

G 2137

(Pages : 2)

Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, APRIL 2010

Fifth Semester

Branch—Information Technology

OPERATING SYSTEM CONCEPTS (T)

(Supplementary—Prior to 2007 Admissions)

Time : Three Hours

Maximum : 100 Marks

Answer **all** the questions.

Part A

1. What do you mean by 'Multiprocessing' ?
2. Briefly explain the file management in UNIX.
3. What is RPC ?
4. Explain the term 'Critical Section'.
5. What are Threads ?
6. Explain about file security.
7. Write the advantages of segmentation.
8. What do you mean by clustering ?
9. Discuss the disadvantages of Distributed as.
10. Explain the term 'Time Sharing'.

(10 × 4 = 40 marks)

Part B

11. (a) Discuss the features of UNIX.

(12 marks)

Or

- (b) Explain the different types of operating systems briefly.

(12 marks)

12. (a) (i) Briefly explain the Process Management in UNIX.

(7 marks)

- (ii) Explain the concept of Multithreading.

(5 marks)

Or

- (b) Explain briefly the need for process scheduling and the different scheduling strategies.

(12 marks)

13. (a) Discuss the memory management in Linux and Solaris.

(12 marks)

Or

Turn over

- (b) (i) Write a technical note on paging and write its advantages. (7 marks)
- (ii) What is a virtual memory? (5 marks)
- 14. (a) (i) Explain the file management in win 2000. (6 marks)
- (ii) Briefly explain about the file system architecture. (6 marks)

Or

- (b) Discuss the different disk scheduling policies and algorithms briefly. (12 marks)
- 15. (a) (i) Compare Network and Distributed OS. (6 marks)
- (ii) Discuss with a neat diagram the client server architecture. (6 marks)

Or

- (b) (i) Write a technical note on Distributed memory management. (6 marks)
- (ii) Discuss about win 2000 cluster server. (6 marks)

[5 × 12 = 60 marks]

Part B

- 11. (a) Discuss the features of UNIX. (12 marks)
- (b) Explain the different types of operating systems briefly. (12 marks)
- 12. (a) (i) Briefly explain the Process Management in UNIX. (7 marks)
- (ii) Explain the concept of Multithreading. (5 marks)
- Or
- (b) Explain briefly the need for process scheduling and the different scheduling strategies. (12 marks)
- 13. (a) Discuss the memory management in Linux and Solaris. (12 marks)
- Or
- Turn over

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Reg. No.....21074.....

Name.....

B.TECH. DEGREE EXAMINATION, APRIL 2010

Fifth Semester

Branch : Computer Science and Engineering/Information Technology

DATABASE MANAGEMENT SYSTEM (R, T)

(Supplementary—Prior to 2007 Admissions)

Time : Three Hours

Maximum : 100 Marks

Answer all the questions.

Part A

1. Write a short note on the three schema architecture of Database system.
2. Mention the characteristics of Database system over traditional file processing system.
3. Explain the binary relational algebraic operators with an example for each.
4. Explain the concept of views in SQL.
5. Write a note on cost-based Query optimization.
6. Write an anonymous PL/SQL program to read a student record with roll number, name, m1, m2 and m3 and calculate the total, average and grade (pass/fail) and print the result onto the screen.
7. Explain how data integrity is ensured in a Database management system.
8. Describe how anomalies could be eliminated during normalization.
9. Explain the various transparencies in distributed Database.
10. Compare the primary site method with the primary copy method for concurrency control. How does the use of backup sites affect each ?

(10 × 4 = 40 marks)

Part B

11. (a) Explain with a neat sketch the architecture of the following data models :-

(i) Hierarchical

(ii) Network.

Or

- (b) Construct an ER diagram of the book club. The book club has members. The book club sells books to its members. The members place orders for books, which the book club fulfills. Each order contains one or more than one book. Authors write the books. The publisher publishes the book. An author can write more than one book and a book can have more than one author. A book is published by a publisher, but a publisher publishes many books. (Include attributes, cardinality, participation and weak entities if any).

12. (a) Describe the six clauses in the syntax of an SQL query, and show what type of constructs can be specified in each of the six clauses. Which of the six classes are required and which are optional ?

Or

- (b) (i) In what sense does relational calculus differ from relational algebra, and in what sense are they similar ?

(5 marks)

- (ii) Discuss the meanings of the existential quantifier (\exists) and the universal quantifier (\forall) with examples.

(7 marks)

13. (a) Explain the need for concurrency control and recovery in transaction processing.

Or

- (b) Classify the business rules available in Oracle and illustrate with an example for each.

14. (a) What is functional dependency ? Discuss the three Armstrong's inference rules.

Or

- (b) (i) Define 1NF, 2NF and 3NF. (5 marks)

- (ii) Define BCNF. How does it differ from 3NF ? Why is it considered a stronger form of 3NF.

(7 marks)

15. (a) What are the advantages of DDBMS over centralized DB system ? Explain.

Or

- (b) Write notes on :

- (i) Distributed Query processing using semi-join. (6 marks)

- (ii) Data Fragmentation. (6 marks)

[5 × 12 = 60 marks]

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Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, APRIL 2010

Fifth Semester

Branch—Information Technology

MICROPROCESSOR (T)

(Supplementary—Prior to 2007 Admissions)

Time : Three Hours

Maximum : 100 Marks

Answer all questions.

Part A

1. Explain the bit configuration of 8086 flag register.
2. Differentiate between Intra-segment Direct and Intra-segment Indirect addressing modes of 8086.
3. Explain SHR and SAR instructions of 8086.
4. Give a brief account on DEBUG Tool.
5. Draw the Read cycle Timing diagram for Minimum mode operation.
6. Write a short note on address decoding.
7. What are the different addressing modes supported by 80286 ?
8. Discuss the paging mechanism of 80386.
9. Explain Buffered and cascade modes of 8259.
10. Explain the bit configuration of Request Register of 8237.

(10 × 4 = 40 marks)

Part B

11. Draw and discuss the internal architecture of 8086. (12 marks)

Or

12. (a) Explain the physical address formation in different addressing modes. (9 marks)
- (b) What is meant by segmented memory ? (3 marks)
13. (a) Write an Assembly Language program to find out the number of even and odd numbers from a given series of 16-bit hexadecimal numbers. (8 marks)

- (b) List the flag manipulation and processor control instructions. (4 marks)

Or

Turn over

14. Give any six Data transfer instructions available in 8086. Illustrate them with suitable examples. (12 marks)

15. Draw and discuss the read and write cycle timing diagrams of 8086 in maximum mode. (12 marks)

Or

16. Discuss 8086 memory interface. (12 marks)

17. List the four major processing units in 80286 and briefly describe them. (12 marks)

Or

18. (a) Compare the features of 80286 and 80486 processors. (4 marks)

(b) Explain the architecture of Micro controller. (8 marks)

19. Describe the interfacing of stepper motor with Microprocessor. (12 marks)

Or

20. Draw and explain the internal architecture of 8279. (12 marks)

[5 x 12 = 60 marks]

Part B

11. Draw and discuss the internal architecture of 8086. (12 marks)

Or

12. (a) Explain the physical address formation in different addressing modes. (8 marks)

(b) What is meant by segmented memory? (3 marks)

13. (a) Write an Assembly Language program to find out the number of even and odd numbers from a given series of 16-bit hexadecimal numbers. (8 marks)

(b) List the flag manipulation and processor control instructions. (4 marks)

Or

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Reg. No.....

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B.TECH. DEGREE EXAMINATION, APRIL 2010

Fifth Semester

Branch—Computer Science and Engineering/Information Technology

LANGUAGE PROCESSORS (R, T)

(Supplementary—Prior to 2007 Admissions)

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.

Each question carries 4 marks.

1. Define a Compiler and Assembler.
2. What are the tables created during compilation ?
3. Explain the formula of a macro.
4. What is a Parser ?
5. Define content free grammar.
6. What is static storage allocation ?
7. What is meant by intermediate code ?
8. Define Linking and Loading.
9. What are Linkage editors ?
10. What are the functions of overlays ?

(10 × 4 = 40 marks)

Part B

Answer all questions.

Each question carries 12 marks.

11. (a) Explain a two Pass assembler and clearly explain what happens in the two passes.

Or

- (b) Discuss the Design of a Macro-pre-processors.

12. (a) Explain how the type checking of expressions and statements are done.

Or

- (b) Using examples explain the lexical and syntax analysis are done.

Turn over

13. (a) Explain storage allocation and access in block structured languages are done.

Or

(b) What is meant by array allocation and access ? Compilation of Expressions.

14. (a) Discuss the code optimization and global optimization.

Or

(b) What is an incremental compiler and its functions ?

15. (a) Explain relocation loaders and linking process.

Or

(b) What is meant by Dynamic loading and Loading schemes.

(5 × 12 = 60 marks)

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Reg. No. 2 copy
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B.TECH. DEGREE EXAMINATION, APRIL 2010

Fifth Semester

Branch : Computer Science and Engineering/Information Technology

DATA COMMUNICATION (RT)

(Supplementary/Prior to 2007 admissions)

Time : Three Hours

Maximum : 100 Marks

Answer all questions.

Part A

1. Write down the mathematical representation of FM. Explain each term.
2. Compare and contrast PPM with PWM.
3. What is multiplexing ? Explain its role in communication.
4. State and explain Shannon's source coding theorem.
5. Differentiate synchronous and asynchronous data transmission methods.
6. Define circuit switching. Explain its merits and demerits.
7. What is a block code ? Explain with an example.
8. Write short notes on EBCDIC codes.
9. With block diagram list the components of a computer communication system.
10. With cross-sectional structure explain the operation of a coaxial cable.

(10 × 4 = 40 marks)

Part B

11. With block diagram, explain the generation of AM wave. Sketch an AM wave for 50 % modulation for a given modulating signal of 5 V peak-to-peak.

Or

12. Describe the advantages of digital modulation schemes over analog modulation schemes. Explain the principle of Pulse Code Modulation.
13. Explain in detail the statistical time division multiplexing scheme with suitable sketches. Compare it with synchronous TDM scheme.

Or

14. With diagram, explain the method of differential phase shift keying. Compare its performance with PSK.

Turn over

15. Explain in detail serial and parallel data transmission schemes. List advantages and disadvantages of both.

Or

16. Explain the operation of packet switching scheme. List its advantages and disadvantages of over message switching.

17. With block diagram, explain the operation of a convolution encoder.

Or

18. What are barcodes ? Explain its scientific and commercial applications.

19. Explain the role of terminal handling equipment in computer communication. Describe point to point and multidrop lines.

Or

20. Briefly explain about the GSM services and architecture.

(5 × 12 = 60 marks)

B.TECH. DEGREE EXAMINATION, APRIL 2010**Fifth Semester**

Branch—Computer Science and Engineering/Information Technology

ENGINEERING MATHEMATICS – IV (R, T)

(Supplementary—Prior to 2007 Admissions)

Time : Three Hours

Maximum : 100 Marks

*Answer one question from each module.
All questions carry equal marks.***Module I**

1. (a) Obtain the system of steady state equations and hence find the value of P in usual notations where (i) $n < s$; (ii) $n \geq s$.

(10 marks)

- (b) A supermarket has two girls ringing up sales at the counters, if the service time for each customer is exponential with mean 4 minutes and if the people arrive in a Poisson fashion at the rate of 12 per hour (i) what is the probability of having to wait for service ? (ii) what is the expected percentage of idle time for each girl ? (iii) what is the expected length of waiting time ?

(10 marks)

Or

2. (a) Describe the queueing models M|M|I|S and M|M|I|N. (10 marks)
- (b) A car park contains 5 cars. The arrival of cars is Poisson at a mean ratio of 10 per hour. The length of time each car spend in car park is negative exponential distribution with mean of 2 hours. How many cars are in the car park on average ?

(10 marks)

Module II

3. (a) Using Horner's method find the root of $x^3 + 9x^2 - 18 = 0$ correct to 2 decimal places. (10 marks)

- (b) Solve by Gauss Seidel method :

$$5x + 2y + z = 12 ; x + 4y + 2z = 15 ; x + 2y + 5z = 20.$$

(10 marks)

*Or***Turn over**

4. (a) Solve by regula falsi method $e^x \sin x = 1$ correct to 2 decimals. (10 marks)
 (b) Solve by Jacobi's method :
 $5x - y + z = 10; 2x + 4y = 12; x + y + 5z = -1.$

(10 marks)

Module III

5. (a) Find y at $x = 43$ using the following data :
 $x : 40 \quad 50 \quad 60 \quad 70 \quad 80 \quad 90$
 $y : 184 \quad 204 \quad 226 \quad 250 \quad 176 \quad 304$
 (10 marks)

- (b) Find $y'(0)$ and $y''(0)$ from the following :—
 $x : 0 \quad 1 \quad 2 \quad 3 \quad 4 \quad 5$
 $y : 4 \quad 8 \quad 15 \quad 7 \quad 6 \quad 2$
 (10 marks)

Or

6. (a) Using Lagrange's method find y when $x = 10$ using the following :—
 $x : 5 \quad 6 \quad 9 \quad 11$
 $y : 12 \quad 13 \quad 14 \quad 16$
 (10 marks)

- (b) Evaluate $\int_0^{10} \frac{dx}{1+x^2}$ using Simpson's $\frac{3}{8}$ rule. (10 marks)

Module IV

7. (a) Solve graphically :
 Maximize $Z = 2x_1 + x_2$
 subject to $3x_1 + 2x_2 \leq 12; x_1 + 2x_2 \leq 7, x_1 + x_2 \leq 5.$
 (10 marks)

- (b) Using Simplex method solve :
 Minimize $Z = 3x_1 + 5x_2 + x_3$
 subject to $3x_1 + 4x_2 - 5x_3 \leq 8; 2x_1 + 6x_2 + x_3 \geq 7, x_1 - 2x_2 + x_3 \leq 5, x_1, x_2, x_3 \geq 0.$
 (10 marks)

Or

8. (a) Find the maximum of $z = 6x + 8y$
 subject to $5x + 2y \leq 20; x + 2y \leq 10, x, y \geq 0$
 by solving its dual problem. (10 marks)

- (b) Solve by Big m method
 Maximize $Z = x_1 + 2x_2 + 3x_3 - x_4$
 subject to $x_1 + 2x_2 + 3x_3 = 15, 2x_1 + x_2 + 5x_3 = 20; x_1 + 2x_2 + x_3 + x_4 = 10.$
 (10 marks)

Module V

9. (a) Explain the difference between Transportation and Assignment problems. (8 marks)
 (b) Solve the following transportation problem :—

		Destination				Supply
		P	Q	R	S	
Source	A	21	16	25	13	11
	B	17	18	14	23	13
	C	32	17	18	41	19
Demand		6	10	12	15	43

(12 marks)

Or

10. (a) Define feasible solution, basic solution, non-degenerate solution and optimal solution in a transportation problem. (8 marks)

- (b) Solve by Vogels method :

		Warehouse						Available
		A	B	C	D	E	F	
Factory	1	9	12	9	6	9	10	5
	2	7	3	7	7	5	5	6
	3	6	5	9	11	3	11	2
	4	6	8	11	2	2	10	9
Requirement		4	4	6	2	4	2	

(12 marks)