

FACULTY OF ENGINEERING

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

**Subject : Natural Language Processing
(Elective-III)**

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. Define Natural language processing.
2. Describe verb phrase with an example.
3. What are the features of good grammars?
4. What is a hold list?
5. What is Wh-Island constraint?
6. Define logical form, give an example.
7. Define RTN
8. Explain Noun-Noun modifiers.
9. Define semantic grammar, give an example.
10. What do you mean by Interleaved syntactic and semantic analyzer?

PART – B (5x10=50 Marks)

11. Explain information flow in a Natural language processing model.
12. Explain top-down and bottom-up parse of the sentence "The Odd man cried".
13. What is transition Network? Explain ATN with example.
14. (a) Explain shift reduce parser.
(b) What is look ahead parser?
15. Explain semantic Networks with example. What is the advantage in removing inheritance property in semantic Network?
16. (a) Explain scoping phenomena ?
(b) Discuss rule by rule semantic interpretation based on Lambda calculus.
17. Write short notes on any two of the following:
 - (a) Adjective phrases
 - (b) Logical form
 - (c) Case Grammar

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

**Subject : Advanced Databases
(Elective-III)**

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. Define the Syntax for attributes and operations for classes in UML. (3)
2. Explain the Nested Queries. (2)
3. Explain built in constructed types. (3)
4. What is parallelism? (2)
5. What is the difference between XML DTD and XML schema? (3)
6. What is Data fragmentation? (2)
7. Define call-level-interface. (3)
8. Explain Recursive Associations. (3)
9. Define the ODMG ODL. (2)
10. Define Homogeneous and Heterogeneous Databases. (2)

PART – B (5x10=50 Marks)

- 11.(a) Explain about Persistent Stored modules.
(b) With an example explain different components of E-R diagram.
- 12.(a) Explain inheritance of structured types in SQL with suitable examples.
(b) Explain table hierarchies in detail.
- 13.(a) Explain major components of ODMG standard.
(b) Explain about XML schema with example.
- 14.(a) Explain Parallel Database Architectures.
(b) Explain Network types.
15. Explain how different types of failures are handled by two-phase commit protocol.
16. Explain about Intra operation parallelism.
17. Write short notes on the following:
 - (a) ODMG OQL
 - (b) Overlapping constraints
 - (c) Parallel systems

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

**Subject : Real Time Systems
(Elective-III)**

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. Explain the reference model of real time system.
2. What is the difference between a performance constraint and a behavioral constraint in a real time system?
3. Define the term :
(a) Scheduling points (b) Proficient scheduler (c) Preemptive scheduler
4. What are the drawbacks of earliest deadline first (EDF) scheduling?
5. List out the features of real time operating system.
6. Write about the soft real time communication in LAN.
7. How are deadlocks, unbounded priority inversions and chain blocking prevented using PCP?
8. Explain the differences between a system call and a function call. What problems may arise if a system call is made indistinguishable from a function call?
9. Explain the important differences between different types of real time systems.
10. What is the difference between synchronous and asynchronous I/O? Which one is better suited for use in real-time applications?

PART – B (50 Marks)

11. Explain the characteristics of real time systems in detail.
12. Write about the classification of real time task scheduling algorithms and explain the algorithm.
13. Explain the different types of priority inversions that a task might suffer due to a lower priority task when the priority ceiling protocol is used to share critical resources among a set of real time task.
14. Explain in detail about UNIX based real time operating systems.
15. What do you understand by QoS routing? Explain the different types of QoS routing algorithms.
16. Explain the various concurrency control issues in a real time system.
17. Explain the scheduling mechanisms on internet.

FACULTY OF ENGINEERING**B.E. 4/4 (CSE) II-Semester (Main) Examination, April / May 2013****Subject : Information Retrieval Systems
(Elective-III)****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 are the objectives of the IRS? (3)
2. What is selective dissemination of information? (3)
3. Discuss about the PAT data structure. (3)
4. Briefly discuss signature file structure. (2)
5. What is concept indexing? (2)
6. Differentiate between term clustering and item clustering. (3)
7. Write short notes on search statements and binding. (3)
8. What is the importance of information visualization? (2)
9. List some Hardware text search systems. (2)
10. What is TREC? (2)

PART – B (50 Marks)

11. Give the functional overview of a typical IRS. (10)
12. What is Stemming? Discuss Porter's stemming algorithm. (10)
- 13.(a) What is clustering? Explain the steps involved in the process of clustering. (7)
(b) What is Bayesian model in statistical Indexing? (3)
14. Explain various information visualization technologies. (10)
15. What are the various software text search algorithms? Explain one of them. (10)
16. List out the various search capabilities. Explain each of them briefly. (10)
17. Write short notes on the following: (5+5)
(a) Hardware text search system.
(b) Data warehouse information retrieval system

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

**Subject : Multimedia Systems
(Elective-III)**

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 are the uses of multimedia? (2)
2. What is Quantization? (3)
3. What is meant by Font? Differentiate between bitmap fonts and vector fonts. (3)
4. Define mesh, curves and patches highlighting their importance in 3D graphics. (3)
5. Differentiate between a tone and a note. (2)
6. What is the difference between (a) Video and motion picture (b) Video and animation (3)
7. What is MMDBs? (2)
8. What is Ripping? (2)
9. What is meant by linear interpolation? (2)
10. What is meant by visual reality? (3)

PART – B (5x10=50 Marks)

- 11.(a) Distinguish between multimedia 'production' and 'play back'. How and why would Hardware and soft ware requirements vary in each case? (6)
- (b) Explain Nyquist's sampling theorem and its importance. (4)
- 12.(a) Explain how a time domain signal is converted to frequency domain by forward DCT. (5)
- (b) What is a basis function? Explain the nature of the sine and cosine basis functions in DFT. (5)
- 13.(a) Distinguish between the Huffman coding and LZW coding methods of text compression. (4)
- (b) How class the CMYK color model represent color information ? Why is it called a subtractive model. (6)
- 14.(a) Explain how 3D objects can be created from 2D shapes using lathing, extrusion and lofting methods. (5)
- (b) Compare in brief the various video recording systems. (5)
- 15.(a) Explain the steps for creating parameters curve editing and hierarchical animation. (5)
- (b) Give the complete details about MPEG standards. (5)
- 16.(a) Describe the working principle of encoding digital data on a CD surface. (6)
- (b) Differentiate between VCD and super-VCD formats. (4)
17. Write short notes on any **two** of the following: (10)
 - (a) MMDBS
 - (b) SGML and MHEG
 - (c) 3D modeling