of the mentioned
d) None of the mentioned

Answer: c
Explanation: None.

4. Forward engineering is not necessary if an existing software product is producing the correct output.
a) True
b) False

Answer: b
Explanation: Forward engineering refers to taking a high-level model and using it to build a more complex lower-level implementation.

5. Which of the following is not an example of a business process?
a) designing a new product
b) hiring an employee
c) purchasing services
d) testing software

Answer: d
Explanation: It is a part of development phase.

6. Which of the following is a data problem?
a) hardware problem
b) record organisation problems
c) heavy computational demands
d) loss of comments

Answer: b
Explanation: Records representing the same entity may be organised differently in different programs.

7. When does one decides to re-engineer a product?
a) when tools to support restructuring are disabled
b) when system crashes frequently
c) when hardware or software support becomes obsolete
d) subsystems of a larger system require few maintenance

Answer: c
Explanation: Re-engineering involves

putting in the effort to make the system easier to maintain.

8. Which of the following is not a business goal of re-engineering ?
a) Cost reduction
b) Time reduction
c) Maintainability
d) None of the mentioned

Answer: d
Explanation: No such goal is mentioned which is not a business goal, so option d is correct here.

9. Which of these benefits can be achieved when software is restructured?
a) Higher quality programs
b) Reduced maintenance effort
c) Software easier to test
d) All of the mentioned

Answer: d
Explanation: The answer is self explanatory.

10. Data re-engineering may be part of the process of migrating from a file-based system to a DBMS-based system or changing from one DBMS to another.
a) True
b) False

Answer: a
Explanation: Data re-engineering involves analyzing and reorganizing the data structures in a program.

11. BPR stands for
a) Business process re-engineering
b) Business product re-engineering
c) Business process requirements
d) None of the mentioned

Answer: a
Explanation: The answer is self explanatory.

12. Source code translation is a part of which re-engineering technique?
a) Data re-engineering
b) Refactoring
c) Restructuring
d) None of the mentioned

Answer: c
Explanation: Restructuring involves automatic conversion from unstructured to structured code.

TOPIC 4.6 REVERSE AND FORWARD ENGINEERING

1. In reverse engineering process, what refers to the sophistication of the design information that can be extracted from the source code?
a) interactivity
b) completeness
c) abstraction level
d) direction level

Answer: c
Explanation: None.

2. In reverse engineering, what refers to the level of detail that is provided at an abstraction level?
a) interactivity
b) completeness
c) abstraction level
d) directionality

Answer: b
Explanation: None.

3. The core of reverse engineering is an activity called
a) restructure code
b) directionality
c) extract abstractions
d) interactivity

Answer: c
Explanation: The engineer must evaluate the old program and extract a meaningful specification of the processing that is performed, the user interface that is applied,

and the program data structures or database that is used.

4. What have become de rigueur for computer-based products and systems of every type?
a) GUIs
b) Candidate keys
c) Object model
d) All of the mentioned

Answer: a
Explanation: Therefore, the redevelopment of user interfaces has become one of the most common types of re-engineering activity. But before a user interface can be rebuilt, reverse engineering should occur.

5. Forward engineering is also known as
a) extract abstractions
b) renovation
c) reclamation
d) both renovation and reclamation

Answer: d
Explanation: Forward engineering, also called renovation or reclamation , not only recovers design information from existing software, but uses this information to alter or reconstitute the existing system in an effort to improve its overall quality.

6. Reverse engineering is the process of deriving the system design and specification from its
a) GUI
b) Database
c) Source code
d) All of the mentioned

Answer: c
Explanation: None

7. Reverse engineering techniques for internal program data focus on the definition of classes of objects.
a) True
b) False

Answer: a
Explanation: This is accomplished by examining the program code with the intent of grouping related program variables.

8. Which of the following steps may not be used to define the existing data model as a precursor to re-engineering a new database model:
a) Build an initial object model
b) Determine candidate keys
c) Refine the tentative classes
d) Discover user interfaces

Answer: d
Explanation: Once information defined in the preceding steps is known, a series of transformations can be applied to map the old database structure into a new database structure.

9. Much of the information necessary to create a behavioral model can be obtained by observing the external manifestation of the existing
a) candidate keys
b) interface
c) database structure
d) none of the mentioned

Answer: b
Explanation: The GUI or the interface provides the base for the behavioral model.

10. Extracting data items and objects, to get information on data flow, and to understand the existing data structures that have been implemented is sometimes called
a) data analysis
b) directionality
c) data extraction
d) client applications

Answer: a
Explanation: None.

11. Reverse engineering and Re-engineering are equivalent processes of software

engineering.
a) True
b) False

Answer: b
Explanation: Re engineering is a process of analysis and change whereby a system is modified by first reverse engineering and then forward engineering.

12. Transformation of a system from one representational form to another is known as
a) Re-factoring
b) Restructuring
c) Forward engineering
d) Both Re-factoring and Restructuring

Answer: d
Explanation: None.

13. Which of the following is not an objective of reverse engineering?
a) to reduce maintenance effort
b) to cope with complexity
c) to avoid side effects
d) to assist migration to a CASE environment

Answer: d
Explanation: Reverse engineering helps us to detect side effects rather than avoiding them.

UNIT V PROJECT MANAGEMENT

TOPIC 5.1 SOFTWARE PROJECT MANAGEMENT: ESTIMATION LOC, FP BASED ESTIMATION, MAKE/BUY DECISION

1. Why is decomposition technique required?
a) Software project estimation is a form of problem solving
b) Developing a cost and effort estimate for a software project is too complex
c) All of the mentioned
d) None of the mentioned

Answer: c
Explanation: For these reasons, we decompose the problem, re-characterizing it as a set of smaller problems.

2. Cost and effort estimation of a software uses only one forms of decomposition, either decomposition of the problem or decomposition of the process.
a) True
b) False

Answer: b
Explanation: Estimation uses one or both forms of partitioning.

3. If a Direct approach to software project sizing is taken, size can be measured in
a) LOC
b) FP
c) LOC and FP
d) None of the mentioned

Answer: a
Explanation: LOC or Line of Code is a direct measure to estimate project size.

4. Which software project sizing approach develop estimates of the information domain characteristics?
a) Function point sizing
b) Change sizing
c) Standard component sizing
d) Fuzzy logic sizing

Answer: a
Explanation: None.

5. The expected value for the estimation variable (size), S, can be computed as a weighted average of the optimistic(Sopt), most likely (Sm), and pessimistic (Spess) estimates given as

a) EV = (Sopt + 4Sm + Spess)/4
b) EV = (Sopt + 4Sm + Spess)/6
c) EV = (Sopt + 2Sm + Spess)/6
d) EV = (Sopt + 2Sm + Spess)/4

Answer: b
Explanation: This assumes that there is a very small probability that the actual size result will fall outside the optimistic or pessimistic values.

6. How many forms exists of Barry Boehm's COCOMO Model?
a) Two
b) Three
c) Four
d) No form exists

Answer: b
Explanation: The three forms include the basic, intermediate and advanced COCOMO model.

7. Who suggested the four different approaches to the sizing problem?
a) Putnam
b) Myers
c) Boehm
d) Putnam and Myers

Answer: d
Explanation: None.

8. In many cases, it is often more cost-effective to acquire, rather than develop, computer software.
a) True
b) False

Answer: a
Explanation: Managers are faced with a make-buy decision in such situations.

9. A make-buy decision is based on whether
a) The software may be purchased off-the-shelf
b) "Full-experience" or "Partial-experience" software components should be used
c) Customer-built software should be developed
d) All of the mentioned

Answer: d
Explanation: None..

10. Which of the following is not one of the five information domain characteristics of Function Point (FP) decomposition?
a) External inputs
b) External outputs
c) External process
d) External inquiries

Answer: c
Explanation: External inputs, external outputs, external inquiries, internal logical files, external interface files are the five domains.

11. The project planner must reconcile the estimates based on decomposition techniques to produce a single estimate of effort.
a) True
b) False

Answer: b
Explanation: The planner must determine the cause of divergence and then reconcile the estimates.

12. Programming language experience is a part of which factor of COCOMO cost drivers?
a) Personnel Factor
b) Product Factor
c) Platform Factor
d) Project Factor

Answer: a
Explanation: None.

13. If an Indirect approach is taken, then the sizing approach is represented as
a) LOC
b) FP

c) Fuzzy Logic
d) LOC and FP

Answer: b
Explanation: A function point (FP) is a unit of measurement to express the amount of business functionality an information system provides to a user.

TOPIC 5.2 COCOMO I & II MODEL

COCOMO 1 Model:
The Constructive Cost Model was first developed by Barry W. Boehm. The model is for estimating effort, cost, and schedule for software projects. It is also called as Basic COCOMO. This model is used to give an approximate estimate of the various parameters of the project. Example of projects based on this model is business system, payroll management system and inventory management systems.

COCOMO 2 Model:
The COCOMO-II is the revised version of the original Cocomo (Constructive Cost Model) and is developed at the University of Southern California. This model calculates the development time and effort taken as the total of the estimates of all the individual subsystems. In this model, whole software is divided into different modules. Example of projects based on this model is Spreadsheets and report generator.

Difference between COCOMO 1 and COCOMO 2:

COCOMO I	COCOMO II
COCOMO I is useful in the waterfall models of the software development cycle.	COCOMO II is useful in non-sequential, rapid development and reuse models of software.
It provides estimates pf effort and schedule.	It provides estimates that represent one standard deviation around the most likely estimate.
This model is based upon the linear reuse formula.	This model is based upon the non linear reuse formula
This model is also based upon the assumption of reasonably stable requirements.	This model is also based upon reuse model which looks at effort needed to understand and estimate.
Effort equation's exponent is determined by 3 development modes.	Effort equation's exponent is determined by 5 scale factors.
Development begins with the requirements assigned to the software.	It follows a spiral type of development.
Number of submodels in COCOMO I is 3 and 15 cost drivers are assigned	In COCOMO II, Number of submodel are 4 and 17 cost drivers are assigned
Size of software stated in terms of Lines of code	Size of software stated in terms of Object points, function points and lines of code

TOPIC 5.3 PROJECT SCHEDULING ,SCHEDULING, EARNED VALUE ANALYSIS PLANNING

1. Which of the following is the reason that software is delivered late?

a) Changing customer requirements that are not reflected in schedule changes
b) Technical difficulties that could not have been foreseen in advance
c) Human difficulties that could not have been foreseen in advance
d) All of the mentioned

Answer: d
Explanation: None.

2. Which of the following is an activity that distributes estimated effort across the planned project duration by allocating the effort to specific software engineering tasks?
a) Software Macroscopic schedule
b) Software Project scheduling
c) Software Detailed schedule
d) None of the mentioned

Answer: b
Explanation: None.

3. Every task that is scheduled should be assigned to a specific team member is termed as
a) Compartmentalization
b) Defined milestones
c) Defined responsibilities
d) Defined outcomes

Answer: c
Explanation: These responsibilities are domain specific.

4. What is a collection of software engineering work tasks, milestones, and deliverables that must be accomplished to complete a particular project?
a) Task set
b) Degree of milestone
c) Adaptation criteria
d) All of the mentioned

Answer: a
Explanation: None.

5. Ensuring that no more than the allocated number of people are allocated at any given time in Software Scheduling is known as
a) Time Allocation
b) Effort Validation
c) Defined Milestone
d) Effort Distribution

Answer: b
Explanation: None.

6. What is used to determine the recommended degree of rigor with which the software process should be applied on a project?
a) Degree of Rigor
b) Adaptation criteria
c) Task Set
d) Both degree of Rigor and adaptation criteria

Answer: b
Explanation: Four different degrees of rigor are: casual, structured, strict, and quick reaction.

7. What evaluates the risk associated with the technology to be implemented as part of project scope?
a) Concept scoping
b) Preliminary concept planning
c) Technology risk assessment
d) Customer reaction to the concept

Answer: b
Explanation: None.

8. Which of the following is not an adaptation criteria for software projects?
a) Size of the project
b) Customers Complaints
c) Project staff
d) Mission criticality

Answer: b
Explanation: These can vary from client to client.

9. Which of the following is a project scheduling method that can be applied to software development?
a) PERT
b) CPM
c) CMM
d) Both PERT and CPM

Answer: d
Explanation: Program evaluation and review technique (PERT) and critical path method (CPM) are two project scheduling methods that can be applied to software development.

10. A technique for performing quantitative analysis of progress is known as
a) BCWS
b) EVA
c) BAC
d) CBSE

Answer: b
Explanation: The earned value system provides a common value scale for every task, regardless of the type of work being performed. The total hours to do the whole project are estimated, and every task is given an earned value based on its estimated percentage of the total.

11. What is the recommended distribution of effort for a project?
a) 40-20-40
b) 50-20-30
c) 30-40-30
d) 50-30-20

Answer: a
Explanation: A recommended distribution of effort across the software process is 40% (analysis and design), 20% (coding), and 40% (testing).

12. A project usually has a timeline chart which was developed by
a) Henry Gantt
b) Barry Boehm
c) Ivar Jacabson
d) None of the mentioned

Answer: a
Explanation: Timeline chart, also called a Gantt chart was invented by Henry Gantt, an industrial engineer in 1917 .

TOPIC 5.4 PROJECT PLAN, PLANNING PROCESS, RFP RISK MANAGEMENT

1. Risk management is one of the most important jobs for a
a) Client
b) Investor
c) Production team
d) Project manager

Answer: d
Explanation: Risk management involves anticipating risks that might affect the project schedule or the quality of the software being developed, and then taking action to avoid these risks.

2. Which of the following risk is the failure of a purchased component to perform as expected?
a) Product risk
b) Project risk
c) Business risk
d) Programming risk

Answer: a
Explanation: Risks that affect the quality or performance of the software being developed.

3. Which of the following term is best defined by the statement: “There will be a change of organizational management with different priorities.”?
a) Staff turnover
b) Technology change
c) Management change
d) Product competition

Answer: c
Explanation: None.

4. Which of the following term is best defined by the statement: "The underlying technology on which the system is built is superseded by new technology."?
a) Technology change
b) Product competition
c) Requirements change
d) None of the mentioned

Answer: a
Explanation: Technology changes are common in the competitive environment of software engineering.

5. What assess the risk and your plans for risk mitigation and revise these when you learn more about the risk?
a) Risk monitoring
b) Risk planning
c) Risk analysis
d) Risk identification

Answer: a
Explanation: None.

6. Which of the following risks are derived from the organizational environment where the software is being developed?
a) People risks
b) Technology risks
c) Estimation risks
d) Organizational risks

Answer: d
Explanation: These risks are at management level.

7. Which of the following risks are derived from the software or hardware technologies that are used to develop the system?
a) Managerial risks
b) Technology risks
c) Estimation risks
d) Organizational risks

Answer: b
Explanation: The risks associated with technology might affect the product development.

8. Which of the following term is best defined by the statement: "Derive traceability information to maximize information hiding in the design."?
a) Underestimated development time
b) Organizational restructuring
c) Requirements changes
d) None of the mentioned

Answer: c
Explanation: Tracing the requirements can help us understand the risk.

9. Which of the following strategies means that the impact of the risk will be reduced?
a) Avoidance strategies
b) Minimization strategies
c) Contingency plans
d) All of the mentioned

Answer: b
Explanation: None.

10. Risk management is now recognized as one of the most important project management tasks.
a) True
b) False

Answer: a
Explanation: None.

TOPIC 5.5 IDENTIFICATION, PROJECTION - RISK MANAGEMENT-RISK

TOPIC 5.6 IDENTIFICATION-RMMM PLAN-CASE TOOLS

1. What all has to be identified as per risk identification?

a) Threats
b) Vulnerabilities
c) Consequences
d) All of the mentioned

Answer: d
Explanation: Risk identification states what could cause a potential loss.

2. Which one is not a risk management activity?
a) Risk assessment
b) Risk generation
c) Risk control
d) None of the mentioned

Answer: b
Explanation: Risk management activities would never want a new risk to be generated.

3. What is the product of the probability of incurring a loss due to the risk and the potential magnitude of that loss?
a) Risk exposure
b) Risk prioritization
c) Risk analysis
d) All of the mentioned

Answer: a
Explanation: None.

4. What threatens the quality and timeliness of the software to be produced?
a) Known risks
b) Business risks
c) Project risks
d) Technical risks

Answer: d
Explanation: Technical risks identify potential design, implementation, interface, verification, and maintenance problems.

5. What threatens the viability of the software to be built?
a) Known risks
b) Business risks
c) Project risks
d) Technical risks

Answer: b
Explanation: Business risks often jeopardize the project or the product.

6. Which of the following is not a business risk?
a) building an excellent product or system that no one really wants
b) losing the support of senior management due to a change in focus or change in people
c) lack of documented requirements or software scope
d) losing budgetary or personnel commitment

Answer: c
Explanation: This is not considered as a business risk.

7. Which of the following is a systematic attempt to specify threats to the project plan?
a) Risk identification
b) Performance risk
c) Support risk
d) Risk projection

Answer: d
Explanation: By identifying known and predictable risks, the project manager takes a first step toward avoiding them when possible and controlling them when necessary.

8. Which risks are associated with the overall size of the software to be built or modified?
a) Business impact risks
b) Process definition risks
c) Product size risks
d) Development environment risks

Answer: c
Explanation: None.

9. Which risks are associated with constraints imposed by management or the marketplace?
a) Business impact risks
b) Process definition risks

c) Product size risks
d) Development environment risks

Answer: a
Explanation: None.

10. Which of the following term is best defined by the statement:"the degree of uncertainty that the product will meet its requirements and be fit for its intended use."?
a) Performance risk
b) Cost risk
c) Support risk
d) Schedule risk

Answer: a
Explanation: None.