Roll No											

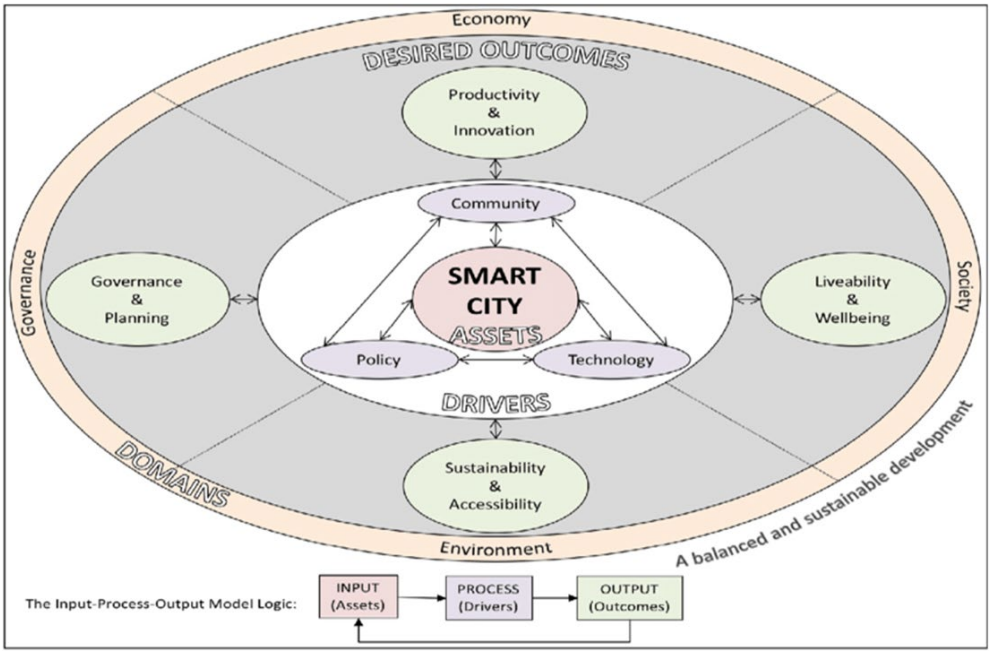
PRESIDENCY UNIVERSITY
BENGALURU

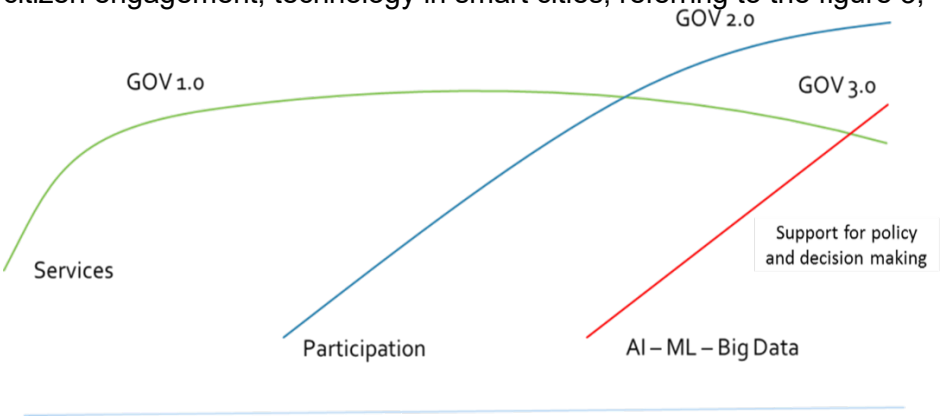
SCHOOL OF ENGINEERING
END EXAMINATION - AUGUST 2024

Semester :II	**Date :19 August 2024**
Course Code :CIV5001	**Time :9:30am to 12:30pm**
Course Name :Sustainable Smart Cities	**Max Marks :100**
Program :M.Tech AI/DSC	**Weightage :50%**

Instructions:
(i) Read all questions carefully and answer accordingly.
(ii) Question paper consists of 3 parts.
(iii) Scientific and non-programmable calculator are permitted.
(iv) Do not write any information on the question paper other than Roll Number.

PART A			
	ANSWER ANY 5 QUESTIONS	**5Q X 4M=20M**	
1	The Smart Cities Mission is an innovative and new initiative by the Government of India to drive economic growth and improve the quality of life of people by enabling local development and harnessing technology as a means to create smart outcomes for citizens. To achieve this we have to create ICT infrastructure, state four categories of ICT infrastructure required for smart cities.	(CO 1)	[Knowledge]
2	Successfully building a smart city requires a clear strategy and maturity in seven capability dimensions. What are the three Goals and three Challenges of Smart City Capability Framework?	(CO 1)	[Knowledge]
3	DATA is one ingredient that make a city-Smart City. Data manipulation is a process of changing data so that it can be analyzed, aggregated, and visualized. Enlist four data manipulation and analysis techniques	(CO 1)	[Knowledge]
4	Outline how disruptive technologies like IoT and AI are applied in smart city initiatives.	(CO 2)	[Knowledge]
5	Describe the key planning interventions necessary for effective urban infrastructure in smart cities.	(CO 2)	[Knowledge]
6	Define e-governance in the context of smart cities.	(CO 3)	[Knowledge]
7	What is the role of disaster management in smart urban infrastructure?	(CO 3)	[Knowledge]

PART B			
	ANSWER ANY 4 QUESTIONS		**4Q X 10M=40M**
8	For a city to be smarter, the use of emerging appropriate Internet-of-Things (IoT) technologies is needed, not only to gather city data but also to provide services to the public for analytics and other applications in a remarkably efficient manner. Designing and integrating systems that can make analysis for generating meaningful information for citizens is an influential prerequisite. With reference to this draw the three-tier architecture Triangulum Dashboards: An Interactive Data Analytic Platform for Visualizing Smart City Performance.	(CO 2)	[Comprehension]
9	Analyze the challenges and strategies associated with the integration of various smart city systems, including transportation, energy, and communication networks.	(CO 3)	[Comprehension]
10	Key aspects of developing a smart city strategic plan are to have a vision and mission. Step by step, the guiding principles, framework have to be discussed by the stakeholders. Based on the ecosystem and leveraging role of ICT, smart infrastructure solutions have to be implemented using innovative financing strategies. To have a deeper insights about the framework refer figure 2, identify the Assets, Drivers and illustrate the best correlation between them to derive the desired outcomes and benefits to related domains.  Figure 2. Multidimensional Smart City Framework	(CO 2)	[Comprehension]

11	Discuss the role of e-governance in enhancing transparency, efficiency, and citizen engagement, technology in smart cities, referring to the figure 3,  Figure 3. Role of Citizens engagement and ICT Smart City Framework	(CO 3)	[Application]
12	Evaluate the importance of a Smart City Reference Framework in standardizing and guiding the implementation of smart city projects across different regions.	(CO 3)	[Application]
13	Critically evaluate the vision areas of Digital India and how they align with the goals of smart city initiatives.	(CO 1)	[Comprehension]

	PART C		
	ANSWER ANY 2 QUESTIONS		**2Q X 20M=40M**
14	The maturity model distinguishes four development stages of smart cities: “initial”, “intentional”, “integral” and “transformed”. For each of the eight domains in the capability model, the maturity model defines typical characteristics for these four stages. In general, the maturity of a smart city cannot be expressed as one specific stage for all domains. First, the eight domains are often not developed to the same level of maturity. In most cases, some domains are further developed while others may be lagging behind. Second, the actual maturity of a smart city can have characteristics of two adjacent stages, e.g. a mix of some characteristics of level 1 and some characteristics of level 2. i) Identify these eight domains of the capability model you have learned. ii) Match the following relating to your learning about maturity model for smart cities	(CO 2)	[Application]
15	The consultation process is not only a means of effective plan formulation and implementation; it is also an end in itself, as it stimulates participation and civic engagement in the city. Referring to the figure 2, recognize the type of consultation process flow between the following: i) Citizen and Ward Committees ii) Standing committee and Municipal Government iii) Municipal Government and State Government	(CO 3)	[Application]

	 Figure 2. Urban Consultation Process		
16	You have been asked to make a presentation on a Smart city of your choice in a class, Enlist the Physical and ICT Infrastructure, you have integrated to make the systems more effective and efficient in the city you have selected for presentation. What would be the aspects of area based development and Pan city Solution you have proposed, in addition to the SPV proposals mentioned in the DPR of that city. Provide all the relevant references you have referred while preparing the report and presentation.	(CO 3)	[Application]