Sample Questions on Business Intelligence 2025

Note This list of questions is provided as a source of orientation only. You can use it for supervised learning in preparation for the exam ;) Other questions related to the course contain can be raised at the exam, as well.

BI Fundamentals

1. What is Business Intelligence? Why is it important for the business? How can the business benefit from implementing BI?
2. Which are the main stages of BI process? Which are the objectives and the programming tasks at each stage?
3. Which categories of data BI works with? What do they represent? Discrete and continuous data are represented differently. How? What is the difference between nominal and ordinal data?
4. What are the data ingestion and data wrangling? Which operations with the data are performed at that stage of BI process?
5. What are the data warehouse, data mart, and data lake? What is the difference between them? Which processes are referred by the abbreviations ETL and ELT? Name some of the difference between the two.
6. The quality of data is very important for successful data analytics. Remember GIGO? Which are the criteria of good quality? What can be done to improve the data quality?
7. What is known by data transformation? Give some examples of operations of transformation. In which cases is it important part of the data pre-processing?
8. What is known by features engineering? Give some examples of operations of this category. In which cases is it important part of the data pre-processing?

BI Data Exploration by Statistics and Visualisation

9. In statistics, what are population and sample? How do they differ? What is a normal distribution? Which are the characteristics of a normal distribution?
10. What is Descriptive Statistics and where does it find place in BI? Give examples of Descriptive Statistics instruments, used for exploratory analysis of data in BI?
11. What are the central tendency and the variability? Which measures are used for representing them? Explain the meaning of these measures, give examples.
12. What are the outliers. What is their role in the analysis? Name two methods for discovering outliers in a data set.
13. What is measured by the parameter “correlation”? Give some examples of cases, where the correlation coefficient is used?
14. Which data structure is known as data cube? What are the dimensions and the measures of a cube?
15. Explain the operations slice, dice, roll-up, drill-down. Give examples of implementing them.
16. What is the role of visualisation in data exploration? What do diagrams, dashboards, and data stories show?
17. How to design a usable dashboard? Whish strategies to apply for building informative data story?
18. What are the advantages of 3D visualization versus 2D visualization in data science? Name some types of visuals you have used in your projects.
19. What is the role of interaction with the data? Which interaction techniques you have used in your application?

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BI Prediction by Machine Learning Methods and Algorithms

20. What is called predictive analytics? How is it different from exploratory data analysis? Which methods of predictive analytics are you familiar with?
21. Which branch of AI is known as machine learning? Give your own explanation of the meaning of it. What are the goals of ML, which data related tasks are solved by ML?
22. Describe the process of machine learning. Which activities would you plan for solving a BI task by implementing ML? Draw a simple activity diagram for illustration.
23. What is the difference between method, model, and algorithm in machine learning? Give examples.
24. What is the difference between supervised and unsupervised machine learning? Compare classification, regression, and clustering. Give examples of appropriate real-life cases for each of the three categories of tasks.
25. Which machine learning libraries and frameworks you are familiar with? Which range of functions each of them provides?
26. The probability theory and rule-based decision making are powerful instruments in machine learning. Solving what kind of tasks they can be applied for? Explain the role of probability, entropy and information gain.
27. What is clustering in machine learning? How does it differ from classification? Explain how methods for clustering work. Give examples of appropriate implementations.
28. Explain overfitting and underfitting. Which techniques would you use to avoid them? Explain cross-validation. In which cases it is recommended for use?
29. How to validate the various machine learning models? What kind of errors can they produce? How are the errors measured? Give examples of error measurement techniques.
30. If the accuracy of a model is not good enough, what would you try for improving it?

BI Applications with Multimodal Data and Artificial Intelligence

31. Which branch of AI is known as GenAI? Explain LLM? How to use them? Give examples of tasks solved by GenAI and LLM implementation?
32. Explain how AI methods can help in analysis of images. Name some programming tasks, related to image processing.
33. Explain how written text in natural language is processed by AI methods. Which language-dependant tasks can be solved by text processing automation?
34. What is known as text embedding? Explain the process of embedding.
35. What are the vector databases? What is their role in AI? Give an example of using them?
36. What does the abbreviation RAG stay for? Explain the meaning of it? Name some advantages and disadvantages of developing RAG, as a component of the AI applications workflow.
37. What, do you think, is the future of BI in the modern business and society? How is AI reshaping it?