Q. Code:226638

Reg. No. | | | | | | | | | | | | | |

B.E. / B.TECH. DEGREE EXAMINATIONS, MAY 2024

Eighth-Semester

EC18018 – NEXT GENERATION NETWORKS - 5G

(Electronics and Communication Engineering)

(Regulation 2018/2018A)

TIME: 3 HOURS **MAX. MARKS: 100**

COURSE OUTCOMES	STATEMENT	RBT LEVEL
CO 1	Know the driving force networks for 5G networks.	**2**
CO 2	Differentiate the internet used in 5G and the previous generations.	**4**
CO 3	Construct small cell architecture for 5G mobile networks.	**3**
CO 4	Design an architecture for 5G networks.	**4**
CO 5	Analyze the self-organization networks and security issues related to 5G networks.	**4**

PART- A (10 x 2 = 20 Marks)

(Answer all Questions)

		CO	RBT LEVEL
1.	Differentiate WiMax and LTE.	**1**	**2**
2.	What are the limitations of mm-Wave based RATs?	**1**	**3**
3.	Identify various cloud-computing models applicable to 5G networks.	**2**	**3**
4.	Mention the functions of openflow controllers.	**2**	**2**
5.	Differentiate neighborhood small cells and small cells.	**3**	**2**
6.	Identify the limitations of MU-MIMO schemes.	**3**	**2**
7.	What are the requirements for BC-BB convergence?	**4**	**2**
8.	Mention the societal requirements of TV broadcasting as a public service.	**4**	**2**
9.	Identify how RAN failure or malfunctioning is compensated for UMTS and LTE.	**5**	**2**
10.	Suggest a solution to overcome UE tracking based on sequence numbers.	**5**	**4**

PART- B (5 x 14 = 70 Marks)

		Marks	CO	RBT LEVEL
11. (a)	Discuss the empowerment of various technologies that are used for the development of 5G and staying as the major pillars.	**(14)**	**1**	**3**
	(OR)			
(b)	Discuss the development of 5G in Europe and North America.	**(14)**	**1**	**3**
12. (a)	Analyze how traffic authentication and redirection in 5G networks are performed by SDN control.	**(14)**	**2**	**4**
	(OR)			
(b)	Analyze how the cloud computing service models integrate with themselves and support the functionalities of 5G networks.	**(14)**	**2**	**4**
13. (a)	Discuss the capacity arising due to densification of small cells and also highlight the gain achieved through the same.	**(14)**	**3**	**3**
	(OR)			
(b)	Explore the suitability of WiFi and femtocells as viable options for implementing small cell technology.	**(14)**	**3**	**3**
14. (a)	Examine the challenges arising from the convergence of BB and BC technologies, focusing on issues related to spectrum management, fragmentation, and business obstacles.	**(14)**	**4**	**4**
	(OR)			
(b)	Explore the diverse obstacles encountered in the deployment of small cells to support 5G networks.	**(14)**	**4**	**4**
15. (a)	Describe the array of security threats targeting HeNB Femtocells originating from mobile operators' core networks and external IP networks.	**(14)**	**5**	**2**
	(OR)			
(b)	Explain the functions and impact of Self-Organizing Networks over UMTS and LTE cellular network infrastructures.	**(14)**	**5**	**2**

PART- C (1 x 10 = 10 Marks)

(Q.No.16 is compulsory)

		Marks	CO	RBT LEVEL
16.	Given two consumers with distinct data requirements from various sources, propose an appropriate Software-Defined Networking module to efficiently manage and deliver the data.	**(10)**	**3**	**5**

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