G 7122 (Pages : 2) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, APRIL 2011

Fifth Semester

Branch : Information Technology

OPERATING SYSTEM CONCEPTS (T)

(Supplementary)

Time : Three Hours Maximum : 100 Marks

Answer **all** *the questions.*

Part A

Each question carries 4 *marks.*

1. What do you mean by 'Multiprogramming'?
2. Discuss the advantages of Distributed operating systems.
3. Briefly explain the process management in UNIX.
4. Explain about File Allocation.
5. Discuss the requirements of Memory Management.
6. What are semaphores?
7. Define Paging.
8. What is Process Scheduling?
9. Draw the basic block diagram of IO organisation.
10. Compare Network and Distributed OS.

(10 × 4 = 40 marks)

Part B

Each question carries 12 *marks.*

11. (a) Explain the features of Windows 2000.

Or

(b) Discuss the subsystems of an operating system. Write about their services.

(12 marks)

12. (a) (i) Compare Threads and Processes in detail.

(ii) Explain about Multiprocessing.

(6 + 6 = 12 marks)

Or

Turn over

(b) (i) Explain the need for process synchronisation.

(ii) Write a technical note on Dead lock.

(6 + 6 = 12 marks)

13. (a) Explain the techniques involved in Memory Management.

(12 marks)

Or

(b) (i) Briefly explain the memory management in UNIX and Windows 2000.

(ii) What is a Virtual Memory?

(7 + 5 = 12 marks)

14. (a) Explain the different disk scheduling algorithms in detail.

(12 marks)

Or

(b) (i) Explain the File Management in UNIX.

(ii) Briefly explain about file organisation and access.

(6 + 6 = 12 marks)

15. (a) Explain about cluster computer architecture and Win 2000 client server.

Or

(b) Explain in detail, with a neat diagram, the client server architecture.

(12 marks)

[5 × 12 = 60 marks]

G 7140 (Pages : 2) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, APRIL 2011

Fifth Semester

Branch : Information Technology

MICROPROCESSOR (T)

(Supplementary)

Time : Three Hours Maximum : 100 Marks

Part A

Answer **all** *questions.*
Each questions carries 4 *marks.*

1. Give the Register Organisation of 8086.
2. Differentiate between Intersegment Direct and Intersegment Indirect addressing modes of 8086.
3. Explain RCL and RCR instructions of 8086.
4. Give a brief account on MASM tool.
5. Draw the Read cycle timing diagram for maximum mode operation.
6. List the bus activities during a write machine cycle.
7. Draw the flag register of 80286.
8. Explain the physical address formation in real address mode of 80386.
9. Explain Fully nested and Special Mask modes of 8259.
10. Explain the bit configuration of command register of 8237.

(10 × 4 = 40 marks)

Part B

11. Explain the Programming model of 8088.

Or

12. What do you mean by addressing modes ? What are the addressing modes supported by 8086 ? Explain each of them with suitable examples. (12 marks)

13. (a) Write an assembly language program to add hundred 8-bit numbers. (8 marks)

    (b) Give any *two* program control instructions and give *one* example each. (4 marks)

Or

14. Explain the various arithmetic and logic instructions of 8086. Illustrate with examples. (12 marks)

Turn over

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

Or

16. Draw and explain the general system organisation of 8086 in minimum mode. (12 marks)

17. Describe any *three* improvements that 80486 processor has over 80386 processor. (12 marks)

Or

18. (a) Explain the different additional addressing modes supported by 80386 over 80286. (7 marks)

(b) Compare the features of Pentium II and Pentium IV processors. (5 marks)

19. Discuss the interfacing of keyboard with microprocessor. (12 marks)

Or

20. Draw and explain the internal block diagram of 8254. (12 marks)

[5 × 12 = 60 marks]

G 7148 (Pages : 2) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, APRIL 2011

Fifth Semester

Branch : Computer Science and Engineering/Information Technology

LANGUAGE PROCESSORS (R, T)

(Supplementary)

Time : Three Hours Maximum : 100 Marks

Part A

Answer **all** *questions.*

Each question carries 4 *marks.*

1. Define a Language processor.
2. What are the tables created in an Assembler?
3. What are Macros?
4. What are various stages of compilers?
5. Explain function of lexical analysis.
6. Define storage allocation dynamically.
7. What is global optimization?
8. Explain function of an incremental compiler.
9. What is meant by loading?
10. What are overlays?

(10 × 4 = 40 marks)

Part B

Answer **all** *questions.*

Each question carries 12 *marks.*

11. (a) Is it essential to have two stages in an Assembler? If so, explain why?

Or

(b) Explain the schematics for Macro Expansion.

12. (a) What happens when the following expression a : = b * c – d is complied? Show various stages.

Or

(b) Explain the top-down and bottom-up parsing.

Turn over

13. (a) Discuss the code generators and intermediate code forms for expressions.

Or

(b) Explain the compilation of expressions and how the operator priorities are handled.

14. (a) Explain the compilation of IF THEN ELSE ; at various forms.

Or

(b) What is optimization transformation and local optimization?

15. (a) How do the linkage editors handle the runtime environment?

Or

(b) What is a relocatable loaders? Explain its design and how to set up the operation.

(5 × 12 = 60 marks)

G 7155 (Pages : 2) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, APRIL 2011

Fifth Semester

Branch : Computer Science Engineering/Information Technology

DATA COMMUNICATION (R,T)

(Supplementary)

Time : Three Hours Maximum : 100 Marks

Part A

Answer **all** *questions.*
Each questions carries 4 *marks.*

1. Differentiate PWM from PPM. Explain the difference.
2. State and explain Sampling theorem.
3. Explain the need and Principle of multiplexing.
4. State and derive Shannon's Theorem.
5. What is meant by Isochronous tranmission. Explain.
6. Differentiate Half Duplex from Full Duplex.
7. Explain in detail the basic principles of switching.
8. What are FEC adn ARQ ? Explain the difference in detail.
9. List and explain the components of Computer Communication.
10. Differentiate coaxial cable from fiber opticable.

(10 × 4 = 40 marks)

Part B

Each question carries 12 *marks.*

11. Explain the generation and principles of PCM with neat sketches.

Or

12. Explain in detail the generation of :
    (i) PAM.
    (ii) PWM.
    (iii) PPM.

(4 + 4 + 4 = 12 marks)

13. Draw a neat block schematic of TDM and explain its principle in detail.

Or

14. Differentiate TDM from FDM. Explain the difference.

Turn over

15. Discuss in detail the different types of noise with emphirical equations.

Or

16. Explain in detail the basic principles of circuit switching and message switching.

17. Explain the principle of linear block codes. Derive the algorithm.

Or

18. Give an account on EBCDIC and ASCII codes".

19. Explain the functioning of front end processor.

Or

20. Write technical notes on :

    (i) GSM system architecture. (4 marks)

    (ii) Concentrators. (4 marks)

    (iii) Twisted pair cable. (4 marks)

[5 × 12 = 60 marks]

G 7129

(Pages : 3) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, APRIL 2011

Fifth Semester

Branch : Computer Science and Engineering/Information Technology

DATABASE MANAGEMENT SYSTEMS (R,T)

(Improvement/Supplementary)

Time : Three Hours Maximum : 100 Marks

Part A

Answer all questions
Each question carries 4 marks.

1. Mention the responsibilities of various users in a Database environment.
2. What is the difference between physical data independence and logical data independence ? Which is easier to accomplish ? Why ?
3. Write a query for the following : —
   (a) Retrieve the second maximum salary from employee table.
   (b) Retrieve the employees who earn more than the average salary of the department.
   (c) Retrieve the employees who earn more than the average salary in their respective department.
   (d) Retrieve the employees who earn more than the total salary earned by the employees whose name starts with "R".
4. Define the following terms with respect to the tuple calculus : tuple variable, range relation, atom, formula.
5. Illustrate how concurrency control plays an essential role in Database system.
6. Describe the desirable properties of transaction.
7. Discuss the problem(s) which may be associated with a relation that is in 4NF but not 5NF with the help of an example. Define the term 5NF.
8. Describe the term Multivalued Dependency in the context of relational database management system by giving an example.
9. What additional functions does a DDBMS have over a centralized DBMS ? What are the main software modules of a DDBMS ?
10. What is a fragment of a relation ? What are the main types of fragments ? Why is fragmentation a useful concept in distributed database design ?

(10 × 4 = 40 marks)

Turn over

Part B

Each question carries 12 marks.

11. (a) (i) Discuss the main characteristics of Database system over traditional file processing system. (8 marks)

(ii) Distinguish the following attributes : —

(a) Simple Vs Composite.

(b) Single-valued Vs Multi-valued.

(c) Stored Vs Derived. (4 marks)

Or

(b) A database is to be designed for an organisation to monitor its activity. The organisation consists of a number of departments. Each department has employees working for it. No employee can work for more than one department. Each department uses parts in certain quantities. Each department also maintains the information about the suppliers of parts. Each department is identified by its number and has budget and a place of operation. Employees are identified by its number and have a salary and designation. Construct the ER diagram for above problem description. Assume reasonable relationship between concepts in real world.

12. (a) Describe the operations of relational algebra with example for each.

Or

(b) (i) Describe the basic data types for attributes in SQL. (5 marks)

(ii) How does SQL allow implementation of the entity integrity and referential integrity constraints ? Explain with example.

13. (a) Explain how serializability can be achieved, using time stamp ordering of transactions. (7 marks)

Or

(b) Write a PL/SQL program to create a function create-dept. to accept the department name and location as input and the department code should be generated through sequence and a record should be inserted into department table. Also return the newly generated department code.

14. (a) (i) Explain 1NF, 2NF and 3NF by taking suitable examples. (7 marks)

(ii) Define BCNF. How does it differ from 3NF ? Explain by taking suitable example. (5 marks)

Or

(b) (i) Explain different types of anomalies in connection with relations. (7 marks)

(ii) What is functional dependency ? Explain with an example. (5 marks)

15. (a) Explain Data fragmentation, Replication techniques for a DDBMS.

Or

(b) Write notes on the following : —

(i) Degree of homogenity of a DDBMS.

(ii) Fragmentation transparency.

(iii) Distribution transparency.

(5 × 12 = 60 marks)

G 7114 (Pages : 4) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, APRIL 2011

Fifth Semester

Branch—Computer Science and Engineering/Information Technology

ENGINEERING MATHEMATICS—IV (R, T)

(Supplementary)

Time : Three Hours Maximum : 100 Marks

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

Module I

1. (a) With usual notation, show that probability distribution of Queue-length is given by $\rho^n (1 - \rho)$ where $\rho = \frac{\lambda}{\mu} < 1$ and $n \geq 0$.

(10 marks)

(b) People arrive at a Theatre ticket booth in Poisson distributed arrival rate of 25 per hour. Service time is constant at 2 minutes. Calculate (a) the mean number in the waiting line ; (b) the mean waiting time ; (c) the utilisation factor.

(10 marks)

Or

2. (a) Derive Little's formula. (10 marks)

(b) A petrol station has two pumps. The service time follows exponential distribution with mean four minutes and cars arrive for service in a Poisson process at the rate of 10 in cars per hour. Find the probability that a customer has to wait for service. What proportion of time do the pumps remains idle ?

(10 marks)

Module II

3. (a) Solve by Newton's method $e^x = 4x$. (8 marks)

(b) Solve by Gauss Seidel method :

$8x - 3y + 2z = 20$; $4x + 11y - z = 33$; $6x + 3y + 12z = 35$.

(12 marks)

Or

Turn over

4. (a) Determine the root of $xe^x - 3 = 0$ correct to 3 decimal places using Regula-Falsi method.

(10 marks)

(b) Solve by Jacobi's method :

$27x + 6y - z = 85$; $6x + 15y + 2z = 72$; $x + y + 54z = 110$.

(10 marks)

Module III

5. (a) Using Newton's divided difference formula find the value of $f(8)$ given :

x :	4	5	7	10	11	13
$f(x)$:	48	100	294	900	1210	2028

(10 marks)

(b) Using Simpson's 1/3 rule evaluate $\int_0^2 \frac{dx}{1+x^3}$ to two decimal places by dividing the range into 4 equal parts.

(10 marks)

Or

6. (a) Find $\frac{dy}{dx}$ and $\frac{d^2y}{dx^2}$ at $x = 3.8$ from the following :—

x :	3	3.5	4	4.5
z :	1.4843	1.55023	1.60746	1.65801

(10 marks)

(b) Using Trapezoidal rule evaluate $\int_1^2 \frac{dx}{x}$ by dividing the interval into 5 equal parts. (10 marks)

Module IV

7. (a) Using dual simplex method solve :

Maximize $Z = 6x_1 + 4x_2 + 4x_3$

subject to

$$3x_1 + x_2 + 2x_3 \geq 2$$
$$2x_1 + x_2 - x_3 \geq 1$$
$$-x_1 + x_2 + 2x_3 \geq 1$$

(10 marks)

(b) Use Big M-method to solve :

Minimize $Z = 4x_1 + 3x_2$

subject to $2x_1 + x_2 \geq 10$

$-3x_1 + 2x_2 \leq 6$

$x_1 + x_2 \geq 6.$

(10 marks)

Or

8. (a) Using Graphical method solve :

Minimize $Z = 3x_1 + 2x_2$

subject to $5x_1 + x_2 \geq 10$

$x_1 + x_2 \geq 6$

$x_1 + 4x_2 \geq 12$

(10 marks)

(b) Using Simplex method solve :

Maximize $Z = 4x_1 + 10x_2$

subject to $2x_1 + x_2 \leq 50$

$2x_1 + 5x_2 \leq 100$

$2x_1 + 3x_2 \leq 90$

(10 marks)

Module V

9. (a) Explain an algorithm for solving a transportation problem. (10 marks)

(b) Using Vogel's approximation method find the solution of :

		Destination			
		A	B	C	*Supply*
Source	1	2	7	4	5
	2	3	3	1	8
	3	5	4	7	7
	4	1	6	2	14
Demand		7	9	18	34

(10 marks)

Or

10. (a) Describe the method of solving an unbalanced transportation problem. (10 marks)

(b) Solve the transportation problem :

		To			
		A	*B*	*C*	*Availability*
From	I	50	30	220	1
	II	90	45	170	3
	III	250	200	50	4
Requirement		4	2	2	

(10 marks)

[5 × 20 = 10 marks]