U.S.N.										

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

Autonomous Institute Affiliated to VTU

July 2023 Semester End Main Examinations

Programme: B.E. **Semester: VI**
Branch: Information Science and Engineering **Duration: 3 hrs.**
Course Code: 20IS6PEMCT **Max Marks: 100**
Course: Mobile Computing and 5G Technologies **Date: 19.07.2023**

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)		Explain the working of Mobile Computing with a neat diagram.	*CO1*		**06**
	b)		Differentiate cellular network from a WiFi network?	*CO1*		**04**
	c)	I.	Describe handoff and the various handoff types.	*CO1*		**10**
		II.	Explain the salient features of Frequency Reuse			
			UNIT - II			
2	a)		Why is hexagonal cell shape preferred over square or triangular cell shapes in cellular architecture	*CO2*	*PO1*	**05**
	b)		Elaborate in detail the key design principles of 5G technology architecture.	*CO2*	*PO1*	**10**
	c)		Differentiate between 5G Cell Tower vs 4G Cell Towers	*CO2*	*PO1*	**05**
			OR			
3	a)		Specify the usage of eMBB, URLCC and mMTC in 5G with use-cases.	*CO2*	*PO1*	**10**
	b)		Illustrate Radio Access Network and Packet Core Network	*CO2*	*PO1*	**05**
	c)		Differentiate between ORAN and VRAN .	*CO2*	*PO1*	**05**
			UNIT - III			
4	a)		Analyze the below scenario and suggest which 5g architecture is suitable? Explain in detail about the suggested architecture with neat diagram. Rural Area towns are generally larger than a "village" but smaller than a "Urban area(City)" - Consider that in a town there is a population of 100000. 30% peoples are using 5G Enabled mobile phones and 70% peoples are using only 4G supported Mobile phones. 30% category peoples are willing to switch to the 5G features and 70% peoples are still want to continue with only 4G features. Suggest which type of 5G Architecture to be deployed to the above case.	*CO3*	*PO2*	**10**

		b)	With neat diagram illustrate the core components of High Level 5G Core Architecture	*CO3*	*PO2*	**10**
			OR			
	5	a)	When and why standalone architecture is been adopted. Illustrate the same with a neat diagram.	*CO3*	*PO2*	**10**
		b)	A Subscriber is assigned the following Subscription Permanent Identifier: 404452345321343. Identify: (i) MSIN (ii) MCC (iii) MNC (vi) Home Network Identifier for the assigned subscription identifier.	*CO3*	*PO2*	**05**
		c)	Differentiate SUPI and SUCI of 5G Architecture.	*CO3*	*PO2*	**05**
			UNIT - IV			
	6	a)	i) How do Dockers work? What function does Docker serve in a Micro-service? ii) What are pros and cons of Micro-services ?	*CO2*	*PO1*	**10**
		b)	Which security threat model is used to secure each component of the 5G system from User equipment to Network core explain in brief?	*CO2*	*PO1*	**05**
		c)	Why do we need Virtualization? Explain any two types of virtualization.	*CO2*	*PO1*	**05**
			UNIT - V			
	7	a)	Interpret the infrastructure of Hybrid Data Center? Describe an example or use case of when a Hybrid DC is deployed.	*CO3*	*PO2*	**05**
		b)	Explain supply chain attack with example? How to protect against supply chain attacks?	*CO3*	*PO2*	**10**
		c)	Illustrate Security Features Availability of 5G Standalone Architecture	*CO3*	*PO2*	**05**

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