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B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

August 2023 Semester End Make-Up Examinations

Programme: B.E. **Semester: VIII**
Branch: Information Science and Engineering **Duration: 3 hrs.**
Course Code: 20IS8HSGCG **Max Marks: 100**
Course: Green Computing **Date: 08.08.2023**

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

			UNIT - I	CO	PO	Marks
1	a)		Describe the complementary IT-enabled approaches to improve environmental sustainability.	*CO1*		**05**
	b)		IT becoming green, it can also be a very helpful enabler and aid to create a better environment. Give the various opportunities for enhancing environmental sustainability.	*CO2*	*PO1*	**05**
	c)		i) Analyse the impact of hazardous chemicals used in manufacturing various electronic devices and their effects on humans. (ii) Examine the process of greening unwanted hardware using the three R's - Reuse, Refurbish and Recycle.	*CO3*	*PO2*	**10**
			UNIT - II			
2	a)		Illustrate software energy efficiency techniques with appropriate diagram.	*CO2*	*PO1*	**10**
	b)		As a developer, what tools would be the most useful in developing energy-efficient software? Justify	*CO3*	*PO2*	**10**
			OR			
3	a)		Sustainable software overcomes the negative impacts of traditional software. Justify your answer	*CO4*	*PO2* *PO7*	**05**
	b)		Justify how buffering multimedia playback saver energy consumption.	*CO3*	*PO2*	**05**
	c)		List the attributes relevant to assessing sustainability performance and explain.	*CO1*		**10**
			UNIT - III			
4	a)		Justify how Storage virtualization is another key strategy for reducing storage power consumption.	*CO3*	*PO2*	**05**
	b)		In Cloud or an environment with multiple replicas of data, how can we selectively shutdown the power for some replicas to reduce the energy consumption without sacrificing the reliability	*CO2*	*PO1*	**05**

		c)	Describe the cooling strategies in maintaining the energy efficiency of data centre.	*CO3*	*PO2*	**10**
			UNIT - IV			
	5	a)	Justify how network efficiency can be enhanced by the design of protocols used.	*CO2*	*PO1*	**05**
		b)	Identify the objectives in energy optimization for protocol design in green network and communication.	*CO2*	*PO1*	**05**
		c)	Justify how the drive for reduced carbon footprint/cost and improved operational sustainability relate to the common objective of energy-efficient networking?	*CO4*	*PO2* *PO7*	**10**
			OR			
	6	a)	Through exploring the range of header fields in a selection of commonly used protocols at different stack layers, potential opportunities to improve their efficiency have been identified. What are the objectives that are to be considered in the development of green network protocols?	*CO2*	*PO1*	**05**
		b)	What are the challenges of Next-Generation Networks ?.	*CO1*		**05**
		c)	Elaborate the key factors to be considered by an organization in a Green IT Strategy.	*CO3*	*PO2*	**10**
			UNIT - V			
	7	a)	Sustainability being a complex and broad subject, in order to make sense of the various frameworks and tools, provide the frame work developed by Hitchcock and Willard that has created a hierarchy of sustainability models .	*CO4*	*PO2* *PO7*	**05**
		b)	Identify the cradle-to-grave analysis stages involved in evaluating the environmental and human health lifecycle impacts of functionally equivalent 17inches CRT and 15inches LCD monitors and provide the conclusion for the same.	*CO2*	*PO1*	**05**
		c)	With a neat diagram explain in detail SITS (Sustainable IT Services) value curve with its milestones	*CO1*		**10**

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