Roll No												

PRESIDENCY UNIVERSITY
BENGALURU

SCHOOL OF ENGINEERING

MAKEUP EXAMINATION – JAN 2023

Course Code: CIV 2006

Course Name: Infrastructure Systems for Smart Cities

Program : B.Tech

Date: 30-JAN-2023

Time: 1:00 PM to 4:00 PM

Max Marks: 100

Weightage: 50%

Instructions:

(i) Read all the questions carefully and answer accordingly.

Part A [Memory Recall Questions]

Answer all the Questions. Each question carries TWO marks. (15Qx2M = 30M)

1. The Centre announced the names of cities & towns to be developed as smart cities on 27th Aug 2015. Which state gets the maximum number of aspirant smart cities?
   A) Maharashtra B) Tamil Nadu C) Uttar Pradesh D) Madhya Pradesh
   (C.O.No.1) [Knowledge]
2. Identify challenges to developing smart cities
   A) Security and privacy B) Infrastructure C) Inclusiveness D) All of the above
   (C.O.No.1) [Knowledge]
3. Sensors are a key in fitting out an Internet of Things network. What can such a network monitor?
   A) Vehicular and pedestrian traffic B) Congestion hot spots and offer alternative routing
   C) Air quality D) All of the above
   (C.O.No.2) [Knowledge]
4. A digital inclusion is
   A) An algorithm to attract people to the network website
   B) Improve access for all of the population to digital tools
   C) Full participation by government and business in a digital platform
   D) B and C
   (C.O.No.2) [Knowledge]
5. What does “smart city” mean to you?
   A) A new buzzword only for rich countries which will soon pass
   B) A local authority that uses digital technology as a tool for its sustainable and inclusive urban development strategy
   C) An automated and data-controlled city, made of sensors and servers sold by digital firms
   D) All of the above
   (C.O.No.1) [Knowledge]
6. What does “open data” mean?
   A) Authorize everyone to produce their own databases freely
   B) Allow all contributors to feed a single public database

C) Offer the public, to all without discrimination, digitized data that is accessible and can be freely (re)used
D) Only Government can access

(C.O.No.1) [Knowledge]

7. The core element of architecture of smart city is
   A) Mobile Unified service B) Urban application form
   C) Management Centre D) Integrated development

(C.O.No.2) [Knowledge]

8. Consider the following statements
   a) A 'smart city' is an urban region that is highly advanced in terms of overall infrastructure, sustainable real estate, communications and market viability.
   b) It will provide real time information on parking, traffic congestion, public transport
   c) Smart cities will be energy efficient and will have low carbon foot print

   Which of the above statements is/are correct?

   A) 1,2 B) 2,3 C) 1,3 D) All are correct

(C.O.No.1) [Knowledge]

9. Which of the following is not an Indian Smart Cities mission strategy?
   A) Pan-city initiative in which at least one Smart Solution is applied city-wide
   B) Develop areas step-by-step – three models of area-based developments
   C) Greenfield
   D) Adequate water supply

(C.O.No.1) [Knowledge]

10. Which of the following is not an indicator of smart city?
    A) Exclusive society B) Smart Governance C) Smart environment D) Smart Living

(C.O.No.2) [Knowledge]

11. A technology in which the connectivity between physical objects along with controllers, actuators and sensors synchronized over an Internet is
    A) Cloud B) Big data C) IoT D) Block chain

(C.O.No.2) [Knowledge]

12. Smart Environment is a product designed to detect different parameters and gas pollutants that impact in the air quality. Identify the features of Smart Environment products
    A) Interoperability B) Any cloud platform C) High accuracy sensors D) All the above

(C.O.No.2) [Knowledge]

13. Identify the correct sequence of Smart City Development stage/Maturity model.
    A) Initial, Integral, Intentional, Transformed B) Transformed, Intentional, Initial, Integral
    C) Initial, Intentional, integral, Transformed D) Initial, Transformed, Intentional, Integral

(C.O.No.2) [Knowledge]

14. A system of managing Solid waste that can solve the conventional methods like door-to-door, curb-side, block, community bins collections and Transportation to Transfer station is called
    A) Incineration B) Automatic Waste Collection System
    C) Solid waste management D) None of the above

(C.O.No.2) [Knowledge]

15. Various cities joined networks of common interests to provide with intelligence their urban spaces or to structure virtual teams of collaborative people is called
    A) Smart city IoT B) Smart cities group C) Smart Network D) All of the above

(C.O.No.1) [Knowledge]

Part B [Thought Provoking Questions]

Answer all the Questions. Each question carries TEN marks. (4Qx10M = 40M)

16. Smart cities use intelligent technology, connected devices, and instantaneous data to solve real-world problems. From reducing energy use to alleviating traffic congestion, smart cities are positively changing the lives of urban residents worldwide. To address these, cities are implementing smart technologies in everything from street lamps and drones to robotics and building information modeling (BIM). Briefly explain the anatomy of Smart cities with associated smart features.

(C.O.No.1) [Comprehension]

17. Smart governance and good governance are two sides of the same coin. The use of the internet and digital technology is creating a progressive government - public partnership, strengthening government institutions and integrating all sections of society. Information and Communication Technology (ICT) has become an integral part of our lifestyle. Mention the various benefits, drawbacks and challenges of Smart Governance.

(C.O.No.2) [Comprehension]

18. The concept of inclusive urban planning is derived from the integrated development approach for accessible, resilient, affordable and sustainable urban livelihood. Discuss the components of Inclusive planning and Development. Mention any 4 factors that influences inclusiveness in smart city planning.

(C.O.No.2) [Comprehension]

19. There are many areas of action of the Smart Environment and its benefits for citizens, including smart cities that are committed to the efficient management of energy and natural resources, with the aim of achieving energy efficiency, optimizing consumption and increasing and optimising the use of renewable energies, as well as reducing CO_2 emissions. Indicate any 4 benefits of IoT in the Environment. Describe the features of any two Hardware requirements for building IoT devices for Smart Environment.

(C.O.No.3) [Comprehension]

Part C [Problem Solving Questions]

Answer all the Questions. Each question carries FIFTEEN marks. (2Qx15M = 30M)

20. The city selection process is based on the idea of Cooperative and Competitive Federalism. The city selection process follows a Challenge method in two stages, in conjunct, to select cities. Describe the City selection process in Stage -I and Stage-II of City Challenge competition using a flow chart.

(C.O.No.1) [Comprehension]

21. Smart mobility is a core element of smart city initiatives. Urban mobility is a major “pain point” for many city dwellers, due to frequent traffic congestion and long commuting times. On the other hand, various innovative solutions in this area have already progressed to the implementation stage. Existing projects include traffic guidance systems, parking spaces with sensors (which enable online usage verification), congestion forecasting integrated with intelligent traffic lights, car and bike sharing systems, and autonomous public and private transportation. Explain any 5 Intelligent technologies that enables Smart Mobility.

(C.O.No. 3) [Comprehension]