B.E. Sem VII 2x7 Data compression & Encryption

[REVISED COURSE]

CON/5282-05. PR-7727

(3 Hours) [Total Marks : 100

N.B. : (1) Question No.1 is compulsory.
(2) Attempt any four questions out of remaining six questions.
(3) Assumptions made should be clearly stated.
(4) Assume any suitable data wherever required but justify the same.
(5) Figures to the right indicate full marks.
(6) Illustrate answers with sketches wherever required.
(7) Answers to questions should be grouped and written together. i.e. all answer to sub-questions of individual questions like Q. Nos. 1,2,&3 etc. should be answered one below the other.
(8) Use legible handwriting. Use a blue/black ink pen to write answers. Use of pencil should be done only to draw diagrams and graphs.

1. (a) Define and differentiate data compression and data encryption. 5
(b) Compare lossy compression and lossless compression giving examples. 5
(c) Differentiate image compression and video compression. 5
(d) Compare μ-Law and A-Law Companding. 5

2. (a) Describe the Shannon-Fano coding with an example. 8
(b) Explain the adaptive Huffman coding. Describe with flowcharts the various procedures involved. 12

3. (a) Compare the LZ77 and LZ78 approaches for adaptive dictionary. 10
(b) Describe the Zip Gzip compression techniques. 10

4. (a) Explain with example the significance of Gray codes for image compression. 10
(b) Describe the features of Video compression as compared to Image compression. Explain the MPEG industry standard for video compression. 10

5. (a) Explain the ADPCM Audio Compression Technique. 10
(b) Describe the Data Encryption standard. 10

6. (a) Describe the various Key Management Techniques. 10
(b) Explain the Hash function and algorithm used for message authentication. 10

7. Write short notes on any two : 20
(a) Run Length Encoding,
(b) Key Distribution,
(c) RSA Algorithm.
(d) Digital Signature Standard.