**Q. Code: 619153**

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

# M.E/ M. TECH.DEGREE EXAMINATIONS, MAY 2024

Second Semester

## CU22201 – ADVANCED COMMUNICATION NETWORKS

*(Communication Systems)*

**(Regulation 2022)**

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

| COURSE OUTCOMES | STATEMENT | RBT LEVEL |
|---|---|---|
| **CO 1** | Understand advanced concepts in Communication Networking. | **2** |
| **CO 2** | Design and develop protocols for Communication Networks. | **6** |
| **CO 3** | Design and develop algorithms for packet classification and IP addressing. | **6** |
| **CO 4** | Understand the mechanism in Quality of Service in networking. | **2** |
| **CO 5** | Understand the fundamental concepts of MPLS and internet of things. | **2** |

## PART- A (20x2=40 Marks)

(Answer all Questions)

| | | CO | RBT LEVEL |
|---|---|---|---|
| **1.** | Identify the most important network criteria. | **1** | **3** |
| **2.** | For a quality voice of bandwidth 8KHz, what is the bit rate using a sophisticated MODEM? | **1** | **3** |
| **3.** | Define bandwidth-delay product of a communication network. | **1** | **2** |
| **4.** | A network with bandwidth of 10 Mbps can pass only an average of 12000 frames per minute with each frame carrying an average of 10000 bits. What is the throughput of the network? | **1** | **3** |
| **5.** | What is flow control and why is it required in network communication? | **2** | **3** |
| **6.** | List out the basic requirements of packet scheduling. | **2** | **4** |
| **7.** | Why is playback required for real-time internet traffic? | **2** | **3** |
| **8.** | Compare WFQ and GPS. | **2** | **4** |
| **9.** | What is meant by locality in a cache look up? | **3** | **2** |
| **10.** | Define a stride and fixed stride in multi-bit tries. | **3** | **2** |
| **11.** | What are the basic requirements of packet classification algorithms? | **3** | **2** |
| **12.** | What do you mean by address aggregation? | **3** | **2** |
| **13.** | How can you define QoS in internet? | **4** | **3** |
| **14.** | Draw the structure of Differentiated Service (DS) field. | **4** | **2** |
| **15.** | What are the forwarding equivalence classes in Differentiated Service (DS)? | **4** | **2** |

| | | | |
|---|---|---|---|
| **16.** | What is the concept of effective bandwidth for drop to support QoS? | **4** | **3** |
| **17.** | Define traffic engineering. | **5** | **2** |
| **18.** | Enumerate on the metrics used in traffic engineering. | **5** | **4** |
| **19.** | Draw the label forwarding table. | **5** | **2** |
| **20.** | What do you mean by fish problem in traffic engineering? | **5** | **2** |

## PART- B (5x 10=50 Marks)

| | | Marks | CO | RBT LEVEL |
|---|---|---|---|---|
| **21. (a)** | Highlight about fairness issues in TCP. | **(10)** | **1** | **4** |
| | **(OR)** | | | |
| **(b)** | Enumerate on adaptive applications in integrated services model. | **(10)** | **1** | **4** |
| **22. (a)** | Elaborate on the theory behind latency rate servers and delay bounds in packet switched networks. | **(10)** | **2** | **4** |
| | **(OR)** | | | |
| **(b)** | Illustrate the scheduling and average service rate for weighted fair queue. | **(10)** | **2** | **4** |
| **23. (a)** | What are the basic requirements of packet classification algorithms? | **(10)** | **3** | **2** |
| | **(OR)** | | | |
| **(b)** | Elaborate on the matching rules for packet classification. | **(10)** | **3** | **2** |
| **24. (a)** | Illustrate admission control in internet. | **(10)** | **3** | **4** |
| | **(OR)** | | | |
| **(b)** | With a neat sketch discuss about DiffServ architecture and its framework. | **(10)** | **3** | **4** |
| **25. (a)** | Illustrate and discuss about MPLS architecture in detail. | **(10)** | **5** | **4** |
| | **(OR)** | | | |
| **(b)** | Illustrate and discuss about forward equivalence class in MPLS. | **(10)** | **5** | **4** |

## PART- C (1x 10=10Marks)

(Q.No.26 is compulsory)

| | | Marks | CO | RBT LEVEL |
|---|---|---|---|---|
| **26.** | Illustrate and draw integrated services reference model and write a brief note on its reservation styles in RSVP. | **(10)** | **1** | **5** |

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