



UNIVERSITY OF COLOMBO, SRI LANKA

UNIVERSITY OF COLOMBO SCHOOL OF COMPUTING

DEGREE OF BACHELOR OF INFORMATION TECHNOLOGY (EXTERNAL)
Academic Year 2014/2015 – 2nd Year Examination – Semester 3

IT3205 – Fundamentals of Software Engineering
PART I - Multiple Choice Question Paper

28th February, 2015
(ONE HOUR)

Important Instructions:

- The duration of the paper is **1 (one) hour**.
- The medium of instruction and questions is English.
- The paper has **25 questions** and **5 pages**.
- All questions are of the MCQ (Multiple Choice Questions) type.
- All questions should be answered.
- Each question will have 5 (five) choices with **one or more** correct answers.
- All questions will carry equal marks.
- There will be a penalty for incorrect responses to discourage guessing.
- The mark given for a question will vary from 0 (*All the incorrect choices are marked & no correct choices are marked*) to +1 (*All the correct choices are marked & no incorrect choices are marked*).
- Answers should be marked on the special answer sheet provided.
- Note that questions appear on both sides of the paper.
If a page is not printed, please inform the supervisor immediately.
- Mark the correct choices on the question paper first and then transfer them to the given answer sheet which will be machine marked. **Please completely read and follow the instructions given on the other side of the answer sheet before you shade your correct choices.**

Consider the following description and answer the questions 1 to 5.

An organization provides a number of activity rooms for members to use. To make a room reservation, the member will need to record his booking in a log book. This logistics requires a lot of manual work to maintain the records which tends to be an error prone approach. Hence, some automated approach is preferred and the organization would like to have a room booking portal to improve the situation.

Using the room booking portal, a member can first check the availability of his preferred activity rooms, and make the corresponding bookings online. The staff can check the booking status of the rooms and make appropriate arrangements for the bookings. In addition, members can also view their booking histories via the interface.

- 1) Which of the following types of software are most suitable for the above system?

- a) Business software and System software
- b) Application software and Customized software
- c) Embedded software and Web-based software
- d) System software and Generic software
- e) Business software and Web-based software

- 2) Which of the following would be functional requirements of the above system?

- a) The user interface should be easy for users to operate without additional training.
- b) Members can make reservations for a room.
- c) The system response time should be fast (e.g. response within 5 secs).
- d) The system should be secure enough such that member's personal data can be safely protected.
- e) Members can check their reservation histories.

- 3) Which of the following are the two (2) most important non-functional requirements that the system must possess from among the following?

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|----------------|-------------|---------------------|
| a) Portability | b) Accuracy | c) Interoperability |
| d) Security | e) Safety | |

- 4) What language(s) from among the following can be used to develop the business logic of the above system?

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|---------|-----------|--------|
| a) Java | b) Prolog | c) C++ |
| d) SQL | e) Matlab | |

- 5) Which of the following process models is/are suitable for the development of systems like the above which have stable requirements?

- a) Agile software development
- b) Rational Unified Process model
- c) Waterfall model
- d) Throw-away prototyping
- e) Rapid Application Development

- 6) From among the following, identify the people who would not be in a software engineering team.

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|--------------------|--------------------|-------------|
| a) Project manager | b) Finance Manager | c) Designer |
| d) Tester | e) Public users | |

- 7) Which of the following is/are not (an) activities in a software process?

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|---------------|------------------|---------------|
| a) Evolution | b) Specification | c) Evaluation |
| d) Validation | e) Development | |

- 8) The Software process models in column X have to be matched with the software systems given in column Y.

Column X		Column Y	
1	Waterfall Model	A	e-business software that starts with only the basic functionalities and then moves on to more advanced features
2	Incremental Development	B	Management Information System for a supermarket to be developed within three months
3	Prototyping	C	A virtual Reality System for simulating vehicle navigation in a highway
4	RAD	D	Automate the manual system for student record maintenance in a school

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

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|-----------------------|-----------------------|-----------------------|
| a) 1&B, 2&D, 3&A, 4&C | b) 1&A, 2&C, 3&D, 4&B | c) 1&D, 2&A, 3&C, 4&B |
| d) 1&C, 2&B, 3&D, 4&A | e) 1&D, 2&C, 3&B, 4&A | |

- 9) Which of the following process model is most suitable for requirement refinement?

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|------------------------|-----------------------------|---------------------------|
| a) The waterfall model | b) Prototyping model | c) The evolutionary model |
| d) The spiral model | e) Rational Unified Process | |

- 10) In the spiral model, 'risk analysis' is performed

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|-----------------------|----------------------------------|-------------------------------|
| a) in the first loop. | b) in the last loop. | c) before using spiral model. |
| d) in every loop. | e) in the first and second loop. | |

- 11) If every requirement stated in the Software Requirement Specification (SRS) has only one interpretation, SRS is said to be

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| a) correct. | b) understandable. | c) unambiguous. |
| d) consistent. | e) verifiable. | |

- 12) The tools that support different stages of a software development life cycle are called

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|----------------|----------------|----------------|
| a) CASE Tools. | b) CAQE tools. | c) CACE Tools. |
| d) CARE tools. | e) CAME tools. | |

13) What is / are not (a) design concept(s) among following?

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|-----------------|------------------|------------------|
| a) Abstraction | b) Specification | c) Encapsulation |
| d) Polymorphism | e) Validation | |

14) Which of the following statement(s) is / are false?

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| a) Coupling should be minimized. |
| b) Loose coupling means component changes are likely to affect other components. |
| c) Loosely coupled modules do not facilitate reusability. |
| d) Coupling with the environment is called external coupling. |
| e) The worst type of coupling is content coupling. |

15) Which of the following is / are not (a) characteristic(s) of a GUI?

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|-------------|-------------|----------|
| a) Windows | b) Icons | c) Menus |
| d) Commands | e) Pointing | |

16) What should not be (an) objective(s) of code walkthrough?

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| a) To decide a good programming language for the development |
| b) To discover algorithmic and logical errors in the code |
| c) To evaluate the performance of the developer |
| d) To consider alternative implementations |
| e) To ensure compliance to standards & specifications |

17) Alpha and Beta Testing are forms of

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|------------------------|-------------------------|--------------------|
| a) Acceptance testing. | b) Integration testing. | c) System Testing. |
| d) Final testing. | e) Unit testing. | |

18) The problem that threatens the success of a project but which has not yet happened is

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| a) a bug. | b) an error. | c) a cost. |
| d) a failure. | e) a risk. | |

19) If a program in its functioning has not met user requirements in some way, then it is

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|---------------|--------------|--------------|
| a) a fault. | b) an error. | c) a defect. |
| d) a failure. | e) a bug. | |

20) Each time a defect gets detected and fixed, the reliability of a software product

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|------------------------------|------------------------|----------------------|
| a) decreases. | b) increases. | c) remains constant. |
| d) needs to be reconsidered. | e) cannot be measured. | |

21) Which of the following statements is / are **false**?

- a) Software quality involves ensuring that the developed product is virus free.
- b) Software quality cannot be defined in a simple way since it is a multi-dimensional concept.
- c) Software quality means that the developed product should meet its specifications.
- d) Software quality management should be separated from software project management.
- e) Software quality is the level of using graphical user interfaces in the developed product.

22) The ISO quality assurance standard that applies to software engineering is

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|--------------|---------------|--------------|
| a) ISO 9000. | b) ISO 9001. | c) ISO 9002. |
| d) ISO 9003. | e) ISO 90001. | |

23) Changes made to an information system to add the desired but not necessarily the required features are called

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|---------------------------|----------------------------|------------------------------|
| a) Adaptive maintenance. | b) Corrective maintenance. | c) Preventative maintenance. |
| d) Defensive maintenance. | e) Perfective maintenance. | |

24) Which of the following is / are **incorrect** with regard to maintenance costs?

- a) Maintenance costs are far greater than development costs and usually take up to about two thirds of the total software life cycle costs.
- b) Corrective maintenance costs are usually higher than costs to adapt software to a new environment.
- c) Maintenance does not normally involve major changes to the system's architecture.
- d) Maintenance costs decrease with software maintenance over time.
- e) Team stability and the effective use of CASE tools reduces maintenance costs.

25) Which of the following is / are (a) not part(s) of a risk management process?

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|------------------------|--------------------|------------------|
| a) Risk identification | b) Risk estimation | c) Risk analysis |
| d) Risk planning | e) Risk monitoring | |
