

Name:	 UPES UNIVERSITY WITH A PURPOSE
Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2020

Program: BA Energy Economics
Subject (Course): Sustainable Development
Course Code : ECON3005
No. of page/s: 03

Semester – VI
Max. Marks: 100
Duration: 3 hrs.

SECTION A

		Marks	CO
Q 1	Expand and explain followings – (5 marks each)	30	CO1
	i) NAPCC		
	ii) UNFCCC		
	iii) IPCC		
	iv) CDM		
	v) MDG		
	vi) SDG		

SECTION B - 50 Marks – (Attempt total 5 Questions) (Question Nos. 2 to 5 are compulsory)
(Attempt anyone from Question No. 6 or 7)

Q2	Explain Sustainability in with example.	10	CO2
Q3	Critically evaluate Indian target of renewable energy up to 2030.	10	CO3
Q4	Critically evaluate Development and Climate Change.	10	CO3
Q5	Explain Joint Implementation as per Kyoto Protocol.	10	CO2
Q6	What is emission trading? Evaluate its implementation in the world.	10	CO3
Q7	Name 8 different national missions under NAPCC in India. Explain any one of the mission in brief.	10	CO2

SECTION-C (Case study) – (20 marks)

Dublin city adopts smart approach on road to economic recovery

Ireland's capital is one of the oldest in Europe, and the city council wants to maintain the city's historic fabric. The Georgian parts of Dublin are protected under policy introduced in the 1980s and 90s that prevent new roads being built in some of the most historic areas. However, with congestion becoming an increasing problem, another solution has been sought.

Brendan O'Brien, head of technical services at Dublin city council, explains: "We have had to find a way of doing things more efficiently." The city council has been working to improve the transport network without any major re-development. Instead, it has been collecting and analysing data, in partnership with IBM, to tackle congestion. This is being done as part of a push towards making Dublin a "smarter city".

Journey information is released and updated by Dublin city council every minute. Residents can go online and find the quickest route to their destination. The term "smart city" is synonymous with cities that use information and communication technologies to be more efficient in their use of resources. However, O'Brien calls it a "buzzword", joking that it implies other cities are stupid.

Ireland's capital has become IBM's smarter city testbed. Research is being conducted in Ireland on how problems like congestion can be tackled through joining up existing databases. This is part of IBM's larger Smarter Planet programme, which explores broader environmental concerns. The work involves applying analytics to huge amounts of data to solve pressing problems. In Dublin, information comes from an array of sources including road sensors and GPS updates from the city's 1,000 buses. A digital map of the city is being built, overlaid with the real-time positions of the city's buses.

O'Brien says the city council is a long way off the smart city ideal of using technology to improve all the city's services. However, as well as working on traffic issues, IBM is also looking into water and energy use and smarter social care. He adds that the relationship with IBM is not commercial but purely research based: IBM wants to create a model of collaboration with the city so the company can use the city's data to develop the smart city approach. In return, Dublin gets the latest ideas and results of the thinking. Much of the work in Dublin is about trying to understand how the next generation of computer technology could exploit both the data made available by cities and data generated by mobile devices.

"What we are doing in Dublin is particularly innovative because we are starting to look at all sources of data – through work with IBM," says O'Brien. "It's not just bus and traffic data but fusing it all together. That is the big plan." Martin Brynskov, an academic co-ordinator of AU Smart [Cities](#), says collaborations like this one are likely

to become increasingly common: "It is difficult for government to build systems [on their own] – either you have to partner up to build these infrastructures or the alternative is not to do it. But this is, in a way, to slow down a bit."

He is sceptical about the very obvious, strong alliance with IBM. "If you were a small business looking to collaborate with the council you might think; 'where on this stage do I fit?'" Lisa Amini, director of IBM Research Ireland, says the research lab was not put in place to solve all Dublin's problems. "It is there to do research in this context and to use data," she says. "What we learn we share with Dublin city council."

She says other areas could learn from Dublin's approach and the fact the city has made a leap of faith. "We couldn't tell them, 'this is how much you will save' or 'this is how this will benefit you', but they were willing to take a risk and say, 'I know we can do better'." The vision of a smart city is perhaps held back by fears that we could end up living in a "Big Brother" state, but O'Brien believes that this won't happen because the council is not interested in personal data. "Big Brother presupposes the people collecting information are interested in you," he says.

For local authorities to make good use of data, O'Brien says staff will need new skills. Councils need to buy in at the top level and deploy enough resources to put energy into a smart city approach, he adds. Last year, 30 urban areas across the UK competed for £24m to become smart cities. [Glasgow won the grant](#), and the city council has used the money to invest in "super intelligent" CCTV cameras that can be used to raise alarm when unattended bags are detected, and apps that can help visitors find the quickest routes. David Gann, chair in technology and innovation management at Imperial College London, says that the smart city approach "should result in better experience for citizens and visitors, better business environment for first and higher quality of life for all". For this to happen, local government has a role to play, including making "visible targets" for areas in which cities need to improve. Gann admits that there are risks. "Digital systems are vulnerable to cyber-crime and the more integrated they are, the more an attack could shut down essential services."

However, O'Brien believes that looking for alternatives is important in a time of recession: "With economic recession, all the big civil infrastructure problems got shelved and there will be a time lag between economy recovery and seeing funding again," he says. "There will be a transportation deficit over the next few years, and knowing we don't have anything in the pipeline."

	8. How is economic recession effecting the Europe's Smart City Program? Explain. (20 marks)	20	CO4
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