



**Entrance Exam for the Study Programmes Information Systems and Technologies,
ISIT Management and Information Engineering 2026**

Task code:

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1. Which term is used to describe the unique key in a database table?
 - a. Prime Key
 - b. Core Key
 - c. Primary Key**
 - d. Master Key
 - e. Unique Key
 - n. I don't know
2. What is the purpose of the JOIN operation in a database?
 - a. To insert new records
 - b. To retrieve data from multiple tables**
 - c. To update existing records
 - d. To combine the values of two fields
 - e. To delete records
 - n. I don't know
3. In UML diagrams, a synchronous message is used to:
 - a. Invoke an object operation and wait for its response**
 - b. Invoke an object operation without waiting for its response
 - c. Create an object
 - d. Mark objects for deletion
 - e. Return a response to the caller of the synchronous message
 - n. I don't know
4. According to the BPMN 2.0 standard, a circle symbol represents:
 - a. Activities
 - b. Associations
 - c. Pools and swimlanes
 - d. Events**
 - e. Gateways
 - n. I don't know
5. Which of the following is not an element of the Star Model of organization?
 - a. Structure
 - b. Technology**
 - c. Rewards
 - d. Processes
 - e. Capabilities
 - n. I don't know
6. The initial loading of the Program Counter with the address of the first program instruction is performed by a system program called:
 - a. Assembler
 - b. Compiler
 - c. Interpreter
 - d. Loader**
 - e. Shell
 - n. I don't know
7. Identify the informal organization for IT standardization:
 - a. International Organization for Standardization - ISO
 - b. European Association for Standardizing Information and Communication Systems - ECMA**
 - c. International Electrotechnical Commission - IEC
 - d. International Telecommunication Union - ITU
 - e. Pan American Standards Commission - COPANT
 - n. I don't know
8. Data warehouses have the following characteristics:
 - a. Subject orientation, normalised structures, non-volatility, integration
 - b. Time variance, integration, normalised structures
 - c. Subject orientation, integration, non-volatility, time variance**
 - d. Reporting speed, efficient data entry, small storage space
 - e. Process orientation, normalised structures, integration, reporting speed
 - n. I don't know

9. What is the purpose of the HAVING clause in SQL?
- It checks whether a value exists in a relation field
 - It filters records based on a specified condition
 - It specifies the condition for sorting the result set
 - It joins two or more tables
 - It filters the results of aggregate functions applied to groups**
 - I don't know
10. What is the purpose of the CASCADE keyword in the context of foreign keys?
- It requires the foreign key column to be unique
 - It creates an index on the foreign key column
 - It ensures that foreign key values are not NULL
 - When deleting a table with a foreign key, it cascades the deletion to the table containing the related primary key
 - It automatically updates or deletes related records when the primary key is updated or deleted**
 - I don't know
11. In the relational model, a view (derived relation) can be derived from a set consisting of:
- One or more base relations and one or more views**
 - Only the given base relations
 - Only one base relation and only one view
 - One or more base relations and at most two additional views
 - At most two base relations and at most two views
 - I don't know
12. In a data model, generalization represents a mapping from:
- Subtype $\rightarrow$ Subtype
 - Supertype $\rightarrow$ Supertype
 - Supertype $\rightarrow$ Subtype
 - Subtype $\rightarrow$ Supertype**
 - Strong entity $\rightarrow$ Weak entity
 - I don't know
13. The definition "If, in a relation, every constraint on the values of its attributes is a consequence of its keys and domains" describes the following normal form:
- BCNF (Boyce-Codd)
 - DKNF (Domain-Key)**
 - 4NF
 - 3NF
 - 2NF
 - I don't know
14. In XQuery, the LET clause defines:
- An iterator variable
 - The structure of the query result
 - A variable to which a value is assigned**
 - Result selection
 - Any expression as a function whose arguments are sequences and which returns sequences
 - I don't know
15. In a UML sequence diagram, the notation :Student denotes:
- An object named Student of the Student class
 - An object named Student of an unnamed class
 - An unnamed object of the Student class**
 - Does not denote an object
 - Is not allowed
 - I don't know
16. In a state transition diagram, if a transition has no name, which statement is correct?
- The transition occurs automatically**
 - The transition is not defined correctly
 - The transition is not decomposed
 - The transition will never occur
 - None of the above
 - I don't know
17. The development of information systems begins with the analysis and definition of:
- The model of standard software components
 - The model of computer infrastructure
 - The revenue and expenditure model
 - The business system model**
 - The organizational structure model
 - I don't know

18. In computer network terminology, a socket is:
- a. **An application interface to a transport-layer service**
 - b. A data package
 - c. An application for network communication
 - d. A routing protocol
 - e. A chat service
 - n. I don't know
19. At which highest layer of the network stack does a router operate?
- a. Application layer
 - b. Transport layer
 - c. Data link layer
 - d. **Network layer**
 - e. Physical layer
 - n. I don't know
20. Which of the following is not a basic methodological approach to ERP system implementation?
- a. Concession strategy
 - b. Phased implementation
 - c. 'Slam dunk' strategy
 - d. 'Big bang' strategy
 - e. **'Waterfall' strategy**
 - n. I don't know
21. Identify the proprietary ERP system:
- a. OpenBravo
 - b. Odoo
 - c. Compiere
 - d. BlueERP
 - e. **Microsoft NAV (Microsoft Dynamics 365 Business Central)**
 - n. I don't know
22. If knowledge is represented in the form of nodes and links between nodes, then it is represented by:
- a. A decision table
 - b. **Semantic networks**
 - c. A decision tree
 - d. Production rules
 - e. Implicit knowledge
 - n. I don't know
23. Which of the following is NOT an operation on an OLAP cube?
- a. Slice selection
 - b. Sub-cube selection
 - c. Navigating through the dimension hierarchy
 - d. Rotation
 - e. **Dimension summarisation**
 - n. I don't know
24. Which of the following aggregate functions is defined for date-type columns?
- a. SUBSTRING ()
 - b. MOD()
 - c. EXTRACT ()
 - d. CAST ()
 - e. **MAX ()**
 - n. Ne znam
25. A well-formed XML document must also satisfy the following condition:
- a. The element that is opened first is also closed first
 - b. **Every attribute value must be enclosed in quotation marks**
 - c. It must contain at least five elements
 - d. An XML document declaration in which all other elements and their content are nested
 - e. All elements, including an empty element, must have both a start tag and an end tag
 - n. I don't know
26. In UML 2.0, generalization exists for:
- a. Actors only
 - b. Use cases only
 - c. **Both actors and use cases**
 - d. Only dependency relationships between use cases
 - e. Neither actors nor use cases
 - n. I don't know
27. The Android operating system belongs to the group of:
- a. Embedded manufacturer-specific operating systems
 - b. **Computer operating systems adapted for mobile devices**
 - c. Operating systems designed to run on a chip
 - d. operating systems based on the Windows kernel
 - e. operating systems designed to run on Apple mobile devices
 - n. I don't know

28. If a manager focuses on how the work is done, is a master of their craft, and keeps track of new opportunities and threats, which managerial role from the ideal manager model do they not possess?

- a. **Integrator**
- b. Administrator
- c. Organizer
- d. Entrepreneur
- e. Producer
- n. I don't know

29. Let point i belong to a cluster. If $w(i) = 3$, and we know that $b_1(i) = 4$, $b_2(i) = 5$ and $b_3(i) = 6$, what is the value of the silhouette index?

- a. -1
- b. -0,25
- c. 0
- d. **0,25**
- e. 1
- n. Ne znam

30. The entropy of a node in decision trees is highest:

- a. When the algorithm is run for the first time
- b. When there are more than two categories
- c. When all elements belong to the same category
- d. **When all elements belong to different categories**
- e. Before data normalisation
- n. I don't know