



**ME.DEGREE EXAMINATIONS: APRIL / MAY 2023**

(Regulation 2018)

Second Semester

**COMMUNICATION SYSTEMS**

P18COT0004 : High Performance Networks

**COURSE OUTCOMES**

- CO1:** Compare the switching architectures.
- CO2:** Analyze high performance networking schemes.
- CO3:** Examine High speed optical network standards.
- CO4:** Classify different wireless networking standards.
- CO5:** Analyze 3G/4G networking standards.

**Time: Three Hours**

**Maximum Marks: 100**

**Answer all the Questions:-**

**PART A (10 x 1 = 10 Marks)**

1. Arrange the following ATM cell header fields in the correct sequence. CO1 [K<sub>2</sub>]  
 1.Virtual path identifier. 2.Payload type 3.Virtual channel identifier 4.Cell loss priority  
 a) 2,3,1,4 b) 3,1,4,2  
 c) 4,1,3,2 d) 2,4,1,3
2. Arrange the following ATM network layers in the correct sequence from top to bottom. CO1 [K<sub>2</sub>]  
 1)Network layer 2) ATM layer 3) Physical layer 4) ATM adaptation layer.  
 a) 1,4,2,3 b) 4,3,2,1  
 c) 2,3,4,1 d) 4,1,2,3
3. Arrange the following Diffserv components in the correct sequence from incoming packet classification to forwarding treatment. CO2 [K<sub>3</sub>]  
 1Classification 2.Queuing 3.Dropping 4.Metering and Marking  
 a) 4-3-2-1 b) 1-4-2-3  
 c) 3-2-4-1 d) 2-3-4-1
4. Matching type item with multiple choice code CO2 [K<sub>2</sub>]

List I	List II
A. Integrated services	i.Classifies and prioritizes network traffic into different classes based on predefined rules.
B.Differentiated services	ii.Ensured desired network performance in terms of latency,Throughput and reliability.



10. The LTE standard employs \_\_\_\_\_ as its multiple-access scheme to enable efficient communication among multiple users. CO5 [K<sub>1</sub>]
- a) Code division multiple access                      b) Time division multiple access
- c) Orthogonal Frequency Division Multiple Access                      d) Space division multiple access

**PART B (10 x 2 = 20 Marks)**

11. What do you mean by ATM addressing? CO1 [K<sub>1</sub>]
12. List the main feature of ATM. CO1 [K<sub>2</sub>]
13. What is meant by soft state in RSVP? CO2 [K<sub>2</sub>]
14. State the disadvantages of overlay model. CO2 [K<sub>2</sub>]
15. Compare ring topology with mesh topology. CO3 [K<sub>2</sub>]
16. List the limitations of multiplexing in various applications. CO3 [K<sub>3</sub>]
17. What are the capabilities of Wi Max standard? CO4 [K<sub>3</sub>]
18. Define broadband wireless networks. CO4 [K<sub>2</sub>]
19. How does GSM differ from previous analog cellular systems? CO5 [K<sub>3</sub>]
20. What are the frequency band used for WCDMA networks? CO5 [K<sub>1</sub>]

**PART C (6 x 5 = 30 Marks)**

21. Write short notes on IP over ATM. CO1 [K<sub>2</sub>]
22. Summarize about Multiprotocol label switching in communication network. CO2 [K<sub>2</sub>]
23. Describe the purpose of protection architecture in communication network and discuss about its types. CO3 [K<sub>2</sub>]
24. Compare fixed broadband wireless networks with mobile broadband wireless networks. CO4 [K<sub>2</sub>]
25. What are the considerations and challenges in deploying and optimizing HSDPA in UMTS networks? CO5 [K<sub>3</sub>]
26. Elaborate about RSVP with necessary diagrams. CO2 [K<sub>2</sub>]

**Answer any FOUR Questions**

**PART D (4 x 10 = 40 Marks)**

- |     |  |     |                   |
|-----|--|-----|-------------------|
| 27. | What are the different layers of ATM? Explain the function of each layer and compare it with OSI model.  | CO1 | [K <sub>2</sub> ] |
| 28. | What is the major difference between integrated services and Differentiated services? How is resource reservation protocol related to integrated services? Explain it. | CO2 | [K <sub>3</sub> ] |
| 29. | Discuss the process of data transmission in ring network and also summarize its advantages and disadvantages.  | CO3 | [K <sub>2</sub> ] |
| 30. | What are some current research areas in high performance wireless networks and discuss each topic with necessary diagrams.   | CO4 | [K <sub>2</sub> ] |
| 31. | List the features and advantages of LTE including high data rates, low latency and support for multimedia services.  | CO5 | [K <sub>2</sub> ] |

\*\*\*\*\*