A-0894

Total Pages : 4 **Roll No. ----------**

MCA-E10/MCS-E10

Wireless Networks

(MCA)

4th Semester Examination 2024(Dec.)

Time: 2:00 hrs Max. Marks: 70

Note : This paper is of Seventy (70) marks divided into Two (02) Sections A and B. Attempt the questions contained in these sections according to the detailed instructions given therein. Candidates should limit their answers to the questions on the given answer sheet. No additional (B) answer sheet will be issued.

P.T.O.

Section-A

(Long-Answer-Type Questions)

Note : Section 'A' contains Five (05) long-answer-type questions of Nineteen (19) marks each. Learners are required to answer any Two (02) questions only.

[2x19=38]

Q.1. Define Modulation in the context of telecommunications. Explain its importance in communication systems. Discuss the various types of modulation techniques with examples of their applications.

Q.2. Explain the importance of licensing in the telecommunication industry. Discuss the different types of licenses that telecom operators may require. What are the key requirements for obtaining a telecom license?

Q.3. Discuss the factors to consider when selecting wireless components for a network. How do specifications like frequency, range, and throughput impact the overall performance of the wireless network? Compare the pros and cons of commercial solutions versus DIY solutions for wireless networks.

Q.4. Explain the IEEE 802 standards and their significance in modern wireless communication. Discuss how these standards have shaped the development of various networking technologies, including Ethernet and Wi-Fi.

Q.5. Explain regular maintenance and monitoring in wireless networks. What are the key aspects of network maintenance? How can network monitoring tools help in identifying and addressing issues such as signal interference, network congestion, or equipment failures?

Section-B
(Short-Answer-Type Questions)

Note : Section 'B' contains Eight (08) short-answer-type questions of Eight (08) marks each. Learners are required to answer any Four (04) questions only.

[4x8=32]

Q.1. Explain Huygens' Principle and how it applies to the propagation of radio waves.

P.T.O.

Q.2. What are frequencies and channels in radio communication? Discuss how frequency allocation and channel management are important for preventing interference in communication systems.

Q.3. Discuss the importance of telecommunication systems in modern society with example.

Q.4. Define spectrum management and explain its importance in the telecommunications industry.

Q.5. Explain the different types of antennas used in telecommunication. Discuss their respective advantages, disadvantages, and applications in wireless communication systems.

Q.6. Discuss the seven layers of the OSI model and their respective functions in the communication process? How does the OSI model help in understanding network communication and troubleshooting?

Q.7. Discuss the political challenges and issues that arise in the allocation of the radio spectrum. What role do governments and international bodies play in resolving conflicts and ensuring fair distribution of spectrum?

Q.8. Discuss the key factors to consider when choosing and placing access points (APs) in an indoor wireless network installation.

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