



**Mid Semester Test -I  
Spring 2023-24 (April 2024)**

**Name of Program-PhD  
(Electronics and Communication Engineering)  
Course Code- EC20P104**

**Max. Duration: 1.5 hrs**

**Max. Marks: 30**

**SECTION - A**

**1. Objective Type Questions (ALL QUESTIONS ARE COMPULSORY) (5X1 = 05)**

1. The guard interval is provided in OFDM
  - i. To eliminate the need of pulse shaping filter
  - ii. To eliminate ISI
  - iii. High symbol rate
  - iv. Both a) and b)
  
2. \_\_\_\_\_ is a multi-functional element of optical network.
  - i. Hop
  - ii. Optical node
  - iii. Wavelength
  - iv. Optical attenuation
  
3. The RFID technology consists of
  - i. Transceiver
  - ii. Antenna
  - iii. Transponder
  - iv. All of the above
  
4. ATM uses .....

  - i. asynchronous frequency division multiplexing
  - ii. asynchronous time division multiplexing
  - iii. asynchronous space division multiplexing
  - iv. asynchronous amplitude division multiplexing

  
5. What are the names of the various color image processing categories?
  - i. Pseudo-color and Multi-color processing
  - ii. Full-color and pseudo-color processing
  - iii. Pseudo-color and Multi-color processing
  - iv. Full-color and pseudo-color processing

**SECTION – B**

**2. Short Answer Type Questions (Attempt any THREE) (3X5 =15)**

1. Discuss the concept of DWDM with neat diagram.
2. Why LoRa can communicate at a far distance? What protocol does LoRa use?
3. Explain the importance and types of compression in digital image processing.
4. Describe adaptive and optimal filtering.
5. Mention the design goals of WLANs.

## SECTION – C

3. Long Answer Type Questions (Attempt any ONE)

(1X10 =10)

1. Compare different wireless generation. Further explain 4G-LTE in detail.
2. Sketch and explain the basic block diagram of image processing system.