

Note:

- 1) Q:1 is compulsory.
- 2) Attempt any three questions from remaining five questions.
- 3) Figures on the right, indicate full marks.
- 4) Assume suitable data whenever required.

Q:1

- a) Explain the steps involved in decision making process. [05]
- b) Explain hill climbing algorithm and its flow chart with suitable example [05]
- c) Explain the importance of genetic algorithm in design of a typical expert system. [05]
- d) Explain the steps of WPM method with suitable example. [05]

Q:2

- a) Explain different data pre-processing techniques used in typical ABI system. [10]
- b) What is multiple regression? An analyst studying a chemical process expects the yield to be affected by the levels of two factors, X1 and X2. Observations recorded for various levels of the two factors are shown in the following table.

Observation Number	Factor 1 ( $x_{1i}$ )	Factor 2 ( $x_{2i}$ )	Yield ( $y_i$ )
1	41.9	29.1	251.3
2	43.4	29.3	251.3
3	43.9	29.5	248.3
4	44.5	29.7	267.5
5	47.3	29.9	273.0
6	47.5	30.3	276.5
7	47.9	30.5	270.3
8	50.2	30.7	274.9
9	52.8	30.8	285.0
10	53.2	30.9	290.0

Determine Yield if X1=45.8 and X2=30.1 using multiple linear regression.

Q:3

- a) Explain ant colony optimization algorithm and its flow chart with suitable example. [10]
- b) Explain the major characteristics of a complex business decision making. [10]

Q:4

- a) Consider smart phone selection problem. The criteria to be considered are cost, camera, internal memory, battery life and style. The following table gives measurements of above mentioned criteria for 4 smart phones. Generate the ranking of the alternatives using VIKOR and SAW methods. [15]

phone	camera (mega pixels)	internal memory (GB)	battery life (hours)	style	cost (in thousand Rs)
ph1	8	4	8	good	17.8
ph2	12	8	8.5	very good	35.5
ph3	4	4	9	average	12
ph4	40	16	7.5	best	45.4

b) Explain difficulties in integrating multiple business intelligence systems. [05]

Q:5

a) What is a decision tree? Consider the following dataset.

ID	AGE	INCOME	STUDENT	CREDIT	COMP BUYER
1	<=30	high	no	fair	no
2	<=30	high	no	excellent	no
3	31..40	high	no	fair	yes
4	>40	medium	no	fair	yes
5	>40	low	yes	fair	yes
6	>40	low	yes	excellent	no
7	31..40	low	yes	excellent	yes
8	<=30	medium	no	fair	no
9	<=30	low	yes	fair	yes
10	>40	medium	yes	fair	yes
11	<=30	medium	yes	excellent	yes
12	31..40	medium	no	excellent	yes
13	31..40	high	yes	fair	yes
14	>40	medium	no	excellent	no

Construct Decision tree and classify an unknown sample with (age='<=30', income='medium', student='yes', credit='fair', comp\_buyer=?)

[10]

b) Explain in detail about evolutionary algorithms for optimization.

[10]

Q:6 Attempt any two

[20]

a) Adaptive business intelligence system for investment strategy.

b) Explain tabu search using its flow chart.

c) Write a detailed note on particle swarm optimization algorithm.

M.E. (CMPN) CBGS Sem II  
Cyber Security

19/5/15

QP Code : 2661

(3 Hours)

Total Marks: 80

N.B. (1) Question No. 1 is compulsory.

(2) Attempt any three out of the remaining five questions.

1. (a) Give the formal definition of cybercrime. Give some examples of cybercrime that occur in daily life. (5M)
- (b) What do you understand by ID Theft? How can it be misused? (5M)
- (c) What are the key provisions in Indian IT Act 2000? (5M)
- (d) Explain the concept of Botnets. (5M)
2. (a) What do you mean by cyber stalker? Discuss types of stalker and their mitigation technique. (10M)
- (b) What is buffer overflow problem? How NOPS are used to cause buffer overflow problem? (10M)
3. (a) Explain in detail how cybercriminals plan attack. (10M)
- (b) Explain in detail the concept of Attack Vector to launch various attacks (10M)
4. (a) What are the various cybercrime risks associated with cloud computing (10M)
- (b) What is meant by Social Engineering. Explain in detail. (10M)
5. (a) Explain in detail the attacks on mobile/cell phones and ways to counter them. (10M)
- (b) What is meant by Phishing attack. What are the countermeasures? (10M)
6. (a) Explain the Digital Forensics life cycle. (10M)
- (b) What is SQL Injection Attack and how can it be prevented? (10M)

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BB-Con. : 9522-15.

13/05/15

M E SEM II (CMPN)  
Advanced operating system.

CBMS

QP Code : 2657

(3 Hours)

[Total Marks : 80

[N.B: Attempt any four questions]

1. (a) Discuss the issues of designing and implementation of Distributed file system 10  
(b) Write concurrency algorithm for fully replicated database system 10
2. (a) Explain scheduling policies of Real time system 10  
(b) Explain design approaches of operating system? Write their advantages and disadvantages 10
3. (a) What is process synchronization? Explain issues in process synchronization in Multiprocessor operating system 10  
(b) Discuss I/O mechanism in Symbian OS 10
4. (a) Explain different algorithms that are developed for implementing Distributed Shared Memory 10  
(b) What is difference between lock base and time stamp base concurrency control in Database Operating System? Write one algorithm for each. 10
5. (a) Explain classifications of real Time System 10  
(b) What is Tread? Write different levels of Thread and their advantages, disadvantages. 10
6. (a) Write classifications of mutual exclusion algorithm. Explain any one algorithm for each. 10  
(b) Write short note on 10
  - i. Cloud OS
  - ii. Concurrency control model of database system

M.E. sem II (Comp) CBGS  
Storage Area Network

29/5/2015

**Q.P. Code : 2672**

**(3 Hours)**

**[ Total Marks : 80**

- N.B. :** (1) Question No. 1 is compulsory.  
(2) Attempt **any three** questions from **remaining** questions.  
(3) Draw the relevant diagram neatly.

1. (a) Draw and explain the components of NAS? Explain two types of implementation of NAS. 10  
(b) Explain the benefits and drawbacks of using : FCIP and FCOE. 10
2. (a) Explain any two business applications that justifies the benefit from CAS technology? 10  
(b) An application generates 8650 IOPS with 40% being READ, Operation with disk handling capacity of 160 IOPS. Determine the disk load and number of disks required in RAID5 configuration. (Given write penalty of RAID5 is 4) 10
3. (a) Explain the role of LUN masking and zoning in storage security. 10  
(b) What is DMZ? Explain network layer firewall. 10
4. (a) Explain the protocols for Heartbeating and messaging. 10  
(b) Explain different ways to minimize the impact of backup on application. 10
5. (a) Draw and explain SNIA storage virtualization taxonomy 10  
(b) Explain the kerberos authentication and authorization system in detail. 10
6. Write a short note on any two : 20
  - (a) Killer app : Availability of Data
  - (b) Backup
  - (c) Disaster recovery.

QP Code : 2679

(3 Hours)

[ Total Marks : 80

- N. B. : (1) Question No. 1 is compulsory.  
(2) Attempt any three from remaining questions.

1. (a) Explain simple code generator algorithm along with example? Explain in details different types of descriptors used in it. 10  
(b) Construct LL(1) parser table for the following grammar and parse the string  $id + id * id$  10  
$$E \rightarrow E + T \mid T$$
$$T \rightarrow T * F \mid F$$
$$F \rightarrow (E) \mid id$$
2. (a) Write a detailed note on register allocation and assignment along with example. 10  
(b) Apply tree transformations to simplify following addressing expression  $a[i][j]$ , denoted by  $base\_a + ((i-101) * (hi2-102 + 1) + j - 102) * w$  10
3. (a) Describe the two principles methods of representing boolean expressions. Suggest a translational scheme using a numerical representation for Booleans. 10  
(b) Explain in detail global value numbering. 10
4. (a) Explain tail call optimization and tail recursion elimination. 10  
(b) Explain backpatching with example. 10
5. (a) Consider the basic block given below 10  
$$t_1 = a + b$$
$$t_2 = c * d$$
$$t_3 = t_1 - t_2$$
$$t_4 = e / f$$
$$t_5 = t_3 * e$$
$$t_6 = t_5 * f$$
$$t_7 = t_1 * t_4$$
$$t_8 = t_7 + t_6$$
  - (i) Construct DAG
  - (ii) Apply heuristic optimal ordering to it
  - (iii) Apply code generation to generate code

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(b) Explain code hoisting and scalar replacement of aggregates with example. 10

6. Write detailed note on :- 20

- (a) Procedure integration
  - (b) Dead code elimination
  - (c) Machine idioms and instruction combining
  - (d) Unreachable code elimination
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