University of Colombo, Sri Lanka

University of Colombo School of Computing

DEGREE OF BACHELOR OF INFORMATION TECHNOLOGY (EXTERNAL)

Academic Year 2020 — 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**.
- 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.**
- Calculators are **not** allowed.
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1). Which of the following is/are NOT application software?

a). Graphics Software	b). System Utilities	c). Word Processing
d). Security Monitors	e). Accounting Software	

2). Which of the following is/are TRUE with respect to software projects?

a). The environments to which software is made do NOT change regularly.

b). A small change to a few lines of code could do a big change in the overall behavior of the system.

c). Because of intangibility it is difficult to specify software.

d). It is difficult for a customer to specify requirements completely.

e). It is easy to test software exhaustively.

3). Which of the following is/are NOT TRUE with respect to software cost and failures?

a). Increasing the system complexity is one of the main reasons for software failure.

b). Software development cost decreases rapidly over the time.

c). Software does not wear out in the same sense as hardware.

d). Failure rate of software can rise, when a new change is introduced to the software.

e). Use of software engineering methods minimize software failures.

4). Which of the following is/are NOT a key challenge facing software engineering?

a). Heterogeneity

b). Increasing the power of Hardware

c). Security and trust

d). Rapid growth of the social media

e). Business and social changes

5). Which of the following is/are NOT (an) activity(ies) of a typical Software Process?

a). Aggregation	b). Validation	c). Evolution
d). Implementation	e). Abstraction	

6). Which of the following is/are NOT TRUE with regard to the Waterfall model?

a). It is a good example of a plan-driven process.
b). It is more suitable for projects that have vague requirements.
c). It allows clients to provide their feedback during system development.
d). It plans and schedules all the process activities before starting software development.
e). It is an old method that is not popular now.

7). Which of the following is/are TRUE with regard to Incremental Development?

a). The process is not visible.
b). Errors are difficult to be identified.
c). The software could be developed faster during the software life cycle.
d). System structure tends to degrade as new increments are added.
e). It is not flexible and so is expensive if requirements and scope change.

8). Which of the following is/are NOT (a) Process Stage(s) of Reuse-Based Software Development?

a). Requirement specification
b). Software Discovery and Evaluation
c). Requirements design
d). Application system configuration
e). Component adaptation and integration

9). Which of the following is/are NOT (a) process improvement activity(ies)?

a). Process measurement	b). Process analysis	c). Process validation
d). Process change	e). Process evolution	

10). Which of the following is/are NOT agile software development method(s)?

a). Spiral Model	b). XP Programming	c). KANBAN
d). Prototype	e). SCRUM	

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

a). Highest priority is to satisfy the customer through early and continuous delivery of valuable software.

b). Welcome changing requirements, even late in development.

c). Deliver working software at the end of the project.

d). Business people and developers work separately.

e). Working software is the primary measure of progress.

12). Three pillars of the SCRUM are

a). Transparency	b). Verification	c). Inspection
d). Adaptation	e). Agility	

13). Which of the following is/are NOT TRUE with regard to requirements?

a). Requirements contain the descriptions of the services that a system should provide and the constraints on its operation.

b). It is easy for clients to express their requirements.

c). Designing the requirements using engineering approaches is called requirements engineering.

d). A structured document setting out detailed descriptions of the system's functions, services and operational constraints is called System requirements.

e). The term requirement is not used consistently in the software industry.

14). Which of the following would be the functional requirements of a system which allow online shopping for customers?

a). The system should be fast enough to work without delaying the business process.

b). Regular customers shall be able to login to the system.

c). User interface of the system should be easy for customers to operate without any confusion.

d). System should provide the total value of the shopping cart at the time of check-out.

e). System should be available 24 x 7 for all customers.

15). . . . . . is the ability to exchange information and communicate with internal and external applications and systems.

a). Integrity	b). Interoperability	c). Portability
d). Scalability	e). Recoverability	

16). Which of the following is/are NOT key activities of the requirements engineering process?

a). Requirements elicitation and analysis
b). Requirements Specification
c). Requirements design
d). Requirements Validation
e). Requirements Evolution

17). Which of the following is/are the problems of Requirements Analysis?

a). Stakeholders express requirements in their own terms.
b). Stakeholders may want the system as early as possible.
c). Writing down the requirements takes lot of time.
d). Different stakeholders may have conflicting requirements.
e). The requirements may change during the analysis process.

18). Which of the following should NOT be (an) actor(s) in the use case diagram of a typical Pharmacy Management System?

a). Librarian	b). Library Members	c). QA Engineer
d). System Admin	e). System Developer	

19). Which of the following is/are types of checks, that should be carried out on requirements during the requirements validation process?

a). Consistency	b). Maintainability	c). Completeness
d). Adoptability	e). Verifiability	

20). Which of the following is/are not (a) UML diagram(s)?

a). Activity diagram	b). Interface diagram	c). Use case diagram
d). Class diagram	e). ER diagram	

21). Which of the following is/are TRUE with respect to Sequence diagrams?

a). Sequence diagrams are NOT part of the UML diagrams.

b). They have used to model the interactions between the actors and the objects within a system.

c). Interactions between objects in the sequence diagram are indicated by annotated arrows.

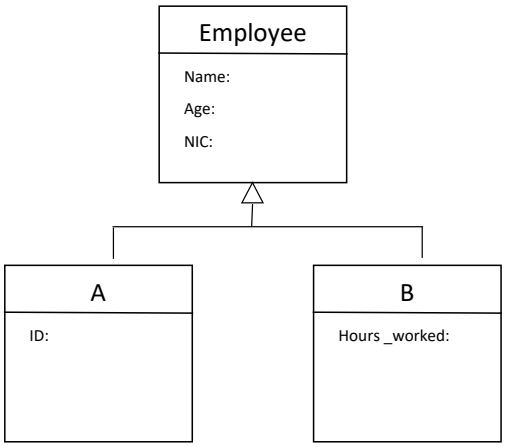
d). They show the sequence of interactions that take place during a particular use case or use case instance.

e). They are developed in the software implementation stage.

22). In object-oriented languages, such as Java, generalization is implemented using,

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

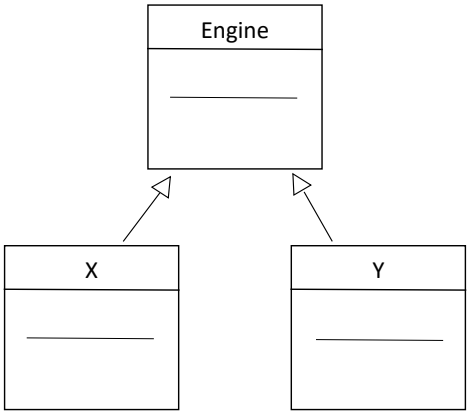
23). The following diagram shows a part of the class diagram of a company.



Values that A and B can take are:

a). Manager	b). Owner	c). Customer
d). Cashier	e). Sales Executive	

24). According to the UML notations used in the following diagram, values that X and Y can take are:

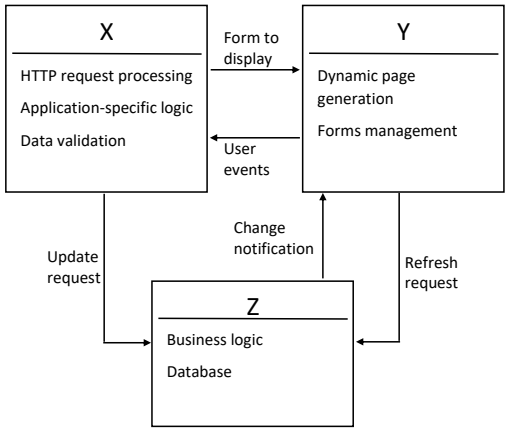


a). Car	b). Petrol engine	c). Piston
d). Diesel engine	e). Spark Plug	

25). Which of the following is/are NOT (a) part of a 4+1 View Model of Software Architecture?

a). Logical view	b). Process view	c). Product view
d). Design view	e). Development view	

26). The following diagram shows a web application architecture using the MVC pattern.



Values X, Y and Z can take respectively are:

a). Model, View, Controller	b). Controller, Model, View	c). View, Controller, Model
d). Controller, View, Model	e). Model, Controller, View	

27). Which of the following is/are NOT TRUE regarding the repository architecture?

a). It is suited to applications where data is generated by one sub-system and used by another.

b). It is a system architecture based on the concept of a shared database.

c). It is suitable for control systems such as nuclear reactor control software.

d). It is on efficient way to share large amounts of data.

e). It allows different policies on its sub-systems.

28). Which of the following is/are TRUE regarding the Client–Server architecture?

a). General functionalities need to be implemented by all services.

b). It is used when data in a shared database has to be accessed from a range of locations.

c). It can be used when the load on a system is variable.

d). It is where a set of stand-alone clients provide specific services and set of servers call on those services.

e). Performance of the model may be unpredictable.

29). Which of the following is/are NOT uses of Application Architectures?

a). As a way of organizing the work of the development team.

b). As a requirement gathering tool.

c). As a protptype to demonstrate the system for the client.

d). As a vocabulary for talking about application types.

e). As a starting point for architectural design.

30). Which of the following is/are TRUE with respect to design patterns?

a). They are descriptions of the problem and the essence of its solution.

b). They are software libraries which can be reused when coding.

c). They should be very specific to be reused in different settings.

d). They are ways of reusing abstract knowledge about a problem and its solution.

e). It is always good to use design patterns.

31). Which of the following may NOT be included in a configuration database?

a). Sales Information	b). Installation Manual	c). System Specification
d). Program Code	e). Company Policy	

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

a). FOSS means, you do not need to pay for the software.

b). Source code of FOSS is always available.

c). Open source development encourages volunteers to participate in the development process.

d). If you modify an open source software, you should always make it open source.

e). You can make a revenue from free and open source software.

33). Which of the following is/are TRUE with respect to 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.

d). It demostrates to the customer that the software meets its requirements.

e). Verification is to check whether we are building the right product.

34). Which of the following can NOT be tested in static software testing?

a). Performance	b). Unused variables	c). Adopting standards
d). User-friendliness	e). Usability	

35). Which of the following is/are NOT (a) type of development testing?

a). Unit testing	b). Interface testing	c). Beta testing
d). Release testing	e). System Testing	

36). The test run to check that newly added functionality does not affect existing functionally is called

a). White-box testing	b). Regression testing	c). Alpha testing
d). Stress testing	e). Interface Testing	

37). Which of the following is/are TRUE with respect to Test-Driven Development?

a). Tests are written and executed after coding.

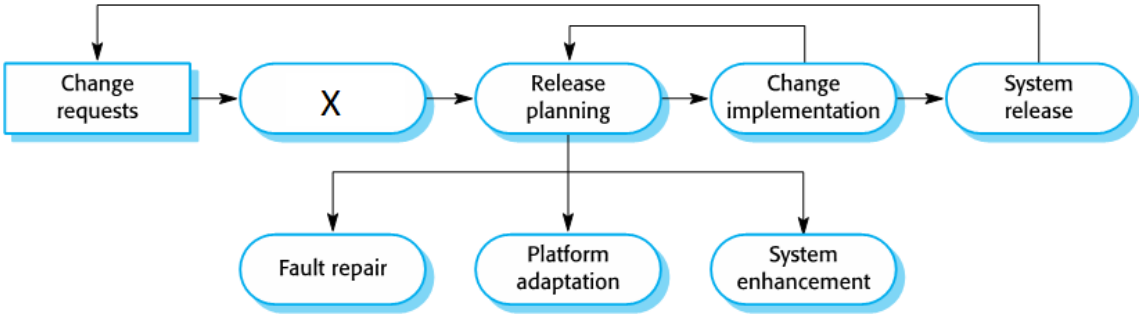
b). It does not move on to the next increment until the code that has been developed passes its test.

c). It cannot be used in plan-driven development processes.

d). It implements as an automated test whenever possible.

e). When implementing a new functionality, it has to re-run the test.

38). The following diagram shows the software evolution process.



X can be,

a). Validating Requirements b). Design for Change c). Impact Analysis

d). Estimate the Cost e). Seeking Approval

39). Which of the following is/are TRUE with respect to software maintenance?

a). The term ”Software maintenance” is mostly used for changing custom software.

b). Software maintenance cost is usually less than the development cost.

c). Maintenance cost decreases as software is maintained.

d). Ageing software can have high support costs.

e). Maintenance does NOT normally involve major changes to the system’s architecture.

40). Which of the following is/are NOT (a) activity(ies) of software reengineering process?

a). Source code translation b). Requirement Validation c). Program modularization

d). Adopting standards e). Data reengineering

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