

Software Process - Questions

- 1) The following tasks labelled (i) – (v) are associated with Software engineering:

- (i) Define how data has to be structured.
- (ii) Work out how procedural details are to be implemented.
- (iii) Make changes to Software either due to errors found or due to enhancements.
- (iv) Identify what information is to be processed.
- (v) Identify what validation criteria are required to define a successful system.

The above tasks can be associated with the following three generic phases:

- (A) The definition phase
- (B) The development phase
- (C) The maintenance phase

Which of the following represent(s) the correct association(s)?

- | | | |
|----------------------------|---------------------|---------------------|
| (a) (A) – (i), (ii), (iii) | (b) (B) – (iv), (v) | (c) (B) – (i), (ii) |
| (d) (C) – (iii) | (e) (A) – (iv), (v) | |

- 2) Given below are some statements with respect to Prototyping. Identify the correct statements.

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| (a) In large and complex systems, it is impossible for end-users to anticipate how they will use the new Software before the system is put into use. |
| (b) The objective of evolutionary prototyping is to validate or derive the system requirements. |
| (c) In Throwaway prototyping, the prototype is used as a basis for further system development. |
| (d) Evolutionary Prototypes evolve so quickly that it is not cost-effective to produce a great deal of system documentation. |
| (e) Some of the techniques used in developing prototypes are Application Generators, Fourth Generation languages, Reusable components and very high-level languages. |

- 3) The following tasks labelled (i) – (v) are associated with Software engineering:

- (i) Identify what information is to be processed.
- (ii) Identify the software components of the system and their interfaces.
- (iii) Identify the necessary user interfaces.
- (iv) Make sure that the software components work accurately and their integrations are correct.
- (v) Identify the major data structures which are common to many software components.

The above tasks can be associated with the following three generic phases:

- (A) Requirement analysis (B) Design (C) Testing

Which of the following represent(s) the correct association(s)?

- | | | | |
|-----|----------------------|-------------------|-----------------|
| (a) | (A) – (i), (ii), (v) | (B) – (iii) | (C) – (iv) |
| (b) | (A) – (i), (iii) | (B) – (ii), (v) | (C) – (iv) |
| (c) | (A) – (i), (ii) | (B) – (iii), (iv) | (C) – (v) |
| (d) | (A) – (i), (ii) | (B) – (ii) | (C) – (iv), (v) |
| (e) | (A) – (i), (v) | (B) – (iii), (iv) | (C) – (v) |

- 4) Statements in Column A, labelled (i)-(vi) are associated with different Software process models given in Column B labelled (A)-(D).

It is required to match each statement in Column A with the most appropriate one from Column B.

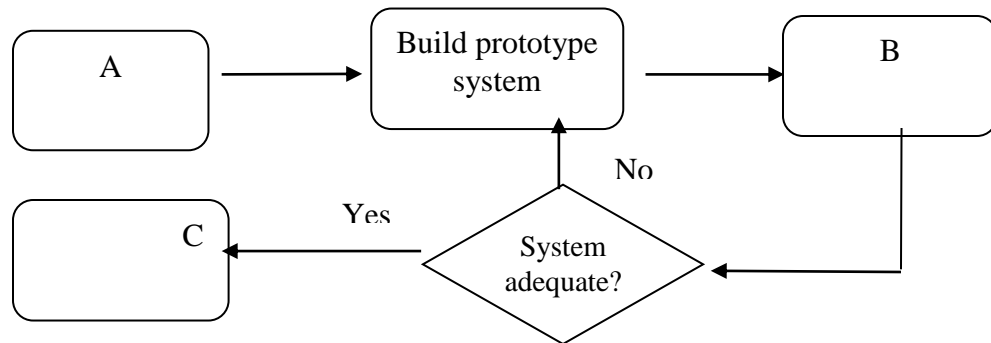
	Column A		Column B
(i)	This model is not recommended when new Software requires a high degree of interoperability with existing computer programs.	(A)	Waterfall Model
(ii)	This model can be used when an application can be modularized and each module can be assigned to a separate team.	(B)	Spiral Model
(iii)	A disadvantage of this model is that it is often difficult for the customer to state all requirements with certainty at the beginning of a project.	(C)	Incremental Development
(iv)	Using this model in a Software development project may cause some team members to wait for other members of the team to complete dependent tasks.	(D)	Rapid Application Development
(v)	This model takes into consideration the technical risks at all stages of the project, thereby reducing the impact of risks before they become problematic.		
(vi)	In this model the most important software component is built first and the other components will be added gradually depending on their importance.		

Which of the following is the correct matching?

- (a) (i) & (C), (ii) & (B), (iii) & (A), (iv) & (D), (v) & (D), (vi) & (A)
 (b) (i) & (D), (ii) & (D), (iii) & (A), (iv) & (A), (v) & (B), (vi) & (C)
 (c) (i) & (B), (ii) & (A), (iii) & (D), (iv) & (D), (v) & (A), (vi) & (C)
 (d) (i) & (A), (ii) & (D), (iii) & (D), (iv) & (A), (v) & (C), (vi) & (B)
 (e) (i) & (D), (ii) & (D), (iii) & (A), (iv) & (C), (v) & (B), (vi) & (A)
- 5) Which of the following statements is/are true with regard to Evolutionary Prototyping?

- (a) Technical or other problems are discovered early.
 (b) It is suitable mainly for projects with clear and stable requirements.
 (c) It is mainly suitable for projects with vague and unstable requirements.
 (d) Continual change tends to corrupt the structure of the prototype system. Maintenance is therefore likely to be difficult and costly.
 (e) Prototype usually evolves so quickly that it is not cost-effective to produce a great deal of documentation.

6) Consider the following diagram:



It shows the stages of Evolutionary Prototyping. What are the activities represented by A, B and C respectively?

- (a) Feasibility study, Specify requirements, Deliver system.
- (b) Requirement analysis, Design, Maintenance.
- (c) Requirement specification, Evaluate prototype, Testing.
- (d) Develop abstract specification, Evaluate Prototype system, Deliver system.
- (e) Requirement analysis, Evaluate prototype, Implementation of the system.

7) Identify the problem(s) with regard to Throw-away Prototyping from among the following list.

- (a) Suitable only for projects with vague and unstable requirements.
- (b) The prototype should be improved until the requirements of the final system are satisfied.
- (c) None of the components of the prototype can be reused for the main system as the prototype is thrown away.
- (d) Non-functional requirements such as those concerning reliability, robustness and safety cannot be adequately tested in a prototype implementation.
- (e) An implementation has no legal standing as a contract between customer and contractor.

8) What is/are the correct statement/s with regard to Rapid Application Development (RAD)?

- (a) RAD requires sufficient human resources to create the right number of RAD teams.
- (b) RAD teams must develop the whole system with improved techniques.
- (c) If a system cannot be properly modularised, building the components necessary for RAD will be problematic.
- (d) RAD cannot be used with an Incremental Development approach.
- (e) RAD requires clear and stable requirements.

9) Which of the following statements is/are true with regard to Incremental Development?

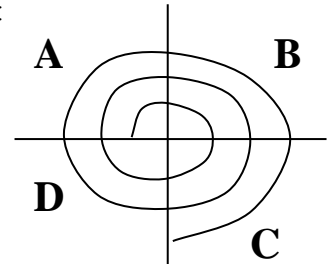
- (a) Prototyping cannot be used in Incremental Development.
- (b) Incremental development is more manageable than evolutionary prototyping since the normal software process standards are followed.
- (c) It is suitable when the system should be developed very quickly.
- (d) It is suitable when the whole system is required to be implemented at once.
- (e) The most important part of the system is delivered first, and the other parts of the system are then delivered according to their importance.

- 10) (i) Evolutionary prototyping is suitable when the requirements are clear and stable
(ii) Throwaway prototyping is suitable when the requirements are vague and stable
(iii) Waterfall model is suitable when the requirements are clear and stable

Identify the correct combination

(a)	(i) True	(ii) False	(iii) True
(b)	(i) False	(ii) False	(iii) True
(c)	(i) True	(ii) True	(iii) False
(d)	(i) False	(ii) True	(iii) True
(e)	(i) True	(ii) True	(iii) True

- 11) In Boehm's Spiral Model, the spiral is split into four sectors as follows:



The A,B,C,D sectors are respectively

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|-----|---|
| (a) | Objective setting, Development and validation, Risk assessment and reduction, Planning. |
| (b) | Development and validation, Planning, Objective setting, Risk assessment and reduction. |
| (c) | Objective setting, Risk assessment and reduction, Development and validation, Planning. |
| (d) | Planning, Objective setting, Risk assessment and reduction, Development and validation. |
| (e) | Planning, Risk assessment and reduction, Development and validation, Objective setting. |

- 12) Two customers gave the following descriptions about the software which they want to develop
- (i) "I want to develop a system similar to a spreadsheet package. I know the additional requirements very well".
- (ii) "I want to develop a network based commercial system for my company. I am not very sure about some of the requirements. I may need to use it on the Internet".

Most suitable software process models for the above two systems would be

- | | | |
|-----|------------------------------|-------------------------------|
| (a) | (i) Evolutionary prototyping | (ii) Throw-away prototyping |
| (b) | (i) Waterfall model | (ii) Evolutionary prototyping |
| (c) | (i) Waterfall model | (ii) Waterfall model |
| (d) | (i) Throw-away prototyping | (ii) Waterfall model |
| (e) | (i) Throw-away prototyping | (ii) Throw-away prototyping |

13. Characteristics of Extreme Programming (XP) are
- (a) Based on the Waterfall Model
 - (b) XP uses an object oriented approach as its development paradigm.
 - (c) Complex and comprehensive methods are used in the development process.
 - (d) XP recommends pair programming.
 - (e) Begins with a set of user stories (scenarios).
14. Outputs of the Elaboration stage of the Unified Process are
- (a) Vision statement
 - (b) Initial risk assessment
 - (c) Software architecture
 - (d) Analysis model
 - (e) Test plan and procedures
15. Agile software development methods are
- (a) Formal software development
 - (b) Adaptive software development
 - (c) SCRUM
 - (d) Extreme Programming
 - (e) Waterfall Model
16. Some features of the Agile methods are
- (a) very high user interaction
 - (b) use of simple methods is encouraged
 - (c) use a sequential set of activities
 - (d) adding new requirements is not allowed
 - (e) use small and highly motivated software teams
17. Agile Processes use features of the following methods
- (a) Incremental development
 - (b) Rapid Application Development
 - (c) Waterfall model
 - (d) Evolutionary development
 - (e) Formal methods