UNIVERSITY OF COLOMBO, SRI LANKA

UNIVERSITY OF COLOMBO SCHOOL OF COMPUTING

DEGREE OF BACHELOR OF INFORMATION TECHNOLOGY (EXTERNAL)

Academic Year 2016 – 2nd Year Examination – Semester 3

IT3205 – Fundamentals of Software Engineering

PART I - Multiple Choice Question Paper

07th May, 2016

(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**.

A *store* is in the business of selling paints and hardware items. A number of reputed companies supply items to the *store*. New suppliers can also register with the *store* after providing necessary details. The customer can place the order with the shop telephonically or personally. In case items are not available customers are informed. The details of every new customer are stored in the company's database for future reference. Regular customers are offered discounts.
Additionally details of daily transactions are also maintained. The suppliers from time to time also come up with attractive schemes for the dealers. In case, the scheme is attractive for a particular item, the store places order with the company. Details of past schemes are also maintained by the *store*. The details of each item such as item code, quantity available etc. are also maintained.

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

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

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

a) The system should be fast enough to work without delaying the business process.
b) The system should be able to add new suppliers.
c) The user interface should be easy for users to operate without additional training.
d) The system should be able to store customer details.
e) The system should be secure enough so that member's personal data can be safely protected.

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

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?

a) HTML b) Prolog c) XML
d) C++ e) Java

5) Which of the following are **NOT** actors of the use case diagram of this system?

a) System Administrator
b) System Developer
c) *Store* Manager
d) Supplier
e) Customer

6) Which of the following is/are **NOT** (a) characteristic(s) of software?

a) Tangible	b) Configurable	c) Wear away
d) Custom built	e) Portable	

7) What type of software could be in a microchip of a modern washing machine?

a) Scientific software	b) System software	c) Embedded software
d) AI Software	e) Web-Based Software	

8) Which of the following is/are not (a) generic activity/activities in a software process?

a) Specification	b) Evolution	c) Evaluation
d) Validation	e) Design & Development	

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

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

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

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	

10) Which of the following is/are **NOT** (a) phase(s) of the software lifecycle?

a) Requirement Analysis	b) development	c) Project Management
d) Testing	e) Quality Management	

11) Which of the following statement(s) is/are true?

a) Real projects rarely follow the sequential flow that the Waterfall model proposes.
b) It is not difficult to accommodate change after the process is underway in the Waterfall model.
c) The Waterfall model has the difficulty of accommodating the natural uncertainty that exists at the beginning of many projects.
d) The Waterfall model is suitable for projects which have unclear and unstable requirements.
e) It is often very easy for the customer to state all requirements explicitly.

12) What is / are **NOT** (an) object oriented concept(s) among following?

a) Encapsulation	b) Inheritance	c) Validation
d) Polymorphism	e) Maintainability	

13) The feature of the object oriented paradigm which helps code reuse is

a) Abstraction.	b) Inheritance.	c) Encapsulation.
d) Polymorphism.	e) Aggregation.	

14) ..... is a process that groups items that interact with one another, typically by class, data or behaviour, to create a model that accurately represents the intended purpose of the system as a whole.

a) Object Oriented Analysis
b) Object Oriented Design
c) Object Oriented Programming
d) Object Oriented Testing
e) Computer Aided Software Design

15) An object encapsulates

a) Data.	b) Behaviour.	c) State.
d) Both Data & state.	e) Both Data & Behaviour.	

16) Which of the following is/are correct about the distinction between a class and an object?

a) A class is a template for creating objects, while an object is an instance of a class.
b) An object is a template for creating objects, while a class is an instance of an object.
c) Classes can be instantiated from objects, while the opposite is not true.
d) Classes and objects both are templates only, but classes provide a more complete template.
e) Neither a class nor an object is a template, but objects are better suited for system development.

17) SRS is also known as specification of

a) White box testing.	b) Stress testing.	c) Black box Testing.
d) Integrated testing.	e) Unit testing.	

18) The importance of software design can be summarized in a single word which is

a) Efficiency.	b) Accuracy.	c) Quality.
d) Complexity.	e) User-friendliness.	

19) Architecture of a software is based on

a) Existing system.	b) design.	c) requirements.
d) data.	e) estimated budget.	

20) Consider following statements.

A. Software architecture is the structure or structure of systems.
B. Software architecture comprises software components.
C. Software architecture describes the relationship among components.
D. Software architecture is the principles of its design and evolution.

Whish of the above statement(s) is/are **correct**?

a) A only.	b) A & B only.	c) B & C only.
d) A, B & C only.	e) A, B, C & D.	

21) Which of the following statement(s) is / are **true**?

a) Unified Process is Iterative but not Incremental.
b) Unified Process is Incremental but not Iterative.
c) Unified Process is Iterative and Incremental.
d) Elaboration is the largest phase in the Unified Process.
e) Unified Process is use-case driven.

22) Changes made to an information system to suit a new operation environment are called

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

23) Which of the following is a / are phase(s) of risk management?

a) Risk analysis	b) Recovery	c) Risk planning
d) Risk monitoring	e) Backup	

24) Which of the following is / are **correct** with regard to software quality?

a) If the length of the number of source code lines in a component is large, then that component is difficult to maintain.
b) Deeply nested if-statements improve the readability.
c) The longer the identifiers, the more likely they are to be meaningful, hence the program is more understandable.
d) Cyclomatic complexity concentrates on recursive components of software.
e) Length of the identifiers does not always improve maintainability.

25) CASE tools

a) can be applied to all the phases of the software life cycle.
b) can completely automate the software development process.
c) may be integrated across functions.
d) support only the software development process.
e) minimize development costs and maintenance costs.

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