

- N.B. : (1) Q. No. 1 is compulsory.  
(2) Attempt any four questions out of remaining six questions.  
(3) Draw neat diagrams.

1. (a) Explain the importance of the following parameters with respect to network performance. (6 Marks)
  - i) Bandwidth
  - ii) Delay
  - iii) Latency.
- (b) Write short notes on reporting paradigm on PACS. (4 Marks)
- (c) List down the various network security services. Explain Message authentication and Message integrity in detail. (10 Marks)
2. (a) Explain the various the steps involved in the implementation of a filmless hospital. (12 marks)
- (b) Explain the image quality factors like Spatial Resolution, Contrast Resolution (8 marks) and Noise.
3. (a) Draw and explain the integration of information transfer between RIS/HIS/PACS with a suitable diagram. (10 marks)
- (b) Explain how the patient information reconciliation (PIR) can be achieved. (10 Marks)
4. (a) Enumerate the various steps from a radiologists perspective to extract clinically useful information from the medical images. (10 marks)
- (b) Explain the application of image compression in the images of: (10 Marks)
  - i) Mammography
  - ii) C.R/D.R
5. (a) Explain with the help of diagram the TCP/IP model in detail. (10marks)
- (b) Explain the following terms: (10 marks)
  - (i) Bridge
  - (ii) Hub
  - (iii) Switch
  - (iv) Router
6. (a) Explain the concept of RAID storage system. (10 marks)
- (b) What are the options for selecting operating system for PACS and discuss various security services provided by the operating system. (10 Marks)
7. Write short notes: (Any Three) (20 Marks)
  - (a) DICOM
  - (b) Applications of Teleradiology
  - (c) Ethernet
  - (d) Cryptography.