

LIST OF ENTRANCE EXAM QUESTIONS

FOR THE INTERNATIONAL MASTER'S DEGREE PROGRAM

ITMO

DIGITAL URBAN STUDIES

07.04.04 Urban planning

1. Give a definition of a city. What are its characteristics?
2. Give a definition of an urban agglomeration. Which cities could be called 'satellites'?
3. Which city functions are called 'city-forming' and which are called 'city-serving'? Give examples.
4. Give a definition of transport accessibility. How is transport accessibility defined in urban areas?
5. What are the components of a city's transport system?
6. Give a definition of a public space. What role do public spaces play in the urban environment?
7. What are the functional zones in the urban structure? How are they formed and why are they needed? Give examples of functional zones.
8. What is a General Plan of a city (settlement)? What are its special features? How are the Rules of Land Use and Development related to the General Plan?
9. What is architectural style and how is it defined? Which parameters of historic buildings need to be protected and why?
10. What are the differences between superblock and block neighborhood units?
11. Define the concept of 'sustainable urban development'. What are its basic principles?
12. What is an 'inclusive' and 'accessible' city? How can these qualities be achieved in urban planning and design?
13. What urban ecological problems can be solved at the design stage of the urban environment?
14. List the functions of green spaces in cities.
15. What are the main features of an urban community? What is the role of communities in urban processes?
16. Define "social group" and give examples of social groups in modern cities.
17. What are the main factors to consider when designing a residential neighborhood?
18. What are the mechanisms for public participation in urban development?
19. What is urban planning zoning?
20. What is included in the territory planning documentation? What is the purpose of the territory planning documentation?
21. What is complex territory development? What types of complex territory development are distinguished?
22. What do the urban planning regulations contain? What parameters do they set out?
23. What is the purpose of creating and maintaining state information systems for urban planning?
24. Name the main components of the management of urban development projects.
25. Name the main stages of urban development projects.

27.04.07 Science-based technology and the economics of innovation

1. Give a definition of a city. What are its characteristics?
2. Give a definition of an urban agglomeration. Which cities could be called 'satellites'?
3. Which city functions are called 'city-forming' and which are called 'city-serving'? Give examples.
4. What is 'open data'? What is the role of open data in city management?
5. Statistical methods for describing and analysing data.
6. Quantitative and qualitative data: approaches to measurement. Types of measurement scales. Examples of urban data.
7. Advantages and disadvantages of quantitative studies of the urban environment.
8. Advantages and disadvantages of qualitative studies of the urban environment.
9. Basic principles of systems analysis. The concepts of system, system element, system component, subsystem.
10. Structure of systems analysis, decomposition stage, analysis stage, synthesis stage.
11. Basic concepts of graph theory. Examples of applications of graph theory to urban problems.
12. Object Data Model. Give an example of an urban Object Data Model.
13. Geo-information system. Features and purpose.
14. Geo-information layer. Types, composition, construction methods.
15. Data set. Definition, components, purpose.
16. Give a definition of a 'Smart city'.
17. Give a definition of 'innovation'. Give examples of innovative technologies.
18. Name the criteria for an innovative service. Give examples.
19. Definition and purpose of spatial analysis.
20. The concept of a model, the basic principles of modelling. City Information Model.
21. Automation, informatisation, digitalisation. Similarities and differences between the concepts.
22. Automated information system. Requirements. Examples of urban AIS.
23. Stages in the creation of an automated information system.
24. Types of information system requirements.
25. Main functions of information systems for urban planning.
26. Modern methods of online urban space research.
27. Regulatory aspects of open source data analysis.

RECOMMENDED LITERATURE (IN ENGLISH)

1. AtKisson A. The sustainability Transformation. How to accelerate positive change in challenging times
<https://www.taylorfrancis.com/books/mono/10.4324/9781849775700/sustainability-transformation-alan-atkisson>
2. Jacobs J. The Death and Life of Great American Cities (any edition)
3. Gehl J. Cities for People, 2012
<http://www.petkovstudio.com/bg/wp-content/uploads/2017/03/Walkable-City.pdf>
4. Gore A. An Inconvenient Truth: The Planetary Emergency of Global Warming and What We Can Do About It, 2006
5. Hall P. Good Cities, Better Lives. How Europe Discover the Lost Art of Urbanism. Routledge, 2014
6. Montgomery C. Happy City: Transforming Our Lives Through Urban Design, 2013
7. Sanoff H. Democratic Design. Participation Case Studies in Small Towns Environments. 2010
8. Shmelev SE, Shmeleva IA Sustainable cities: problems of integrated interdisciplinary research. International Journal of Sustainable Development (2009) 12 (1), 4-23
9. Shmelev SE, Shmeleva IA Global urban Sustainability Assessment: A multidisciplinary approach. Sustainable Development (2018), 1-17
10. Vuchic V. R. Transportation for Livable Cities, 1999
<https://www.taylorfrancis.com/books/mono/10.4324/9781351318167/transportation-livable-cities-vukan-vuchic>
11. Speck J. Walkable Cities: How Downtown Can Save America, One Step at a Time, 2013
12. The 17 Goals: Sustainable Development Goals
<https://sdgs.un.org/goals>
13. Sustainable Cities Initiative: World Bank
<https://www.worldbank.org/en/region/eca/brief/sustainable-cities-initiative>
14. Report of the World Commission of Environment and Development: Our Common Future
<https://www.un.org/ru/ga/pdf/brundtland.pdf>
15. UNESCO World Heritage Convention
<https://whc.unesco.org/en/about/>