FACULTY OF INFORMATICS

B.E. 4/4 (IT) II-Semester (Main) Examination, April / May 2013

Subject : Information Storage and Management
(Elective - IV)

Time : 3 Hours   **Max. Marks: 75**

Note: Answer all questions of Part - A and answer any five questions from Part-B.

PART – A (25 Marks)

1. List the core elements of Data Center Infrastructure.   (2)

2. What is RAID Array? What are components of RAID Array?   (3)

3. Write in detail about LUN Masking.   (2)

4. List the benefits of Content Addressed Storage (CAS).   (3)

5. What are the basic components of FC-SCAN?   (2)

6. Differentiate "Recovery Point Objective" and "Recovery Time Objective".   (3)

7. What are they key benefits of "Storage Virtualization"?   (3)

8. List the major components of a Disk Drive.   (2)

9. What is the importance of Information Security?   (3)

10. List the peripheral devices and how are they connected to main computer elements. (2)

PART – B (5x10=50 Marks)

11. What is Information Lifecycle? Explain in detail about Information Lifecycle Management, Implementation and Benefits in detail.   (10)

12. Explain the components of Intelligent Storage System in detail.   (10)

13.(a) Differentiate SAN and IP-SAN.   (5)
    (b) What is Zoning in FC SAN? Explain about different types of Zoning.   (5)

14.(a) Explain various NAS Implementations in detail.   (5)
    (b) Discuss about different types of Storage Virtualization.   (5)

15. Write short notes on :
    (a) Replication approaches for higher availability and the challenges.   (5)
    (b) Security implementation in SAN and its architecture.   (5)

16.(a) Explain about various backup Topologies in detail.   (5)
    (b) Briefly explain the evolution of Networked Storage.   (5)

17. Write short notes on the following:
    (a) Replication approaches for higher availability and the challenges.   (5)
    (b) Key management tasks in data center.   (5)

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B.E. 4/4 (IT) II-Semester (Main) Examination, April / May 2013

Subject : Information Retrieval Systems
(Elective - IV)

Time : 3 Hours   **Max. Marks: 75**

Note: Answer all questions of Part - A and answer any five questions from Part-B.

PART – A (25 Marks)

1. What is Information Retrieval process?   (2)
2. What is the logical view of the document?   (3)
3. Differentiate Browsing Vs. Searching.   (2)
4. What is Edit distance? Explain with an example.   (3)
5. Define entropy.   (2)
6. What is the advantages of suffix arrays over suffix trees?   (3)
7. Define precision and Recall.   (3)
8. Write about Document processing operations.   (3)
9. What are the steps of searching algorithm on an Inverted Index?   (2)
10. Write about structural queries.   (2)

PART – B (5x10=50 Marks)

11. Explain about the following classical IR models.   (10)
    (a) Boolean
    (b) Vector

12. Describe the following:
    (a) Types of Browsing   (5)
    (b) Model based on Non-over lapping lists for structured text retrieval models.   (5)

13. Explain about structural queries.   (10)

14. Explain text compression using Huffman coding.   (10)

15. Explain about various local clustering Techniques.   (10)

16.(a) Describe about Mark-up languages.   (6)
   (b) Write about Multi-media file formats.   (4)

17. Discuss parallel and distributed IR.   (10)

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B.E. 4/4 (IT) II-Semester (Main) Examination, April / May 2013

Subject : Pattern Recognition
(Elective - IV)

Time : 3 Hours   **Max. Marks: 75**

Note: Answer all questions of Part - A and answer any five questions from Part-B.

PART – A   (25 Marks)

1. Sketch a block diagram to represent a Pattern Recognition system.   (3)
2. State Bayes formula and explain terms.   (2)
3. What is Segmentation ? Give an example.   (3)
4. Define Model Error and Bayes Error.   (2)
5. How are error-rate and cost related? Explain.   (3)
6. Bring out the significance of parameters estimation.   (3)
7. State the goals of HMM.   (3)
8. What are principal components of PCA?   (2)
9. When can clustering be used in pattern Recognition?   (2)
10. What is Decision Surface?   (2)

PART – B   (5x10=50 Marks)

11.(a) Describe the steps involved in design of pattern Recognition System.   (5)
   (b) Explain how Bayes Decision Theory help in classification.   (5)

12.(a) Define expected Loss and Bayes Risk. Explain the significance of Bayes Risk in decision making.   (6)
   (b) Explain Error-Rate with the help of a suitable example.   (4)

13.(a) Derive Linear Discriminant functions for normal density for the case $\Sigma_i = \sigma^2 I$.   (7)
   (b) For a minimum - distance classifier which uses linear discriminant functions, explain how a given feature vector is classified.   (3)

14.(a) Explain Recursive Bayes Incremental Learning.   (7)
   (b) Write the basic assumptions made to deal with any situation as given in general theory of Bayesian parametric estimation, in which the unknown density can be parameterized.   (3)

15.(a) For the HMM, state the following: (6)
    (i) The Evaluation problem (ii) The Decoding problem (iii) The Learning problem
   (b) Explain HMM Learning with the help of Forward-Backward algorithm.   (4)

16.(a) Write the algorithm for Agglomerative Hierarchical clustering and explain.   (5)
   (b) Explain how principal component analysis reduces the dimensionality of feature space by reducing attention to those directions along which the scatter is greatest.   (5)

17. (a) Explain Blind Source Separation in Independent Component Analysis.   (5)
   (b) Bring out the differences between PCA and ICA.   (5)

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B.E. 4/4 (IT) II-Semester (Main) Examination, April / May 2013

Subject : Advanced Microprocessors and Microcontroller
(Elective - IV)

Time : 3 Hours   Max. Marks: 75

Note: Answer all questions of Part - A and answer any five questions from Part-B.

PART – A (25 Marks)

1. List the addressing modes of 80386 microprocessor. (2)
2. What is virtual 8086 mode and how is it entered? (3)
3. Describe the working of translation look aside buffer in Pentium. (3)
4. Describe the hyper threading technology in Pentium. (2)
5. Describe about data and flash memory of PIC microcontroller. (3)
6. Describe the salient features of timer in PIC microcontroller. (2)
7. How can the programmer enter into thumbs instruction mode in ARM processor? (2)
8. Describe the contents of program status word of ARM processor. (3)
9. What is the cache policy of ARM processor? (3)
10. What are the DSP features of ARM processor? (2)

PART – B (5x10=50 Marks)

11.(a) Describe the architectural details of 8086 microprocessor. (4)
  (b) How does the 80386 switch from one mode to another mode? Describe the
      programming details with a diagram. (6)

12.(a) Describe the register organizaiton of 80386 microprocessor. (4)
  (b) How is the linear address is translated into physical address in 80386
      microprocessor? (6)

13.(a) Describe the salient features of extended instruction set of Pentium. (5)
  (b) Describe the memory subsystem details of Pentium microprocessor. (5)

14.(a) Describe the architectural details of PIC microcontroller. (6)
  (b) Describe the working of I/O ports of PIC microcontroller. (4)

15.(a) Describe the architecture revisions of ARM processor families. (5)
  (b) How is pipelining implemented in ARM processor? (5)

16.(a) How is 80387 coprocessor interfaced to 80386 microprocessor? (5)
  (b) How is the branch prediction done in Pentium microprocessor? (5)

17. (a) Describe the working of STRONG ARM processor. (4)
  (b) How are the interrupt handling schemes implemented in ARM processor? (6)

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