Question No.		Correct Answer(s)
1	How many definitions of “software architecture” exist? □ (a) Exactly one for all kinds of systems. □ (b) One for every kind of software system (e.g. “embedded”, “real-time”, “decision support”, “web”, “batch”, …). □ (c) A dozen or more different definitions.	c
2	Which THREE of the following aspects are covered by the term “software architecture”? □ (a) Components. □ (b) Cross cutting concepts. □ (c) (internal and external) interfaces. □ (d) Database schemata. □ (e) Hardware Sizing.	a, b, c
3	Which FOUR of the following statements about (crosscutting) concepts are most appropriate? □ (a) Uniform usage of concepts reduces coupling between building blocks. □ (b) The definition of appropriate concepts ensures the pattern compliance of the architecture. □ (c) Uniform exception handling is most easily achieved when architects agree with developers upon a suitable concept prior to implementation. □ (d) For each quality goal there should be an explicitly documented concept. □ (e) Concepts are a means to increase consistency. □ (f) A concept can define constraints for the implementation of many building blocks. □ (g) A concept might be implemented by a single building block.	c, e, f, g
4	In your project, three architects and seven developers are working on the documentation of the software architecture. Which methods are appropriate in order to achieve a consistent and adequate documentation, and which are not? Appropriate Not appropriate □ □ (a) The chief architect creates the documentation. □ □ (b) Identical templates are used for the documentation. □ □ (c) All parts of the documentation are automatically extracted from the source code.	a - Appropriate b - Appropriate c - Not Appropriate
5	Which FOUR of the following techniques are best suited to illustrate the interaction of runtime building blocks? □ (a) Flowcharts. □ (b) Activity Diagrams. □ (c) Depiction of screen flows (sequence of user interactions). □ (d) Sequence diagram. □ (e) Linear Venn diagram. □ (f) Numbered list of sequential steps. □ (g) Tabular description of interfaces. □ (h) Class diagrams.	a, b, d, f
6	Which THREE of the following principles apply to testing? □ (a) In general, exhaustive testing is not possible. □ (b) In components with many known previous errors, the chances for additional errors are high. □ (c) Sufficient testing can show that a program is free of errors. □ (d) Testing can only show the existence of errors. □ (e) Functional programming does not allow automated testing.	a, b, d

7	Which of the following statements regarding the design principle 'information hiding' are true and which are false? True False □ □ (a) Adhering to the “information hiding principle” increases flexibility for modifications. □ □ (b) Information hiding involves deliberately hiding information from callers or consumers of the building block. □ □ (c) Information hiding makes it harder to distinguish between interface and implementation. □ □ (d) Information hiding is a derivative of the approach of incremental refinement along the control flow. □ □ (e) In object-oriented development, information hiding is primarily relevant at class level.	a - True b - True c - False d - False e - True
8	What are the TWO most important goals of software architecture? □ (a) Improve accuracy of patterns in structure and implementation. □ (b) Achieve quality requirements in a comprehensible way. □ (c) Enable cost-effective integration and acceptance tests of the system. □ (d) Enable a basic understanding of structures and concepts for the development team and other stakeholders.	b, d
9	Put yourself in the position of a software architect for a large business application in the banking or insurance domain. Which of the following statements is true and which is false? True False □ □ (a) Your architecture should be structured in a way that allows changes to corresponding business processes without requiring extensive restructuring of the software architecture. □ □ (b) Required product qualities should drive your architectural decisions. □ □ (c) To be independent of the infrastructure you should decide your key software architecture structure before infrastructure architects select the hardware or infrastructure for a product. □ □ (d) Your software architecture should foresee changes in technology (i.e. new UI-frameworks, different deployment strategies, new peripheral devices) and only require local adaptation when it happens.	a - True b - True c - False d - True
10	What are your THREE most important responsibilities as a software architect with respect to requirements? □ (a) Help the business people to express quality requirements in a way that can be tested. □ (b) Help to identify new business opportunities based on your technology know-how. □ (c) Reject business requirements that contain technical risks. □ (d) Rewrite business requirements in a terminology that can be understood by your development team. □ (e) Check requirements for technological feasibility.	a, b, e
11	You are responsible as an architect for keeping a legacy system up and running according to the ongoing requirements of your business. What are the THREE most important action items on your agenda? □ (a) Negotiating the maintenance budget for your team. □ (b) Assuring up-to-date documentation of the deployed system. □ (c) Analyzing the impact of new requirements on the current system. □ (d) Encouraging the team members to learn new programming languages. □ (e) Suggesting technology updates in addition to the business requirements to your management.	b, c, e
12	You are the responsible architect for one product in a product family. The product family has an overall product-family architect. Select which of the following statements is true or false. True False □ □ (a) You have to accept constraints that apply to the whole product family also for your product. □ □ (b) Since parts of this product family are separately sellable products, your product is not bound to the constraints of the suite. □ □ (c) You should have regular meetings with your fellow product architects and the family architect to negotiate common quality requirements and constraints. □ □ (d) You can negotiate deviations from quality requirements that have been defined for the overall suite with the suite architect.	a - True b - False c - True d - True

13	Decide for each of the following statements whether it is true or false. True False □ □ (a) Architectural cornerstones might be decided during iterative development of features. □ □ (b) The total effort spent on architectural work is much higher in iterative projects compared to waterfall projects. □ □ (c) Agile projects do not need architecture documents since the development team uses daily standup-meetings to communicate decisions. □ □ (d) If your systems consist of a set of microservices there is no need for a central architecture document since each service is free to choose its technologies.	a - True b - False c - False d - False
14	Discuss which of the following statements regarding project goals and architectural goals is true and which is false. True False □ □ (a) Project Goals can include functional requirements as well as quality requirements. □ □ (b) Architectural goals are a derived from the quality requirements for the system or product. □ □ (c) Business stakeholders should concentrate on business goals and not interfere with architectural goals. □ □ (d) To avoid conflicts business goals and architectural goals should be nonoverlapping sets.	a - True b - True c - False d - False
15	What does the rule "explicit, not implicit" mean for architecture work? Choose the TWO best-fitting answers. □ (a) Architects should avoid recursive structures and replace them by explicit loops. □ (b) Architects should make the assumptions leading to decisions explicit. □ (c) Architects should explicitly insist on natural language explanations (i.e. comments) for each building block. □ (d) Architects should explicitly insist on written or at least oral justifications for development effort estimates from their team. □ (e) Architects should make prerequisites for their decisions explicit.	b, e
16	Identify the THREE most appropriate examples for typical categories of software systems. □ (a) Batch system. □ (b) Interactive online system. □ (c) Linnés system. □ (d) Embedded real-time system. □ (e) Integration test system.	a, b, d
17	There are many approaches that lead to a software architecture. Which of the following are the THREE most often found in practice? □ (a) User-Interface Driven Design. □ (b) Domain Driven Design. □ (c) View-based Architecture Development. □ (d) Bottom-up Design. □ (e) Majority Voting.	b, c, d
18	Many architecture development methods suggest a view-based approach. Which of the following views are the THREE most often used? □ (a) Physical database view. □ (b) Context view. □ (c) Building Block/Component view. □ (d) Test-driven view. □ (e) Configuration view. □ (f) Runtime view.	b, c, f
19	You document a component of your software architecture. Which information should be contained in your black box description and which information should be avoided? Contained Avoided □ □ (a) Interfaces. □ □ (b) Responsibility. □ □ (c) Internal structure. □ □ (d) Hints for the implementation.	a - Contained b - Contained c - Avoided d - Avoided

20	Which prerequisites have to be fulfilled before developing a software architecture? Pick the TWO most appropriate answers. □ (a) The requirements specification for the system is complete, detailed and consistent. □ (b) The most important qualities for the system are known. □ (c) Organizational constraints are known. □ (d) The programming language has been selected. □ (e) Hardware for the development team is available.	b, c
21	Which factors can influence the design of a software architecture? Pick the THREE most appropriate answers. □ (a) Political. □ (b) Organizational. □ (c) Technical. □ (d) Virtual.	a, b, c
22	Which of the following qualities can most likely be improved by using a layered architecture? □ (a) Runtime efficiency (performance). □ (b) Flexibility in modifying or changing the system. □ (c) Flexibility at runtime (configurability). □ (d) Non-repudiability.	b
23	For which kind of system can the Blackboard Architecture pattern be used? □ (a) Hard real-time systems. □ (b) Rule-based systems. □ (c) Linnés systems. □ (d) Safety critical systems.	b
24	Which goals are you trying to achieve with the dependency inversion principle? □ (a) Big building blocks shall not depend on small building blocks. □ (b) Components shall be able to create dependent components more easily. □ (c) Building blocks shall only depend on each other via abstractions.	c
25	What are characteristics of tight (high) or loose (low) coupling? Tight coupling Loose coupling □ □ (a) Building blocks directly call dependent building blocks, i.e. without detours via interfaces or abstractions. □ □ (b) Building blocks use common data types. □ □ (c) Building blocks use a common database. □ □ (d) When designing building blocks, you have consistently applied the dependency inversion principle.s	a - Tight coupling b - Tight coupling c - Tight coupling d - Loose coupling
26	Which TWO statements about the principle „Don't repeat yourself" (DRY) are correct? (In other words: What could happen, if parts of the source code or configuration do exist in multiple copies in the system?) □ (a) DRY reduces security. □ (b) Strict adherence to DRY could lead to higher coupling. □ (c) The components of the system that contain redundant code can be improved independently of each other. □ (d) Adherence to DRY leads to a reduction of attack vectors in IT security. □ (e) Applying the Layer patterns allows a consistent application of the DRY principle.	b, c
27	You can communicate aspects of your software architecture verbally and/or in writing. How do these variants correlate? Decide for each of the following statements whether it is true or false. True False □ □ (a) Verbal communication should supplement written documentation. □ □ (b) Feedback to architecture decisions should be done in writing to ensure traceability. □ □ (c) Written documentation should always precede oral communication. □ □ (d) Architects should pick one variant (oral or written) and stick to this choice during the whole development.	a - True b - False c - False d - False

28	Which of the following statements about notations for architectural views is true and which is false? True False □ □ (a) Business Process Model & Notation (BPMN) should only be used by Business Analysts and not for architecture documentation. □ □ (b) UML deployment models are the only way to document the mapping of software components to infrastructure. □ □ (c) UML Package Diagrams can be used to capture the building-block view of software architectures. □ □ (d) As long as the notation is explained (e.g. by a legend), any notation can be sufficient to describe building block structures and collaboration.	a - False b - False c - True d - True
29	Which architectural views do have practical application for developing software architectures? □ (a) Pattern View. □ (b) Observer View. □ (c) Building-Block (or Component) View. □ (d) Deployment View.	c, d
30	Parts of the context view are a business context and a technical context. Pick the TWO most appropriate answers that apply to the technical context. □ (a) The technical context contains the physical channels between your system and its environment. □ (b) The technical context contains all the infrastructure on which the components of your system are deployed. □ (c) The technical context should include hardware pricing or pricing of cloud services used as infrastructure for your architecture. □ (d) The technical context contains information about the chosen programming language as well as all frameworks used to implement your software architecture. □ (e) The technical context might contain different elements than the business context.	a, e
31	Software architecture documentation could contain descriptions of cross-cutting concerns. Pick the TWO best reasons why documentation of cross-cutting concerns is useful. □ (a) Cross-cutting concepts should focus on the domain and be free of technical information. □ (b) Aspects or concepts that are used in multiple parts of your software architecture should be described in a non-redundant way. □ (c) Cross-cutting concepts can be reused in more products within the same organization. □ (d) Cross-cutting concepts should be implemented by specialists. Therefore, separate documentation is useful.	b, c
32	What are guidelines for good interface design? Check which of the following statements is true and which is false. True False □ □ (a) Use of interfaces should be easy to learn. □ □ (b) The client code should be easy to understand. □ □ (c) An interface should be defined by the provider of the appropriate service. □ □ (d) Interfaces specifications should contain functional and non-functional aspects. □ □ (e) Local and remote calls to an interface should behave identically in all aspects.	a - True b - True c - False d - True d - False
33	One definition says: “Software architecture is the sum of all the decisions you have taken during development. Check which of the following statements about architectural/design decision is true and which is false. True False □ □ (a) Architectural decisions can implicitly be contained in the structure of the building block/component view. □ □ (b) Software architects should justify all design decision in writing. □ □ (c) Architectural decisions can have interdependencies between each other. □ □ (d) Tradeoffs between conflicting quality requirements should be explicit decisions.	a - True b - False c - True d - True

34	Which of the following statements is a good reason for maintaining (adequate) architecture documentation and which is no good reason? Good reason No good reason □ □ (a) To enable onboarding of new developers. □ □ (b) To conform to legal constraints. □ □ (c) To support the work of distributed teams. □ □ (d) To assist in future enhancements of the product.	a - Good reason b - Good reason c - Good reason d - Good reason
35	Which of the following pairs of qualities are usually in conflict to each other, and which are not? Conflicting Not conflicting □ □ (a) Understandability – Readability. □ □ (b) Usability – Security. □ □ (c) Runtime configurability – Robustness. □ □ (d) Security – Legal Compliance.	a - Not conflicting b - Conflicting c - Conflicting d - Not conflicting
36	ISO 25010 provides generic quality characteristics for software systems. How can quality requirements concerning these characteristics be made more concrete? Pick the TWO best alternatives. □ (a) By developing UI prototypes. □ (b) By defining explicit interfaces. □ (c) By discussing or writing scenarios. □ (d) By creating automatic tests. □ (e) By creating a quality tree.	c, e
37	Which of the following things does not help in qualitative analysis of your software architecture? Pick the only wrong answer. □ (a) Metrics. □ (b) Architecture models. □ (c) Quality scenarios. □ (d) Project status reports. □ (e) Log files.	d
38	You try to analyze your architecture quantitatively. Which are the TWO most appropriate indicators for architectural problem areas? □ (a) High coupling of components. □ (b) Inappropriate names of public methods. □ (c) Missing comments. □ (d) Error clusters. □ (e) Number of test cases per component.	a, d
39	Which of the following alternative cannot be measured in your software architecture? Pick the TWO answers that are least likely. □ (a) Size of building blocks (e.g. LOC). □ (b) Change rate of the source code of components. □ (c) Cohesion of the architectural components. □ (d) Security level of a component. □ (e) Number of the developers that contributed to a specific component.	c, d
40	What are quality models? Choose three of the most suitable from the following four answers (Mark ‘X’) in first column A) Quality models specify criteria for metrics to measure software quality B) Quality models breakdown software quality into individual criteria C) Quality models are needed to find the right evaluation method D) Quality models describe software quality by providing sub terms	a, b, c
41	Name the well known quality models Choose two of the most suitable from the following four answers (Mark ‘X’) in first column A) FURPS B) Model of Barbara Liskov C) GURPS D) Model of Boehm	a, d

42	Which of the following requirements are quality requirements Choose two of the most suitable from the following four answers (Mark 'X') in first column A) The software should be able to handle 3000 user requests per hour B) CAN message with high priority is processed first C) The user should be allowed to select the music play or video play option D) Throughput of 100MB/s	a, d
43	Which of the following requirements are quality requirements Choose two of the most suitable from the following four answers (Mark 'X') in first column A) Quality requirements are most often non functional B) Architect is responsible to make the SW error free C) Quality of software systems is always viewed in terms of attributes and characteristics D) We can do complete testing of software systems E) When testing if we find no errors it's a proof of no failures in software F) When possible quality requirements should be measurable	a, c
44	Which of the following are "true" Choose three of the most suitable from the following four answers (Mark 'X') in first column A) Performance vs. portability contradict each other B) Efficiency and performance support each other C) Portability and maintainability contradict each other D) Simplicity and understandability contradict each other E) Flexibility vs. testability contradict each other	a, b, e

45	Which of the following statements is true for architecture definition Choose the two most suitable from the following answers (Mark 'X') in first column A) Important decisions are results of the structure B) Decisions that are difficult to revise in the future C) Fundamental decisions D) Complex decisions	b, c
46	Which is the ISO standard definition of SW Architecture Choose the one from the following answers (Mark 'X') in first column A) Software Architecture is a framework for change B) The software architecture of a program or computing system is the structure or structures of the system, which comprise software elements, the externally visible properties of those elements, and the relationships among them C) Fundamental organization of a system in its environment embodied in its elements, relationships, and in the principles of its design and evolution D) Architecture represents the significant design decisions that shape a system, where significant is measured by cost of change	c
47	Which of the following can be building blocks for software architecture Choose the four most suitable from the following answers (Mark 'X') in first column A) An Algorithm B) A Component C) A test case D) A package E) A method/procedure/function/operation F) A local variable G) A Class H) A test framework I) A Processor	b, d, e, g
48	Which aspects are true for interfaces Mark 'X' against "true" or "false" A) Well defined control point B) Well defined access point C) Data is its property D) Attributes is not its property E) Functions is its property	a - False b - True c - True d - False e - True
49	Which aspects of black box view is true or false Mark 'X' against "true" or "false" A) Does not have exported and imported interfaces B) No visible interior C) Component configurator's view D) Not Algorithm E) Helps in understanding amount of coupling with other building blocks F) Component integrator's view	a - False b - True c - False d - True e - True f - False
50	Which aspects of white box view is true or false Mark 'X' against "true" or "false" A) Inner structure and decomposition into sub-components B) Component Implementers view C) Not architects view D) Not Algorithm E) Not LOC F) Not contracts	a - True b - True c - True d - False e - True f - False
51	Postel law states Choose one of the most suitable from the following four answers (Mark 'X') in first column A) Be conservative in what process and be liberal in what you output B) Be liberal in what you send and be conservative in what you receive C) Be conservative in what you send and be liberal in what you receive D) Be liberal in what process and be conservative in what you output	c

52	We define properties of interfaces as Mark ‘X’ against “true” or “false” A) Syntax and data structures B) Functional behavior C) Behavior in case of error D) Non-functional properties E) Usage log of interface F) Technologies G) Constraints and semantics	a - True b - True c - True d - True e - True f - True g - True
53	Which aspects of grey box view is true or false Mark ‘X’ against “true” or “false” A) Can be described with UML distribution diagrams B) Component configurators view C) Configuration interfaces or interfaces of runtime environment D) Not Algorithm E) Not LOC F) Not contracts	a - True b - True c - True d - True e - True f - True
54	Which of the following statements is true according to Conway’s Law Choose the two most suitable from the following answers (Mark ‘X’) in first column A) If you have four groups working on a compiler, you'll get a 4-pass compiler B) Architecture requirements follow business requirements C) Software systems end up "shaped like" the organizational structure they are designed in or designed for D) System architecture is shaped like organizational architecture	a, c
55	Which of the following statements is true for building blocks Choose the three most suitable from the following answers (Mark ‘X’) in first column A) It has configuration and hierarchic decomposition B)They are not libraries C)They are contracts D)They are not scripts E)They are not database tables F) They exhibit encapsulation and interchangeability	a, c, f
56	White box decomposition takes care of Choose the three most suitable from the following answers (Mark ‘X’) in first column A) It has configuration and hierarchic decomposition B) Justification of chosen decomposition C) Coupling between the embodied black-box building block D) Testability of the embodied black box building block E) Properties of the access point F) Encapsulation	b, c, d
57	Which if the statements are true for cross cutting concerns Choose the three most suitable from the following answers (Mark ‘X’) in first column A) They are concepts which apply to a single element in the architecture B) They are concepts which apply to all or many elements in the architecture C) Error handling D) Logging E) Concept which help in cutting down costs of developing architecture F) They affect black box and white box views of architecture	b, c, d
58	Which of the following statements are benefits of software architecture Choose the four most suitable from the following answers (Mark ‘X’) in first column A)It’s a bridge between analysis and realization by mapping requirements to structures B)It helps in identifying project goals C)It is an abstraction, masking information selectively to promote understandability D)It makes complexity controllable and comprehensible for various stakeholders (management, operations and stakeholders) E)Architecture documentation helps in satisfying quality gates of the project F)It is basis for system quality	a, c, d, f

59	Which architecture levels are there ? Choose three of the most suitable from the following four answers (Mark ‘X’) in first column A) Moderate architecture B) Infrastructure architecture C) Business architecture D) Business process architecture	b, c, d
60	Which of the following statements show role of SW Architecture in development process Choose the four most suitable from the following answers (Mark ‘X’) in first column A) SW Architecture is used for systems planning B) Architecture provides opportunity to do task planning C)For Operations - Architecture determines the runtime environment D) White box view of architecture is used to identify security flaws E)Quality test planning can be based on architecture and compliance to requirements can be verified F)SW Architecture originates on the basis of functional and non functional requirements	b, c, e, f
61	An Architect is Responsible for Mark ‘X’ against “true” or “false” A) Consulting on Architecture B) Financially responsible C) Domain side D) Simplifying Architecture E) Ensure fulfillment of requirements F) Are diplomats as well as acrobats G) Communicating Architecture H) Estimate I) Documenting Architecture K) Setup test management	a - True b - False c - False d - True e - True f - True g - True h - False i - True k - False
62	Which of the statements is true for implicit assumptions for Software Architecture Choose the most suitable from the following four answers (Mark ‘X’) in first column A) All implicit assumptions are taken care by Requirement's Engineer B) All explicit statements should be made clear to all stakeholders C) Implicit assumptions can lead to misunderstandings between stakeholders D) Software architects should explicitly present assumptions or prerequisites and avoid implicit assumptions with stakeholders	c, d
63	Which of the following is architecture objectives Choose three of the most suitable from the following four answers (Mark ‘X’) in first column A) Long term objectives B) Project objectives C) Quality characteristics D) Constraints	a, c, d
64	Which are the preconditions for creating software architecture Choose two of the most suitable from the following four answers (Mark ‘X’) in first column A) A programming language should be chosen B) The quality attributes should be known C) The influencing factors should be known D) The requirements should be complete and consistent	b, c
65	Software architecture focuses on Choose four of the most suitable from the following answers (Mark ‘X’) in first column A) Durability B) Maintainability C) Changeability D) Pure Functionality E) Robustness F) Project objectives	a, b, c, e

66	Which architecture views might be used to communication of software architecture ? Assign all answers (Mark ‘X’ on each row “true” or “false”) A) In case of separate focus, individual aspects of building blocks such as data view or interfaces can be defined as special view types B) System context diagram C) Runtime view D) Building block view E)Context separation view	a - False b - True c - True d - True e - False
67	Which statements concerning the views concept in the software architecture is correct ? Choose three of the most suitable from the following four answers (Mark ‘X’) in first column A) It models (abstracts) the reality B) The individual view cannot represent the whole complexity of the system C) It reduces the complexity of representation D) To represent two of the four different views are sufficient E) All UML view types should be used for good documentation	a, b, c
68	Which statements concerning documentation of software architecture is correct ? Assign all answers (Mark ‘X’ on each row “true” or “false”) A)It is one of the most important tasks of SW architect B) SW Architect primarily learns via verbal communication what he need to document in writing C)Verbal communication and written description or documentation complement each other D)Written communication makes verbal reiteration unnecessary E)Documentation should be done primarily for stakeholders who cannot access source code F) In agile projects documentation is not needed where verbal communication can be used G) SW architecture documentation can be made by developers so that SW architect can focus on other key tasks like technical risk management. H) Only the intended users can decide whether right information is provided in right way	a - True b - True c - True d - False e - False f - False g - False h - True
69	Name the three most important fields in template based architecture? Choose three of the most suitable from the following four answers (Mark ‘X’) in first column A) To describe module structures (white boxes) B) To describe individual architectural modules and their external interfaces (black boxes) C) To use copyright templates for a consistent description of project/system meta information within documents and source codes D) To use a standardized document structure E) To reuse code and test case templates F) Architecture wallpaper description	a, b, d
70	Which of the following methods are best suited to illustrate the interaction of runtime building blocks? Select the four most suitable techniques? Choose four of the most suitable from the following answers (Mark ‘X’) in first column A) UML activity diagrams B) UML communication diagrams C) UML sequence diagrams D) UML class diagrams E) A Flow chart F) State diagram G) Small sections of code H) Numbered list of sequential steps	a, c, f, h
71	Which of the following statements about views is true? Choose five of the most suitable from the following answers (Mark ‘X’) in first column A) A system can have many views with its own different focus B) There are several opinions on which views are sensible and how they are named C) Depending on the view all aspects are emphasized D) Views can sometimes contradict E) ISO 42010 defines framework and views but does not specify concrete views F) Views are not entirely independent. Certain information can occur several times G) iSAQB defines Context view, Building block view, deployment view , runtime view and class diagram as key views H) Specialization of views allows better handling of complexity	a, b, e, f, h

72	Which of the following statements is “true” about context diagram ? Choose five of the most suitable from the following answers (Mark ‘X’) in first column A) The most important use cases of the total system B) Does not contain external actors (adjacent systems and users) C) All interfaces to outside world D) Point of entry and map of the system to describe E) Does not contain internal implementation details F) Contains distributions G) Can contain hardware and software top level abstractions H) A system as a black box viewed from outside	a, c, d, e, h
73	Which of the following statements about deployment view is “true”? Choose four of the most suitable from the following answers (Mark ‘X’) in first column A)It can be used to communicate with operations B)It contains attributes of class C)It shows how stakeholders communicate with system D)It can be used to recognize bottle necks, calculate costs and identify risks E)It can be used to define architectural tasks of who should do what F)It shows the timing of processes being executed G)It can be used to show capacity of networks and memory H)Configuration and administration of run-time environment	a, d, g, h
74	Which of the following statements is true about documentation quality characteristics ? Choose four of the most suitable from the following answers (Mark ‘X’) in first column A)Usefulness B)It should be based on standard UML notations C)Understandability D)It should have proper layout E)Correctness F) It has to be complete G)Efficiency H)Reliability	a, c, e, g
75	Design decisions can be part of which type of view? Choose one of the most suitable from the following answers (Mark ‘X’) in first column A)Black box building block view B)White box building box view C)Context View D)Run-time view	b
76	Which of the following statements are true about documentation? Choose two of the most suitable from the following answers (Mark ‘X’) in first column A)Chief architect should do all the architecture documentation B)Let the teams alone decide what to document C)Document can only be in source code and we can have a mechanism to generate document from code D)Tool generates all the required documentation E) Architecture wallpaper is used for discussions with developer F)Architecture overview documentation is compact (has max 30 pages)	e, f
77	Which of the following statements are true about Layered Architecture Choose three of the most suitable from the following four answers (Mark ‘X’) in first column A) Bidirectional dependencies between layers allowed B) Increased Flexibility C) Create high performance System D) Simple structure and easy to understand E) Potential of reuse of layers F) Lower layer changes impact is not cascaded	b, d, e

78	Which of the following statements are true or false about architectural activities Assign True or False against most suitable (Mark 'X') in columns TrueFalse A) Should iterative in approach B) It's a one time development effort C) Trade-offs to be taken based on quality scenarios D) Iterative approach help to deal with uncertainties E) Incremental architecture approach leads to project delay	a - True b - False c - True d - True e - False
79	Which aspects are domain related and which aspects are technical architecture Assign to a most suitable (Mark 'X') in columns DomainTech A) Error logging in radio control module B) Navigation functionality in vehicle infotainment C) Engine Torque control D) Security	a - Tech b - Domain c - Domain d - Tech
80	Which of the following statements are true or false about Information hiding Assign True or False against most suitable (Mark 'X') in columns A) Increase flexibility for modifications B) Explicitly hiding information from callers or consumers of building block C) Information hiding makes interface to implementation harder to distinguish D) In Object Oriented development information hiding is primarily relevant at class-level	a - True b - True c - False d - True
81	Which of the statements apply to design patterns Choose most suitable from the following four answers (Mark 'X') in first column A) Design Patterns should always be described along side of problem it solves B) Design Patterns are formally defined thus can be proven correct C) Number of design pattern used is proportional to software architecture quality D) Design patterns are not invented but discovered	a, d
82	Choose which of the following are behavioral design patterns Choose most suitable from the following four answers (Mark 'X') in first column A) Memento Design B) Flyweight C) Observer D) Prototype	a, c
83	You are SW architect of system run for many years and extended repeatedly and analysis of source code revealed lot of dependencies between classes, which are the measures are possible solutions Choose most suitable from the following four answers (Mark 'X') in first column A) Dependency of classes are responsibility of developer and no measures are required with-in architecture B) Loosening the direct dependencies of classes using factories C) Use dependency inversion principle D)) Loosening the direct dependencies of classes introduction of interface	b, c
84	Which are all known patterns for adaptation of interfaces Choose most suitable from the following four answers (Mark 'X') in first column A) Factory B) Facade C) Bridge D) Observer E) Proxy F) Adapter	b, e, f

85	Which cross-cutting concerns to be addressed by technical architecture Choose most suitable from the following four answers (Mark 'X') in first column A) Security B) Logging C) Error Handling D) GUI F) Internationalization	a, b, c, d, e
86	Which principle/pattern helps in developing a loosely coupled system Choose most suitable from the following four answers (Mark 'X') in first column A) DI B) IOC C) Dependency Inversion D) Abstract factory E) Bridge F) Enacpsluation	a, b, c, d
87	Which of the following statements about cross-cutting concerns are most appropriate Choose four most suitable from the following four answers (Mark 'X') in first column A) Definition of appropriate concepts ensures conceptual integrity of architecture B) Concepts are means to increase consistency C) For each quality goals there should be explicitly documented concept D) Uniform exception handling is most easily achieved when architects agree with developers upon suitable concept prior to implementation E) Concept might be implemented by a single building block F) Uniform usage of concepts reduce coupling between building blocks G) A concept can define constraints of implementation for many building blocks	b, d, e, g
88	Which factors can influence design of software architecture ? Choose three of the most suitable from the following four answers (Mark 'X') in first column A) Political B) Organizational C) Ethical D) Technical	a, b, d
89	Which are examples of usage types or categories of software systems ? Choose three of the most suitable from the following four answers (Mark 'X') in first column A) Linnaeus system B) Interactive online system C) Operational system D) Real-time system	b, c, d
90	Which of the statements are true for architecture development? Choose two of the most suitable from the following four answers (Mark 'X') in first column A) Architecture development should be top-down B) Architecture development should be both top-down and bottom-up C) We should avoid conflict when developing architecture in both top down and bottom up approach D) When both top-down and bottom-up approach is used it may lead to conflicts	b, d
91	Which of the statements are true for top-down architecture development? Choose four of the most suitable from the following answers (Mark 'X') in first column A) Implementation of individual modules starts without a complete architecture design B) Little progress visible in beginning C) Uneven distribution of effort between architecture and development phase D) More effort needed for integration E) High degree of reusability F) Orientation towards technical conditions instead of user requirements G) Real-sub problems are starting point H) Proper interfaces/consistence	b, c, e, h

92	Which of the statements are true for divide and conquer Choose three of the most suitable from the following answers (Mark 'X') in first column A) Separation of concerns is not part of divide and conquer principle B) Consists of Hierarchical component structure C) Regular re-designing and refactoring are not required D) Encapsulating and separating responsibility understandably and clearly E) Internal structure of other components should not be known across F) Highly coupled and loosely cohesive structure	b, d, e
93	Which of the statements are true for bottom-up architecture development? Choose four of the most suitable from the following answers (Mark 'X') in first column A) Implementation of individual modules starts without a complete architecture design B) Conceptual integrity C) Good understanding of system D) Danger of uncontrolled growth E) Step-wise integration F) Overall quality attributes are considered right from the start G) Danger of premature optimization H) Design visible in the product	a, d, e, g
94	Which are the important aspects of domain driven design Choose ~~four of~~ the most suitable from the following answers (Mark 'X') in first column A) Ubiquitous languages B) Entities and value objects C) Bounded context D) Factories and aggregators E) Context map F) Services and repositories G) Three different types of domain objects	a, b, c, d, e, f, g
95	Which is true for model driven architecture Choose four of the most suitable from the following answers (Mark 'X') in first column A) Model is actual reality B) Use of models and generators C) DSL should not be used for MDA D) Improves development efficiency E) Improves portability F) Platform independent aspects and Platform dependent aspects in the same layer G)Concept of generation of application	b, d, e, g
96	In using Dependency injection which of the statements are true Choose four of the most suitable from the following answers (Mark 'X') in first column A)It is the usage of inversion of control principle B)Dependencies on concrete implementation classes is required C)Reduces coupling between classes D)Focus on creation and initialization E) It is implementation of Hollywood principle F) Dependency injection cannot be used in layered architecture G) It increases dependency by introducing new interfaces	a, c, d, e
97	In using Dependency inversion which of the statements are true Choose two of the most suitable from the following answers (Mark 'X') in first column A)It is the usage of inversion of control principle B)Dependencies on concrete implementation classes is required C)Reusability of high level module is improved D)Focus on creation and initialization E) High level modules should not depend on low level modules both should depend on abstractions F) Dependency injection cannot be used in layered architecture G) It increases dependency by introducing new interfaces	c, e

98	In a customer project the architecture shall be based on components. The requirements have not been fully determined yet. Taking this constraint into account, which of the three properties of the components you want to give importance Choose three of the most suitable from the following four answers (Mark 'X') in first column A)Weak coupling B)Dependencies on concrete implementation classes is required C)Strong Cohesion D)Small component size E)Open for extension F)Open for modification G)Create empty components and integrate them so that we get a base architecture to start with	a, c, e
99	Put yourself in the position of a software architect for a large, distributed business application in the banking or insurance domain. Which of the following statements is true and which is false? true false (a) The architect collaborates with the stakeholders to determine where the requirements and constraints will change often (e.g., business processes, technologies), and designs the architecture such that changes can occur without requiring extensive restructuring of the software architecture. (b) Required product qualities should drive your architectural decisions. (c) The software architecture can be designed completely independent of the hardware and infrastructure.	a - True b - True c - False
100	Which of the following statements regarding architecture decisions are true, which are false? true false (a) Architecture decisions never need to be written down because they are already known to the development team. (b) An architecture decision record helps to make the decision's context understood. (c) Once a decision has been made on a central or fundamental framework (e.g. persistence framework), that decision must not be changed. (d) Quality requirements help significantly with architecture decisions.	a - False b - True c - False d - True
101	Decide for each of the following statements whether it is true or false. true false (a) Each iteration of an agile development approach could have an impact on the fundamental architecture decisions. (b) The total effort spent on architectural work is much higher in iterative projects compared to waterfall projects. (c) Agile projects do not need architecture documents since the development team uses daily standup-meetings to communicate decisions. (d) If your systems consist of a set of microservices there is no need for a central architecture document since each service is free to choose its technologies.	a - True b - False c - False d - False
102	When documenting a building block of your software architecture, which two pieces of information should the black-box description contain? (a) Public interfaces. (b) Responsibility of the building block. (c) Internal structure of the building block. (d) Specification of the implementation details.	a, b
103	Which type of problems provide a good fit for the Pipes & Filter Pattern? (a) Management of global application state (b) IT systems which process data streams (c) Decoupling multiple steps of an execution (d) Temporal decoupling of an application	b, c

104	Which of the following statements are typical reasons for introducing an architecture documentation and which are not typical reasons? typical not typical (a) To support onboarding of new developers. (b) To support the automated testing approach of the system. (c) To support the work of distributed teams. (d) To assist in future enhancements of the product. (e) To conform to regulatory or legal constraints. (f) To ensure that developers have enough work to do.	a - typical b - not typical c - typical d - typical e - typical f - not typical
105	Which four of the following are best suited to support the analysis of the achievement of the quality requirements (qualitative analysis) of your software architecture? Pick the four best alternatives. (a) Quantitative dependency analysis. (b) Architecture models. (c) Quality scenarios. (d) Team size. (e) Log files. (f) Organizational structure.	a, b, c, e
106	You try to analyze your architecture quantitatively. Which are the two most appropriate indicators for architectural problem areas? (a) High coupling of components. (b) Names of public methods do not reflect their purpose. (c) Missing comments. (d) Clusters of errors in certain building blocks of the system. (e) Number of test cases per component.	a, d