University of Colombo, Sri Lanka

University of Colombo School of Computing

DEGREE OF BACHELOR OF INFORMATION TECHNOLOGY (EXTERNAL)

Academic Year 2021 — 1^{st} Year Examination — Semester 2

IT2206 — Fundamentals of Software Engineering

Multiple Choice Question Paper

(2 Hours)

Important Instructions

- The duration of the paper is **2 Hours**.
- The medium of instructions and questions is English.
- This paper has **40 questions** on **10 pages**. Answer **all** questions.
- All questions are of the **MCQ** (Multiple Choice Questions) type.
- Each question will have **5 (five)** choices with **one or more** correct answers.
- This paper consists of 100 marks and all the 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 -1 (All the incorrect choices are marked & no correct choices are marked) to +1 (All the correct choices are marked & no incorrect choices are marked). However, **the minimum mark per question would be zero**.
- 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/invigilator 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.**
- Calculators are **not** allowed.
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1). Which of the following is/are system software?

a). Ubuntu OS	b). ERP Systems	c). IDEs
d). System Utilities	e). Electronic Spread Sheets	

2). Which of the following is/are specific problems only for software development project, but not to the other projects?

a). Possibility of going over budget.
b). Requirements change regularly.
c). Communication gaps between customers and developers.
d). Failure due poor project management
e). Difficulty of testing exhaustively

3). Which of the following is/are NOT (a) key feature(s) of a good software?

a). Intangibility	b). security	c). Low budget
d). Acceptability	e). Maintainability	

4). Which of the following is a /are feature(s) of Web-based software engineering?

a). Develop using waterfall model.
b). Reusability of software components.
c). Serving as service-oriented systems
d). Heavy involvement of users at the time of development.
e). Having rich interfaces.

5). Which of the following is/are activities of a typical Software Process?

a). Specification	b). Observing	c). Evolution
d). Abstraction	e). Implementation	

6). Consider the following statements regarding the Waterfall model in software development.

A. User involvement is minimum during the development time.
B. Having rich documentation than the other process models.
C. It is an old method that is not popular now.

Which of the above statements is/are TRUE?

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

7). Which of the following is/are NOT (a) benefit(s) of prototype model compared to other models?

a). reducing the development cost.
b). S Improving thedesign quality.
c). Improving the system usability.
d). reducing the system requirements.
e). A closer match to users' real needs.

8). Consider the following statements regarding the incremental delivery of a software project.

A. It does not fit well when the new system is intended to replace an existing system.
B. There is a risk of overall project failure in this method.
C. Users can use all the system functionalities from the beginning in this method.

Which of the above statements is/are TRUE?

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

9). Consider the following statements regarding the Reuse-Based Software Development.

A. This means to reuse the experienced human resources to a similar project.
B. In this model, requirements would be refined to match with the reusable components.
C. This model works only for Web based systems.

Which of the above statements is/are TRUE?

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

10). Which of the following is/are NOT (an) Agile principle(s)?

a). Primary measure of progress is working software.
b). Priority is given for the proper documentation.
c). Changing requirements during the project is not entertained.
d). Deliver working software frequently.
e). Highest priority is to maximize the profit.

11). Consider the following statements regarding the SCRUM.

A. It is an agile framework for completing complex projects.
B. It is Lightweight.
C. Scrum team owns the vision and goals of the project.

Which of the above statements is/are TRUE?

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

12). Whom among the following is/are responsible to conduct the sprint meeting?

a). Project manager	b). Scrum team	c). Product user
d). Product owner	e). Scrum master	

13). Consider the following statements regarding the requirements of a software system.

A. Designing them using engineering approaches is called requirements engineering.
B. They reflect the needs of developers for a system.
C. They contain the descriptions of the services that a system should provide and the constraints on its operation.

Which of the above statements is/are TRUE?

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

14). Which of the following could be the functional requirements of a BIT student management system?

a). Registered students shall be able to login to the system.
b). User interfaces of the system should be simple to avoid confusion.
c). Authorized staff shall be able to access the students' information after login.
d). System shall be available 24 x 7 for all the students.
e). System shall be accurate enough to provide correct details about the students.

15). Consider the following statements regarding the list of non-functional requirements.

A. It describes the system services required.
B. It defines how the system performs a certain function.
C. It affects the overall architecture of a system rather than the individual components.

Which of the above statements is/are TRUE?

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

16). Which of the following is/are among key activities of the requirements engineering process?

a). Requirements Design
b). Requirements Evolution
c). Requirements Specification
d). Requirements Modification
e). Requirements Validation

17). Consider the following statements regarding the problems of Requirements Analysis.

A. Stakeholders express requirements in their own terms.
B. Different stakeholders may have conflicting requirements.
C. The requirements may change during the analysis process.

Which of the above statements is/are TRUE?

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

18). Which of the following is/are requirements elicitation techniques?

a). Ethnography	b). Analogy	c). Scenario
d). Waterfall	e). RUP	

19). Which of the following is/are NOT (a) type(s) of relationships in a use case diagram?

a). Association	b). Generalization	c). Exclude
d). Abstraction	e). Extend	

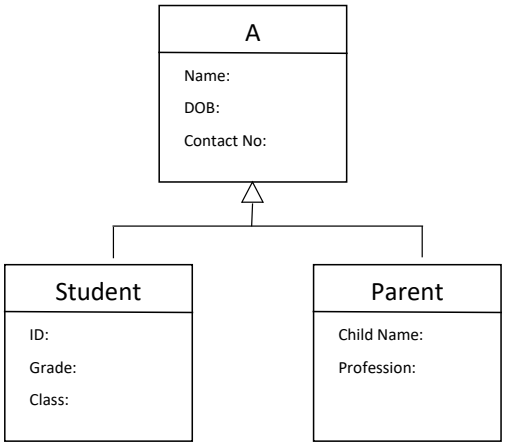
20). Which of the following is a /are type(s) of UML diagram(s)?

a). Interface diagrams	b). State diagrams	c). ER diagrams
d). Data Flow diagrams	e). Sequence diagrams	

21). ..... model shows how classes that are collections are composed of other classes.

a). Encapsulation	b). Repository	c). Association
d). Aggregation	e). Abstraction	

22). The following diagram shows a part of the class diagram of a school Management System.



Value(s) that A can take is/are:

a). Monitor	b). Principal	c). Teacher
d). User	e). Admin	

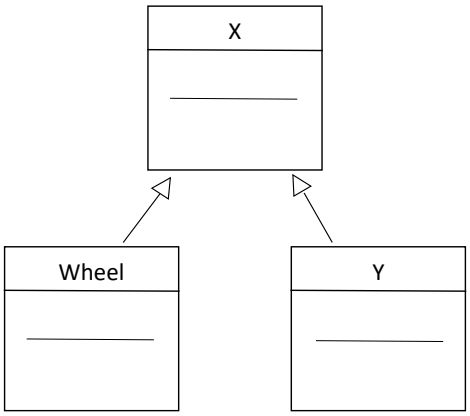
23). Consider the following statements with respect to Use Case Modeling.

A. It shows the design aspects of the software.
B. It represents a discrete task that involves external interaction with a system.
C. Another system can be an actor of a use case diagram.

Which of the above statements is/are TRUE?

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

24). According to the UML notation used in the following diagram, what can the value(s) of X and Y be?



a). Vehicle, Car	b). Car, Engine	c). Bus, Passenger
d). Vehicle, Seat	e). Circle, Ring	

25). Consider the following statements regarding Architectural Patterns.

A. Patterns are a means of representing, sharing and reusing knowledge.
B. They are software libraries which can be reused when coding.
C. They should include information about when they are useful and when they are not useful.

Which of the above statements is/are TRUE?

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

26). Which of the following is a/are part of a 4+1 View Model of Software Architecture?

a). Process view	b). Customer view	c). Business view
d). Logical view	e). Physical view	

27). Which of the following is/are TRUE regarding the repository architecture?

a). It is an efficient way to share large amounts of data.
b). It is a system architecture based on the concept of a shared database.
c). It does not allow sub-systems to exchange data.
d). It allows different policies on its sub-systems.
e). A single point of failure is one of the drawbacks of this architecture.

28). Consider the following statements regarding the Client–Server architecture.

A. General functionalities need not to be implemented by all services.
B. It can be used when the load on a system is variable.
C. Performance of the model may be unpredictable.

Which of the above statements is/are TRUE?

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

29). Which of the following can NOT be the layers of an Information Systems Architecture?

a). user interface	b). Requirements	c). System database
d). Architecture Design	e). User communications	

30). Which of the following may NOT be the elements of a pattern?

a). Name	b). Solution description	c). System Specification
d). Consequences	e). Expiry Date	

31). Which of the following is/are reuse levels of a software?

a). Abstraction level	b). Object level	c). User level
d). Requirement level	e). System level	

32). Which of the following is/are TRUE with respect to free and open source software (FOSS)?

a). "*Free*" means, you do not need to pay for the software.
b). You cannot earn money from FOSS.
c). It encourages volunteers to participate in the development process.
d). You can modify an open source software as you wish.
e). If you modify an open source software, you should always make it open source.

33). Consider the following statements regarding software testing.

A. Software testing reveals the absence of errors.
B. It helps us to deliver 100% error free software to the customer.
C. It helps to reduce the maintenance cost.

Which of the above statements is/are TRUE?

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

34). Which of the following is/are TRUE with respect to Software inspection?

a). It is applicable to any representation of the system.
b). You cannot test whether you have adopted the standards by inspection.
c). You do not require execution of a system for inspection.
d). You can do it even before software implementation.
e). You can validate the usability of the system by inspection.

35). Which of the following is/are in a software test case?

a). Developer ID	b). Test case ID	c). Description
d). Expected output	e). Expiry Date	

36). The testing done by isolating each part of the system and showing that the individual parts are correct is called,

a). White-box testing	b). Black-box testing	c). Unit testing
d). Regression testing	e). Interface Testing	

37). What is the correct execution order of the following test types?

a). Unit Testing, Integration Testing, Acceptance Testing, System Testing
b). Unit Testing, Integration Testing, System Testing, Acceptance Testing
c). Integration Testing, Unit Testing, Acceptance Testing, System Testing
d). Integration Testing, Unit Testing, System Testing, Acceptance Testing
e). System Testing, Unit Testing, Integration Testing, Acceptance Testing

38). The following are the stages of the software evolution process.

Software Development $\rightarrow$ *X* $\rightarrow$ *Software Servicing* $\rightarrow$ *Software Retirement*

What can X be?

a). Software Evaluation	b). Software Validation	c). Software Evolution
d). Software Maintenance	e). Software Testing	

39). Consider the following statements regarding software maintenance.

A. The term ”Software maintenance” is mostly used for changing custom software.
B. Maintenance does NOT normally involve major changes to the system’s architecture.
C. Software maintenance cost is usually less than the development cost.

Which of the above statements is/are TRUE?

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

40). Each time a new feature is added to the system, the maintainability of the software product

a). increases.	b). decreases.	c). needs to be planned.
d). remains without effecting.	e). cannot be measured.	

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