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Reg. No. :

Question Paper Code: 99405

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2023

Professional Elective

Electronics and Communication Engineering

19UEC905- 5G TECHNOLOGY

(Regulations 2019)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART A - (5x 1 = 5 Marks)

1. Which country launched the world's first fully-fledged 5G mobile networks in April 2019?   CO1- U

   (a) China   (b) Japan   (c) South Korea   (d) Singapore

2. What is the chip rate of W-CDMA?   CO1-U

   (a) 1.2288 Mcps   (b) 3.84 Mcps   (c) 270.833 Ksps   (d) 100 Mcps

3. In a 5G network, which of the following factor does not make security a major issue?   CO1-U

   (a) Massive amount of connected devices

   (b) Software based technologies

   (c) Highly sensitive applications, such as distant surgery

   (d) Massive Broadband with applications such as Virtual Reality

4. Which of the following leads to evolution of 3G networks in CDMA systems?   CO1-U

   (a) IS-95   (b) IS-95 B   (c) CDMA One   (d) CDMA 2000

5. To accommodate faster data transmission speeds, 5G has greater bandwidth. What other term is synonymous with bandwidth?   CO1-U

   (a) Capacity   (b) Speed   (c) Connection   (d) Strength

PART – B (5 x 3= 15Marks)

6. How 5G will re-shape business in the future?   CO1-U

7. Why is propagation modelling important for 5G system?   CO1-U

8. How the capacity regions of different multiple access schemes in the downlink were splitted? CO1-U

9. Mention the difference between 4G and 5G architecture. CO1-U

10. Mention the maximum channel bandwidth for 5G. Why? CO1-U

PART – C (5 x 16= 80 Marks)

11. (a) Explain in detail the components which are used to fill the coverage and increases the quality of services in 5G CO1-U (16)

Or

(b) Explain in detail about the service types and requirements of 5G CO1-U (16)

12. (a) Analyze the different levels of 5G-link level calibration process in terms of LTE Link level Simulator. CO5-Ana (16)

Or

(b) Analyze the characteristics of small scale modelling for the different propagation scenarios. CO5-Ana (16)

13. (a) Explain the features of generalized frequency division multiple accesses (GFDMA), non-orthogonal multiple accesses (NOMA). CO2-U (16)

Or

(b) Illustrate the function and features of Orthogonal frequency division multiple Access. CO2-U (16)

14. (a) Explain how the 5G requirements are fulfilled by integrating the Long Term Evolution and New air interface. CO2-U (16)

Or

(b) Describe the features of Software Defined Networking. CO2-U (16)

15. (a) Explain the features of Spectrum allocated to various mobile services and also the frequency allocation. CO2-U (16)

Or

(b) How 5G technology addresses the increasing demand of the spectrum in terrestrial mobile service. CO2-U (16)

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