

Con. 6624-11.

(REVISED COURSE)

MP-5806

(3 Hours)

[ Total Marks : 100

- N.B. : (1) Question No.1 is **compulsory**.  
(2) Attempt any **four** questions from the remaining **six** questions.  
(3) Draw **neat** diagrams.

1. (a) Explain with the help of diagrams the OSI model in detail . (10marks)  
(b) Explain in detail circuit switching. (5marks)  
(c) Explain key steps of radiology workflow in PACS with suitable diagram. (5marks)
2. (a) Discuss briefly the principle and important image characteristics of the following imaging modalities: (12 Marks)
  - (i) X-Ray radiography
  - (ii) Computed Tomography
  - (iii) MRI.

(b) With the help of neat diagrams explain Multi Computer Single Processing (MCSP) and Single Computer Multiple Processing (SCMP) PACS designs. (8 marks)
3. (a) Explain the Radiological Information System with suitable diagram. (10 marks)  
(b) Explain how the patient information reconciliation (PIR) can be achieved. (10 Marks)
4. (a) Compare film based radiology with filmless using PACS using suitable diagrams. (10 Marks)  
(b) Explain the application of image compression in the images of: (10 Marks)
  - (i) Nuclear Medicine
  - (ii) CT and MRI.
5. (a) List down the various network security services. Explain message authentication and entity authentication in detail. (10 Marks)  
(b) What is HIPPA and explain its impact on PACS security ? (10 Marks)

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6. (a) Explain the concept of RAID storage system. (10 Marks)
- (b) Explain Load Balancing Model and Clustered Failover Model of PACS with suitable diagrams. (10 Marks)
7. Write short notes: (Any Three): (20 Marks)
- (a) Legal Socio-economic Issues effecting Teleradiology
  - (b) DICOM
  - (c) Single Server and Multiple Server
  - (d) Viruses in Operating Systems.

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