



ITEM BANK FOR ALL MODULES

CONTENT OF THE DOCUMENT: Item bank includes different types of items (true-false, multiple choice, matching, and essay) for all modules, prepared by the Module Owners of the EUGPUT project.



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TRUE-FALSE ITEMS

DIRECTION. Write 'T' if the statement is true and 'F' if the statement is false.

1. Charging of electric vehicles can be conductive, inductive or done by swapping the battery
2. Renewable energy sources are not difficult to integrate into the power grid because their generation patterns are inherently stable.
3. Prosumer is a customer who produces and store electricity for future use
4. Metro is most frequently used mode of public transport in Europe
5. Micro-mobility vehicles can be either privately owned or shared
6. "Mobility as a Service" (MaaS) is a mobility concept that builds on these shared modes and advancements in information and communication technology
7. Urban mobility performance depends only on the quality of public transport services
8. Conditions and requirements for urban travel vary so much that, in most cities, the optimal transport system should consist of several complementary modes coordinated in a single intermodal system
9. Intermodal public transport represents an appropriate option for urban trips on short distances
10. Megacities are considered better places to live compared to small and medium-sized cities
11. Exploring alternative futures using is part of foresight activities within cities
12. Agglomeration economies explain why farness and infrequent interactions seem to make people and firms more productive and innovative
13. Utility maximization of using a public transportation depends on impact on environmental efficiency, transportation time, availability of rides and capacity
14. Conventional transportation means has minimal impact on negative externality costs such as air pollution, and greenhouse gases
15. In a city where a public transportation system is weak, a fuel tax does not necessarily result in switching to public transportation from private transportation

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16. Industrial design just protect the appearance of a product; its technical and functional properties are protected by patent, if they meet the requirements for protection
17. The term "protection for utility models" is same with "patents"
18. A business model canvas is a visualization tool that defines and clarifies different components to assess business ideas or concepts
19. The impact of digital transformation refers only to organizations, while individuals or cities are not influenced by this
20. Higher fuel tax can promote the use of green public transportation

ANSWER KEY:

1. TRUE	2. FALSE	3. FALSE
4. FALSE	5. TRUE	6. TRUE
7. FALSE	8. TRUE	9. FALSE
10. FALSE	11. TRUE	12. FALSE
13. TRUE	14. FALSE	15. TRUE
16. TRUE	17. FALSE	18. TRUE
19. FALSE	20. TRUE	

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MULTIPLE CHOICE ITEMS

DIRECTION. *Choose the one alternative that best completes the statement or answers the question.*

1. Sustainability of organizations is represented by a balance between three pillars: economic, social and
and
A) governmental
B) time
C) environmental
2. Smart mobility includes several elements and areas, such as driving safety, smart traffic lights, sharing and urban mobility, smart lightning and (multiple answers)
A) smart parking
B) electric mobility
C) green mobility
D) none of the above
3. The main building blocks of digital transformation are customer experience, operational processes and (only one):
A) profit
B) business models
C) infrastructure
4. The most important renewable energy source in global electricity production is
A) solar energy
B) natural gas
C) wind energy
D) hydro energy
E) nuclear energy
5. What does "smart charging" of electric vehicles mean?
A) A charging system where the battery of an electric vehicle is charged in the shortest possible time with a constant maximum possible power
B) A charging system where the electric vehicle does not need to be connected to a charging station. Charging is done wirelessly
C) A charging system where the vehicle owner leaves control of the charging of the electric vehicle to the car manufacturer
D) A charging system where, based on the sharing of data, the electric vehicle is charged at different speeds, according to different goals (lowest charging price, ensuring network stability, etc.)

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- E) None of the above
6. The main components of the electrical grid are
- A) energy sources, generators, lines, regulators, network, consumers
 - B) generating plants, electrical substations, electricity and distribution network, consumer
 - C) power plants, electrical substations, transmission and distribution network, consumer
 - D) producers, regulatory authority, energy markets, consumers
7. Which type of alternative fuel is preferred for bus registration in the EU in 2020? (ACEA, 2021)
- A) Electrically-chargeable buses
 - B) Hybrid electric buses
 - C) Alternative fuels buses
 - D) Hydrogen buses
8. Which one is not a feature of sustainable mobility approach in urban transportation?
- A) People focus, either in (or on) a vehicle or on foot
 - B) Travel as a derived demand
 - C) Street as a space
 - D) Slowing movement down
9. The integration of emerging technologies into the transportation system help to: (Guerrero-Ibanez et al., 2015)
- A) Improve traffic efficiency and road safety
 - B) Decrease vehicle wear and transportation times
 - C) Decrease fuel consumption
 - D) All of the above
10. Intermodality has an essential role in
- A) Making public transport more efficient
 - B) Making non-motorised trips more competitive and attractive for users
 - C) Enhance the quality of the urban environment
 - D) All of the above
11. The following public transport function has the most significant benefits from intermodal solutions:
- A) Spatial coverage by public transport lines
 - B) Temporal access (through increased operating speed and service frequency adapted to demand)

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- C) Ensuring access for people with reduced mobility
- D) Appropriate passenger information system on operating hours, conformity with schedules
- E) Guaranteeing the functional reliability of the transport network

12. In developing intermodal transport systems, physical integration is associated with:
- A) One institutional scheme to plan, coordinate, manage and control a set of transport networks (e.g., a common metropolitan entity)
 - B) An easy-to-use information and guidance system for encouraging intermodal travel
 - C) A complex scheme of intermodal facilities ensuring easy access to modal interchanges (e.g., pedestrian ways facilitating modal transfers and minimising distances for access to stops)
 - D) A common fare collection system for all modes through a single shared payment media
13. Which of the following information systems are not part of billing and ticketing systems within smart mobility?
- A) Automated fare collection service
 - B) Smart ticketing system
 - C) Automatic vehicle location system
 - D) Passenger information system
14. Which area is an often overlooked aspect of green public transportation?
- A) Vehicle emissions
 - B) Vehicle maintenance
 - C) Passenger concentration
 - D) Real-time traffic behavior
15. Autonomous vehicles (AV) are an opportunity for governments, transport companies and agencies to
- A) improve the reliability of current public transport services
 - B) improve the competitiveness of current public transport services
 - C) improve the safety of current public transport services
 - D) all of the above
16. Which of the following is a conventional financing alternative?
- A) Issuing green bonds
 - B) Crowdfunding

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- C) Issuing stocks
- D) Impact investing

17. Which of the following does NOT have a direct impact on green public transportation demand?

- A) Less idle times
- B) Social influence factors
- C) Government fiscal policies
- D) International grants on greenhouse gas emissions

18. Which of the following is not an example of a fiscal policy to promote green public transportation?

- A) Applying market entry barriers
- B) Applying road congestion tolls
- C) Applying emission charges
- D) Applying fuel taxes

19. Which financing method below is mainly focused on promoting green projects?

- A) Stocks
- B) Green bonds
- C) Consumer credits
- D) Short-term loans

20. Which transportation vehicle below is not considered under green transport means?

- A) Autonomous vehicles
- B) Micro mobility vehicles (Bicycle, Scooter etc.)
- C) Diesel vehicles
- D) Electric vehicles

21. What are the requirements for patentability?

- A) Novelty - Inventive Step - Industrial Applicability
- B) Novelty – New – Industrial Applicability
- C) Inventive Step – Useful – New

22. Which of the following is not included in the project description?

- A) unique
- B) sine die
- C) limited resources

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ANSWER KEY:

1. C	2. A,B,C	3. B
4. D	5. D	6. C
7. C	8. B	9. D
10. D	11. A	12. C
13. C	14. B	15. D
16. C	17. D	18. A
19. B	20. C	
21. A	22. B	

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DIRECTION. Choose the item in column 2 that best matches each item in column 1.

1. Green smart city foundations are physical, _____, institutional and economic infrastructure	a. Social
2. A smart city can be viewed as a large organic system connecting _____, government, and society to enable a smart economy, mobility, environment, people, living, and governance	b. Technology
3. The concept of urban resilience has four basic pillars of urban resilience: resisting, recovering, adapting and _____.	c. Transforming
4. _____ can beneficially reshape the load curve by shifting the power consumption to more suitable times (e.g. later in the night) or when production of electricity from renewable energy sources is higher	d. Coordinated electric vehicle charging
5. _____ can reduce business losses and control energy consumption in real or near real time and lead to better revenue and tariff management	e. Smart metering
6. _____ can be independent and not connected to the grid (e.g. off-grid systems) or connected to the grid (e.g. grid-tied systems)	f. Solar photovoltaic (PV) systems
7. An innovative urban transport solution aimed at providing short-distance travel options including first and last kilometer trips	g. Micro-mobility
8. A controlled system that uses sophisticated road and telecommunication infrastructure to communicate between vehicles and the highway to improve the safety, vehicle and road efficiency, as well as adequately manage traffic flow within the road network	h. Intelligent Transportation Systems (ITS)
9. Road motor vehicle that produces less harmful impacts to the environment than the equivalent conventional internal combustion engine vehicles that run on gasoline or diesel (Senin et al., 2021)	i. Green/clean vehicle
10. Cities must develop intermodal urban mobility systems by extending their public transport offering and adapting it from "delivering transport" to "delivering _____"	j. Solutions
11. Intermodality relates to improving the _____ and attractiveness of a single trip made with more than one transport mode (e.g., walking, metro, and bus) to offer travelers a seamless journey	k. Efficiency
12. From the user perspective, the _____ penalty involved in modal interchanges represents one of the main disadvantages in comparing intermodal and monomodal options	l. Transfer
	m. Internet of Things (IoT)
	n. Automatic Vehicle Location Systems (AVLS)
	o. Depot Management System (DMS)
	p. Substitution effect
	q. Fixed costs
	r. Externalities
	s. Trademark
	t. Intellectual Property
	u. Patent

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13. A network of devices that communicate with each other and exchange data over the Internet	
14. The proliferation of cheap and compact GPS receivers has influenced the emergence of _____ that almost exclusively use satellite location systems	
15. _____ uses software to collect a range of data such as fleet data, office administration data and refueling data	
16. The change in the quantity demanded of a good that results from a change in price, making the good more or less expensive relative to other goods holding constant the effect of the price change on consumer purchasing power	
17. _____ are independent of the volume of goods or service produced whereas variable costs increase as the amount of goods and service produced increases	
18. Oil dependence, noise, greenhouse gases are all examples of travel _____	
19. _____ an intangible form of property which provides to limited duration and intangible rights which can be sold (assignment-transfer), license (renting), etc.	
20. _____ is granted for the invention of any new and useful process, machine, manufacture or composition of matter, or any new useful improvement thereof.	
21. _____ a word, phrase, symbol, or design, or combination of words, phrases, symbols, or designs which provides that it is capable of distinguishing the goods and services of one undertaking from the goods and services of other undertakings	

Please note that questions and answers are not shuffled, thus the answer to the 1st question is A, the 2nd question is B, etc.

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ESSAY ITEMS

DIRECTION. *Write your answer in the space provided or on a separate sheet of paper.*

1. What do you understand as a green future?
2. Explain how technology can help towards a better living in an urban environment.
3. What are some of the disadvantages regarding technology use in urban environments?
4. Explain the top priority problems in urban areas and how can they be solved
5. How can Business Intelligence and Analytics support the digital transition and organizational change?
6. Which are important technological trends that affect the digital transformation and enable creation of new innovative business models for green smart cities of the future?
7. What is the number one problem for current power grids on a daily basis?
8. In your opinion, what is the main problem of renewable energy sources to ensure the stable operation of the electricity grid?
9. What is the basic idea of smart power grid?

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