

**STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI – 86**  
**(For candidates admitted from the academic year 2023 – 2024)**

**B.VOC DEGREE EXAMINATION, APRIL 2026**  
**SUSTAINABLE ENERGY MANAGEMENT**  
**SIXTH SEMESTER**

**COURSE : MAJOR CORE**  
**PAPER : ENERGY FOR SMART CITIES**  
**SUBJECT CODE : 23VS/VM/SC66**  
**TIME : 3 HOURS**

**MAX. MARKS: 100**

<b>SECTION A</b>				
<b>Q. No.</b>	<b>Answer ALL questions:</b>	<b>(10 x 2 = 20)</b>	<b>CO</b>	<b>KL</b>
1.	List any two alternative energy resources.		1	1
2.	Define energy demand in urban areas.		1	1
3.	Who is Patrick Geddes.		1	1
4.	What is an urban energy system?		1	1
5.	What is smart mobility?		1	1
6.	Define smart IoT devices.		1	1
7.	What is urban development planning?		1	1
8.	Define smart city governance.		1	1
9.	What are intelligent cities?		1	1
10.	Define electric vehicle.		1	1
<b>SECTION B</b>				
<b>Q. No.</b>	<b>Answer ANY eight questions:</b>	<b>(8 x 5 = 40)</b>	<b>CO</b>	<b>KL</b>
11.	Explain the energy demand pattern in conventional cities.		2	2
12.	Describe the components of an urban energy system.		2	2
13.	Illustrate the essential elements of a smart city.		2	2
14.	Describe the planning strategies for densely populated smart cities.		2	2
15.	Explain the flaws in smart city infrastructure.		2	2
16.	Illustrate direct and indirect solar resources in city planning.		2	2
17.	Explain the green approach for sustainable energy management.		3	3
18.	Discuss the role of solar energy in city planning.		3	3
19.	Differentiate between the conventional city and smart city.		3	3
20.	Describe the objectives of the 100 smart cities mission in India.		3	3
21.	Discuss normal accidents in complex technical systems.		3	3
22.	Explain smart transportation with examples.		3	3
<b>SECTION C</b>				
<b>Q. No.</b>	<b>Answer ANY two questions:</b>	<b>(2 x 10= 20)</b>	<b>CO</b>	<b>KL</b>
23.	Analyze the importance of smart approaches in city planning.		4	4
24.	Discuss the global smart city initiatives and their outcomes.		4	4
25.	Evaluate the performance benchmarks used in smart cities.		4	4
26.	Discuss the role of electric and hybrid vehicles in sustainable urban transport.		4	4
<b>SECTION D</b>				
<b>Q. No.</b>	<b>Answer ANY two questions:</b>	<b>(2 x 10 = 20)</b>	<b>CO</b>	<b>KL</b>
27.	Examine the key objectives and impacts of energy strategy 2040.		5	5
28.	Analyse the impact of IoT technologies in smart city development.		5	5
29.	Discuss the need for global standards in smart city development.		5	5
30.	Analyse the risk and challenges in intelligent city infrastructure.		5	5

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