The correct order of steps for a system development life cycle is

- Analysis, Planning, design, test, document, implement, evaluate.
- Planning, Analysis, implement, design, document, test, evaluate.
- Planning, Analysis, design, document, implement, test, evaluate.
- Analysis, Planning, design, implement, evaluate, test, document.

Translating a required task for system development into a series of commands that a computer will be able to understand is

- Project design
- Installation
- Programming
- Systems analysis

Designers create system prototypes to

- make the programmers understand how the system will function.
- make the user visualize how the system will look like when it is developed and receive feedback
give a demo of the system to his administrating system manager to show as report

make both programmers and user understands how the system will look and function

Dotted arrows in a DFD are used to represent

- Data flow
- Control flow
- Result
- Simple connector

A data dictionary has consolidated list of data required for
i. Documenting
ii. Input form designing
iii. Temporarily stored items

- (i) and (ii)
- (i),(ii) and (iii)
- (i) and (iii)
- None of these

Hierarchy of maintenance requests is in order
i. maintenance controller
ii. system supervisor
iii. change control authority

- ii to i to iii
- i to ii to iii
- iii to i to ii
- maintenance is not possible in this way

The data which is eligible for record keeping during maintenance

- source statements added by the program change
- number of machine code instructions
- number of processing failures associated with the runs
- All of these

In the model of total effort expended in maintenance \( M = a + K(b-c) \), \( a \) represents

- an empirical constant
- productive effort
- complexity attributed to the lack of good design and documentation
- measure of the familiarity with the software
Debugging is

- creating program code.
- creating the bugs in the program for testing
- finding and correcting errors in the program code.
- creating the algorithm.

Match the following

<table>
<thead>
<tr>
<th>1. Verification</th>
<th>K. checking whether the software meets the decided specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Validation</td>
<td>L. converting logics into computer program</td>
</tr>
<tr>
<td>3. Testing</td>
<td>M. checking whether the software meets customer requirements</td>
</tr>
<tr>
<td>4. Coding</td>
<td>N. to check is the software is giving desired output for all inputs</td>
</tr>
</tbody>
</table>

- 1-N, 2-L, 3-M, 4-N
- 1-M, 2-K, 3-N, 4-L
- 1-K, 2-N, 3-M, 4-L
- 1-K, 2-M, 3-N, 4-L

Which is not valid difference between verification and validation
Which statement is correct about testing

- It is done only for customer satisfaction that the product is working properly and is optional step.
- It is a problem statement which lists specific inputs that are typically expected to be entered by the user and precise output values that a perfect program would return for those input values
- It is finalized when the coding is completed
- All of these

The primary objective of system implementation is

i. to build a system prototype
ii. to train users to operate the system
iii. to implement designed system using computers
iv. write programs, create databases and test with live data

- i, iii
- i, ii, iii
- ii, iii
- iii, iv

Which design is perfect for long use, maintainability and up-gradation

- use good software tools
- use the best hardware available
- design the system in independent modules
- Create versions of the program frequently

The system analyst is required to perform the task(s) include
i. defining and prioritizing information requirement of an organization
ii. gathering data, facts and opinions of users in an organization
iii. drawing up specifications of the system for an organization
iv. designing, coding and evaluating the system

- i and ii
- i, ii and iv
- i, ii and iii
Which of the following is not the primary design objective

- Cost
- Reusability
- Understandable code for user
- Security

A system when made of several discrete components is called

- Top-down
- Bottom up
- Modular
- Linear

Which of the following is true for cohesion and coupling

- Coupling taken place between multiple modules whereas cohesion is the strength of various elements inside a module
- A good design must have very high cohesion
A good design must have very low coupling

All of these

19 of 100

Which of the following is not advantage of structured design

- Critical interfaces are designed first
- Controls for upgrades are very easy and low cost
- Early versions of design can give pre-review of system
- Real life systems can be easily modeled

20 of 100

In IPO charts P stands for

- Program
- Process
- Publish
- Presumption

21 of 100

Which is not a reason to consult user while designing of structured walk

- Probability of success improves with involvement of user
Feedback is received which is very important

User and programmer can communicate to decide the price of the software

User can be trained and made understood about system

---

22 of 100

121 RPSC_March-2016_Paper 2

The correct order of input form design stages is
i. Determining the contents of the input
ii. Choosing appropriate input device
iii. Identify the inputs required by the system
iv. Designing forms for input

- iii-i-ii-iv
- i-iii-ii-iv
- i-iii-iv-ii
- iii-i-iv-ii

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23 of 100

122 RPSC_March-2016_Paper 2

From the following which is not the activity of software maintenance

- corrective maintenance
- adaptive maintenance: modifies software to properly interface with a changing environment
- preventive maintenance
- reverse engineering
Correct order of stages of testing

- Unit, integration, system, regression, acceptance
- System, regression, unit, integration, acceptance
- Unit, system, regression, integration, acceptance
- System, integration, unit, acceptance, regression

Organizational chart is an example of

- IPO
- HIPO
- Step chart
- Process chart

Structured charts are developed after

- Designing
- Coding
- Requirement gathering
- Requirement analysis
Out of following which comes under requirement specification

- Functional implementation
- Temporary Data collection
- User feedback about project
- Data flow models

The model in which system development is broken down into a number of sequential sections or stages represented by boxes, with each stage being completed before work starts on the following one. The outputs from one stage are used as inputs to the next.

- Spiral model
- Waterfall model
- Structured model
- None of these

The spiral model is advantageous than waterfall model

- When the requirements of the system are well understood by the users
- When the requirements are not well formed or understood by the users
- When the product comes after one stage easily
When all the functional requirements are available after requirement analysis

Match the following

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Backtracking Approach</td>
</tr>
<tr>
<td>2.</td>
<td>Software Maturity index</td>
</tr>
<tr>
<td>3.</td>
<td>Equivalence Partitioning Testing</td>
</tr>
</tbody>
</table>

1-c, 2-d, 3-a, 4-b

1-d, 2-c, 3-b, 4-a

1-b, 2-a, 3-c, 4-d

1-a, 2-b, 3-d, 4-c

Cost-Benefit Analysis is performed during

- Analysis phase
- Design phase
- Feasibility study phase
- Implementation phase

Project risk factor is considered in
A software project classifies system entities, their activities and relationships. The classification and abstraction of system entities is important. .................methodology most clearly shows the classification and abstraction of entities in the system

- Prototyping Model
- Data Flow Model
- RAD model
- None of these

In unit testing, interface testing is performed to assess

- Efficiency
- Behavior
- Functional Independence
- Internal logic of code
Which of following is NOT defined in a good software requirement specification (SRS) document

- Functional requirement
- Non Functional requirement
- Goals of Implementation
- Algorithms for software Implementation

Match the following based on Design

| i. Import Coupling                        | a. Nominal communication between modules |
| ii. Procedural call Coupling              | b. Minimum communication between modules |
| iii. External Coupling                    | c. Declaration of a module in another module |
| iv. Low Coupling                          | d. Communication between internal modules & Collaborators |

- i-c, ii-d, iii-a, iv-b
- i-d, ii-c, iii-b, iv-a
- i-a, ii-c, iii-d, iv-b
- i-c, ii-a, iii-d, iv-b
A representative sample of tests that will exercise all software functions

Additional tests that focus on software functions that are likely to be affected by the change

Tests that focus on the software components that have been changed

Low-level components are combined into clusters that perform a specific software sub-function

After Development phase, a document is prepared

Program specification

System specification

Design specification

None of these

A diagram that shows the major subsystems in an object-oriented system is called a

System flowchart

Design class diagram

Class diagram

Component diagrams
During the planning phase of the system development life cycle (SDLC), the ____ helps to define the scope of the problem.

- critical path method (CPM) chart
- project evaluation and review technique (PERT) chart
- proof of concept prototype
- context diagram

Clients play what role in the development of a new system?

- Develop the project plan
- Define the business processes
- Fund the project
- Lead the project team

Questionnaires can be useful in information gathering when users ____.

- are widely distributed geographically
- need prompting to respond to questions
- are not well-informed
- do not have time for interviews
requirements are based on the procedures and rules that the organization uses to run its business.

- Functional
- Logical
- Physical
- None of these

The first item to be reviewed during a structured walkthrough is the documentation that was developed as part of the _____ phase of the systems development life cycle (SDLC).

- design
- analysis
- planning
- implementation

Error report is an example of

- Process
- Output process
- Input process
- None of these
An external entity in the system is

- Unit outside the system and controllable by system analyst
- External unit which will be designed
- A unit which is not shown in DFD
- A unit outside the system and works completely independent manner

The controlling factor which does not governs the software maintainability

- Use of standardized programming languages
- Inefficient maintenance team taking much time
- Standardized structure of the documentation
- Availability of test cases

The code used for the validation purpose is known

- Debugging code
- Self-checking code
- Sequence code
- Group classification code
Feasibility checking is the step performed

- Before requirements specifications are drawn up
- During the period when requirements specifications are drawn up
- After all requirements specifications are drawn up
- At any time

What is incorrect about DFDs

- Process models have as many level 1 diagrams as there are processes on the level 0 diagram
- Every process in the level 1 DFD would be decomposed into its own level 1 DFD
- The purpose of the level 0 DFD is to show all the major high-level processes of the system and how they are interrelated
- Level 1 DFD shows how level 0 processes operates in greater detail

Effective software project management focuses on four P's which are

- People, performance, payoff, product
- People, product, performance, process
- People, product, process, project
The first step in project planning is to
- determine the budget
- select a team organizational model.
- determine the project constraints.
- establish the objectives and scope

The application of knowledge, skills, tools and techniques to project activities to meet the project requirements.
- Software quality control
- Software project management
- Software process management
- Software project planning

Which of the following is a tool of time management for software development
- Project network diagrams
- Gantt charts
Critical-path analyses

All of these

Match the project manager responsibilities with their tasks

<table>
<thead>
<tr>
<th>Responsibilities</th>
<th>Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>i. interpersonal responsibilities</td>
<td>a. disseminating information about tasks to the project team</td>
</tr>
<tr>
<td>ii. informational responsibilities</td>
<td>b. allocating resources according to the project plan</td>
</tr>
<tr>
<td>iii. decisional responsibilities</td>
<td>c. leading the project team</td>
</tr>
</tbody>
</table>

- i-c, ii-a, iii-b
- i-a, ii-c, iii-b
- i-a, ii-b, iii-c
- i-c, ii-b, iii-a

What information is not essentially required in a project progress report

- Reporting period to which it refers
- Days taken and cost to complete the report
- Authors of the report
- Date of submission
Which of following is not the aim of project progress report

- Provide an overview of project's progress up to date
- To keep it as a document for customer satisfaction
- Ensure that the key stakeholders are regularly informed
- Inform the key stakeholders about issues that require immediate action or resolution

Objectives of risk management do not include

- Minimize the effort in software coding
- Minimize adverse impacts to project scope, cost, and schedule
- Maximize opportunities to improve the project's objectives with lower cost, shorter schedules, enhanced scope and higher quality
- Minimize management by crisis
Match the processes with their deliverables

<table>
<thead>
<tr>
<th>Processes</th>
<th>Deliverables</th>
</tr>
</thead>
<tbody>
<tr>
<td>i. Risk management planning</td>
<td>a. Prioritized list of risks classified as high, moderate, or low</td>
</tr>
<tr>
<td>ii. Risk identification</td>
<td>b. RMP document</td>
</tr>
<tr>
<td>iii. Qualitative risk analysis</td>
<td>c. Risk register</td>
</tr>
<tr>
<td>iv. Quantitative risk analysis</td>
<td>d. Numerical analysis of the project’s likelihood of achieving its overall objectives</td>
</tr>
</tbody>
</table>

- i-b, ii-c, iii-a, iv-d
- i-c, ii-a, iii-d, iv-b
- i-b, ii-c, iii-d, iv-a
- i-c, ii-d, iii-a, iv-b

Which of the following is not an information gathering technique for risk identification?

- Brain Storming
- Risk Calculator
- Interviewing
- SWOT Analysis

Which is not a suitable difference in qualitative and quantitative risk analysis?

- Qualitative analysis assesses the likelihood and impact of identified risks to determine whereas quantitative analysis is a way of numerically estimating the probability that a project will meet its cost and time objectives.
Quantitative risk analysis involves statistical techniques whereas qualitative analysis is found using impact matrix.

- Qualitative risk analysis generally follows qualitative analysis.
- None of these

Organizations that achieve high levels of maturity in the people management area have a higher likelihood of implementing effective software engineering practices.

- The software developer and analyst must meet to define product objectives and scope alone.
- Without information of technical and management constraints, it is impossible to define accurate estimates of the cost and risk.
- Umbrella activities are independent of any one framework activity and occur throughout the process.

Which is not the meaning of W’s W^5 HH

- Why is the system being developed?
- Who is responsible for a function?
- What will be done, by when?
- Where the organizational hierarchy plays its role?
Defect removal efficiency (DRE) can be computed as (where E represent effort and D represent defects)

- \( DRE = \frac{E_{\text{change}}}{E_{\text{change}} + D_{\text{change}}} \)
- \( DRE = \frac{D_{\text{change}}}{E_{\text{change}} - D_{\text{change}}} \)
- \( DRE = \frac{E_{\text{change}}}{E_{\text{change}} - D_{\text{change}}} \)
- \( DRE = \frac{D_{\text{change}}}{E_{\text{change}} + D_{\text{change}}} \)

Which is not a quality metric?

- Maintainability
- Integrity
- Usability
- Controllability

Which of the following condition if hold true suggests that process is out of control?

- A single metrics value lies outside the upper natural process limit (UNPL)
- Two out of three successive metrics values lie more than two standard deviations away from average metric value \( A_{m} \)
- All the metrics cannot be calculated together
- Eight consecutive metrics values lie on one side of \( A_{m} \)
Which is not a reusable software resource from the following

- Off-the-shelf components
- Full-experience components
- Environmental components
- Partial-experience components

Which of the following is not a good and reliable cost and effort estimate

- Delay estimation until late in the project
- Ask from customer about his budget
- Base estimates on similar projects that have already been completed
- Use relatively simple decomposition techniques to generate project cost and effort estimates

In a sample of empirical estimation model M represents

\[ E = A + B \times (M)^C \]

- Effort
- Estimation variable
- Empirical constant
- Time
COonstructive COst Model (COCOMO) model addresses

- Application composition model
- Early design stage model
- Maintenance model
- Post-architecture-stage model

In the following effort estimation model, B represents
\[ E = \left[ \text{LOC} \times B^{0.333}/K \right]^3 \times \left(1/\tau^4 \right) \]

- Effort
- Project duration
- Special skills factor
- Productivity parameter

Not a basic function of automated estimation

- Selecting project activities
- Predicting software effort
- Predicting software cost
Which of the following is not a general risk component

- Performance risk
- Cost risk
- Support risk
- Payment Risk

Which of the following is not a common step to mitigate the risk

- Train project teams so that they do not take risk
- Meet with current staff to determine causes for turnover
- Mitigate those causes that are under our control before the project starts
- Once the project commences, assume turnover will occur and develop techniques to ensure continuity when people leave

Which of the following is not generally a reason for late project delivery

- An unrealistic deadline established by someone outside the software development group and forced on managers and practitioner's within the group
Changing customer requirements that are not reflected in schedule changes

- Customer not releasing payment
- An honest underestimate of the amount of effort and/or the number of resources that will be required to do the job

76 of 100

175 RPSC_March-2016_Paper 2

______________________ is an activity that distributes estimated effort across the planned project duration by allocating the effort to specific software engineering tasks

- Software project scheduling
- Software project management
- Software planning
- Software effort estimation

77 of 100

176 RPSC_March-2016_Paper 2

Issues guiding software project scheduling

- Interdependency
- Time allocation
- Both Interdependency & Time Allocation
- None of these

78 of 100

177 RPSC_March-2016_Paper 2
Reliable decomposition technique under software project estimation is

- Process based estimation
- Software sizing
- Problem based estimation
- All of these

The correct order of earned value calculation steps is
i. Estimate effort for work planned
ii. budgeted cost of work scheduled
iii. Estimate budget for work performed

- i-ii-iii
- ii-i-iii
- iii-i-ii
- ii-iii-i

The auditing and reporting functions of management are part of

- Cost of quality
- Quality control
- Quality assurance
- Quality evaluation
Which of the following is not a fundamental source of change

- New business or market conditions dictate changes in product requirements
- New customer needs demand modification
- Problems in the organization
- Commitment to other customer

________________combines procedures and tools to manage different up-gradations of configuration objects that are created during the software process

- Maintenance schedule
- Version control
- Evolutionary design
- Data flow model

Which of the following risk is the failure of a purchased component to perform as expected?

- Product risk
- Project risk
- Business risk
- Programming risk
Software interoperability is:

- The ability of a software system to work on different hardware platforms
- The ability of a software system to work under different operating systems
- The ability of a software system to exchange information with other software systems and to use the exchanged information
- The ability to replace a software system with another software system that has similar functionality

Cyclomatic Complexity is:

- number of operands in program
- number of decision points +1
- number of operators in program
- None of these

Grade of a product

- Means the same thing as quality
- can be used interchangeably with quality
- Is the level of product or service
The following diagram shows that:

- Specification is completed before delivery
- Specification is not completed until delivery
- Specification is part of delivery
- Specification is an ongoing activity

The ................ allows determination of early start, early finish, late start and late finish

- Three point estimates
- Flow chart technique
- Precedence diagramming method
- Critical Path method
188 RPSC_March-2016_Paper 2

__________is the degree to which the design specifications are followed during manufacturing

☐ Quality of development

☐ Quality of conformance

☐ Quality of design

☐ None of the these

90 of 100

189 RPSC_March-2016_Paper 2

Top-level problem solving and internal team coordination are managed by a team leader in which approach

☐ Controlled centralized

☐ Controlled decentralized

☐ Democratic decentralized

☐ Partial centralized

91 of 100

190 RPSC_March-2016_Paper 2

Associate Potential Risk Conditions Associated With Each Knowledge Area

<table>
<thead>
<tr>
<th>Knowledge Area</th>
<th>Risk Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>i.  Integration</td>
<td>a. Poor resource allocation</td>
</tr>
<tr>
<td>ii. Scope</td>
<td>b. Poor definition of scope</td>
</tr>
<tr>
<td>iii. Time</td>
<td>c. Early release of competitive products</td>
</tr>
<tr>
<td>iv. Cost</td>
<td>d. Inadequate productivity</td>
</tr>
</tbody>
</table>

☐ i-a, ii-b, iii-c, iv-d
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.”?

- Product competition
- Technology change
- Requirements change
- None of the mentioned

Which is a project attribute?

- Resources
- Efforts
- User feedback
- Hardware up-gradation

Which is not an umbrella activity under software Engineering?
Software quality assurance

Software configuration management

Document preparation and production

Software Encryption

Product quality is defined as:

- Delivering a product with correct requirements
- Delivering a product using correct development procedures
- Delivering a product which is developed iteratively
- Delivering a product using high quality procedures

Which type of risk factor is most likely to cause problems for a software project which develops military software?

- Unused or unusable software
- Legal expenses
- Excessive paperwork
- High maintenance costs
**Sensitivity Analysis** is a technique used to show the effects of change of one or more variables on an outcome.

- Statistical Analysis
- Sensitivity Analysis
- Proportional Analysis
- Quantitative Analysis

A ________ is developed using historical cost information that relates some software metric to the project cost

- Algorithmic cost modeling
- Expert judgment
- Estimation by analogy
- Parkinson’s Law

Halstead’s source code metrics are based on the number of

- modules in the program
- operands in the program
- operators in the program
- Both operator and operands in the program
Which of the following is not an approach to software cost estimation?

- Empirical
- Heuristic
- Analytical
- Critical