

[illegible]

Total No. of Pages : 02

MCA (Sem-2)
DESIGN AND ANALYSIS OF ALGORITHMS

Subject Code : PGCA-1920

M.Code : 79616

Date of Examination : 11-05-2024

Time : 3 Hrs.

Max. Marks : 70

INSTRUCTIONS TO CANDIDATES :

- INSTRUCTIONS TO CANDIDATES :**
1. SECTION-A is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
 2. SECTION - B & C. have **FOUR** questions each.
 3. Attempt any **FIVE** questions from SECTION B & C carrying **TEN** marks each.
 4. Select atleast **TWO** questions from SECTION - B & C.

SECTION-A

1. Write briefly :

- What is difference between an algorithm and a program?
- State principle of optimality.
- What do you mean by control abstraction?
- What are implicit and explicit constraints?
- How is randomized quicksort algorithm different from quicksort algorithm?
- What is the time complexity of conventional matrix multiplication method and Strassen's matrix multiplication method?
- Prove that if $f_1(n) = O(g_1(n))$ and $f_2(n) = O(g_2(n))$, then $f_1(n) + f_2(n) = O(\max(g_1(n), g_2(n)))$.
- Define the following terms in context of backtracking : E-node, live node, and dead node.
- What do you mean by recurrence relations? How are they solved?
- What are NP-hard and NP-complete problems?

1 | M-79616

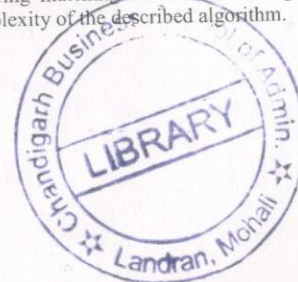
(S6)-565

SECTION-B

2. What are asymptotic notations? Describe with the help of examples various commonly used asymptotic notations.
3. What is 0/1 Knapsack, problem? Describe how 0/1 knapsack problem can be solved using branch- and-bound algorithm design strategy. Using LCBB, solve the following instance of 0/1 knapsack problem: $n=5$, $p()=(10, 15, 6, 8, 4)$, $w()=(4, 6, 3, 4, 2)$ and $m=12$.
4. What do you mean by Hamiltonian circuit? Describe how Hamiltonian circuit problem can be solved using backtracking algorithm design strategy?
5. What do you mean by control abstraction? Using the control abstraction, describe in detail greedy approach of algorithm design.

SECTION-C

6. Describe quicksort algorithm for sorting a given list of elements. Perform its average and worst-case time complexity analysis. Is quicksort algorithm stable?
7. Describe in detail breadth-first search and depth-first search. What are the applications of each method?
8. Describe the problem classes - P, NP, NP-hard and NP-complete by giving an example of each class.
9. What is string matching? Describe a string-matching algorithm. Analyze the time and space complexity of the described algorithm.



NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

2 | M-79616

(S6)-565

Total No. of Questions : 09

Total No. of Pages : 02

M.C.A. (Sem.-2)

WEB TECHNOLOGIES

Subject Code : PGCA1909

M.Code : 79615

Date of Examination : 08-05-2024

Time : 3 Hrs.

Max. Marks : 70

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION - B & C have FOUR questions each.
3. Attempt any FIVE questions from SECTION - B & C carrying TEN marks each.
4. Select atleast TWO questions from SECTION - B & C.

SECTION-A

1. Answer briefly :

- i) What is TCP/IP?
- ii) How to preserve white space in XHTML?
- iii) What are <div> and tags?
- iv) Define XML.
- v) What is Math object and Date object?
- vi) What is CSS and how they are used?
- vii) What is the meaning of COLSPAN and ROWSPAN?
- viii) How images are used as hyperlinks?
- ix) How to write javascript in HTML?
- x) How lists are used in HTML?

(S6)-360

1 | M-79615

SECTION-B

2. How table is created and how COLSPAN and ROWSPAN is used?
3. Explain the several ways for positioning elements on the web pages.
4. How IP address is used in establishing connection?
5. How to set width and border of a table in HTML?

SECTION-C

6.
 - i) How FRAMESET tag is used?
 - ii) Write a Javascript to find factorial of a number.
7. What is CSS and how it is used? Explain with-its advantages.
8. How objects are created and used in Website?
9. How database connectivity is performed in Javascript?



NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

2 | M-79615

(S6)-360

[illegible]

Total No. of Pages : 02

MCA (Sem.-2)
ADVANCED JAVA
Subject Code : PGCA/1918
M.Code : 79617
Date of Examination : 15-05-2024

Time : 3 Hrs.

Max. Marks : 70

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION - B & C have FOUR questions each.
3. Attempt any FIVE questions from SECTION B & C carrying TEN marks each.
4. Select atleast TWO questions from SECTION - B & C.

SECTION-A

1. Answer Briefly :

- What do you mean by cookies?
- What is a session?
- What is JSP?
- What are struts?
- How is session management done in JSP?
- What is the basic principle of RMI architecture?
- What is the purpose of CORBA?
- What are the major advantages of using Hibernate framework?
- State the constructor of SimpleBeanInfo Class.
- What do you mean by JavaBeans?

1 | M-79617

(S6)-757

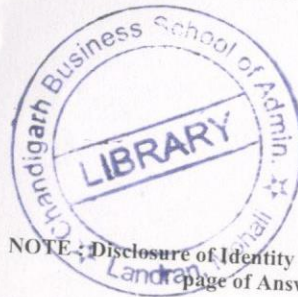
May-June-2014

SECTION-B

2. **Answer the following :**
 - a. Define the `init()` method of a Servlet. Explain in detail.
 - b. How cookies are used to track a session? Write a program in support of your answer.
3. **Answer the following :**
 - a. Why is JSP preferred over Servlets? Explain.
 - b. What is the use of `page` and `include` directive tags?
4. Explain the various components of struts framework.
5. What is MVC architecture in struts framework? Explain the basic architecture of model, view, controller in struts.

SECTION-C

6. Write a program to show remote interface using remote method invocation.
7. What are the main components of CORBA architecture? Explain in detail.
8. Explain Hibernate architecture in detail.
9. **Answer the following :**
 - a. List and explain any 2 classes available in Javabeans package.
 - b. What is the difference between Stateful and Stateless session beans?



NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

2 | M-79617

(S6)-757

Total No. of Questions : 09

Total No. of Pages : 02

MCA (Sem-2)

INFORMATION SECURITY AND CYBER LAW

Subject Code : PGCA1932

M.Code : 79619

Date of Examination : 22-05-2024

Time : 3 Hrs.

Max. Marks : 70

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION - B & C have FOUR questions each.
3. Attempt any FIVE questions from SECTION - B & C carrying TEN marks each.
4. Select atleast TWO questions from SECTION - B & C.

SECTION-A

1. Write short notes on :
 - a. What is a firewall in information security?
 - b. What is an intrusion detection system in information security?
 - c. What is penetration testing in information security?
 - d. What is cyber law?
 - e. What is a cyber crime?
 - f. What is cyber stalking?
 - g. What is identity theft?
 - h. What is hacking?
 - i. What is phishing?
 - j. What is malware?

SECTION-B

2. What are some common threats to database security, such as unauthorized access, SQL injection attacks, and data leakage, and how can they be prevented or mitigated? What are some best practices for securing databases, such as access control, encryption, and data masking, and how can they be implemented in different types of database systems?
3. What are some common threats to each aspect of the CIA triad, and how can they be prevented or mitigated? How can organizations balance the need for security with the need for accessibility and usability of their data?
4. What is Role-Based Access Control (RBAC) in information security, and how does it help organizations manage access to their resources based on job functions and responsibilities? How is RBAC different from other access control models, such as Discretionary Access Control (DAC) and Mandatory Access Control (MAC)?
5. What are Denial-Of-Service (DoS) attacks and rootkits in information security, and how do they work to disrupt or compromise the availability, integrity, and confidentiality of data and systems? What are some common types of DoS attacks, such as flooding, amplification, and distributed DoS (DDoS), and how can they be prevented or mitigated?

SECTION-C

6. What is the role of IDS in detecting potential security breaches, and what are the different types of IDS used to monitor network traffic and system activity? What are some best practices for implementing a firewall and IDS in an organization, and how can they be used together to improve overall security posture?
7. What are cryptographic algorithms, and how are they used in information security to protect data confidentiality, integrity, and authenticity? What are the different types of cryptographic algorithms, and what are their strengths and weaknesses?
8. How can security policies be effectively communicated and enforced throughout an organization, and what are some best practices for maintaining and updating security policies over time? What are some examples of cyber laws and regulations, and how do they impact information security practices in different industries and jurisdictions?
9. What are some commonly used internet security protocols and standards, such as SSL/TLS, IPsec, and DNSSEC, and how do they help to secure communication and data exchange over the internet? How do these protocols and standards work to provide confidentiality, integrity, and authenticity of information, and what are some best practices for implementing them in an organization?

NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.

1 | M-79619

(S112)-1062

2 | M-79619

(S112)-1062

May-June-2024

Total No. of Questions : 09

Total No. of Pages : 02

MCA (Sem.-2)

LINUX ADMINISTRATION

Subject Code : PGCA-1956

M.Code :79618

Date of Examination : 24-05-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION - B & C. have FOUR questions each.
3. Attempt any FIVE questions from SECTION B & C carrying EIGHT marks each.
4. Select atleast TWO questions from SECTION - B & C.

SECTION-A

1. Write short notes on :

- i. GUI (Graphical User Interface)
- ii. Kernel
- iii. Booting Process in Linux
- iv. File Permissions in Linux
- v. Steps and Linux Command to Unpacking the Package
- vi. Web Server
- vii. HTTP Protocol
- viii. SMTP Protocol
- ix. POP3ProtocolT
- x. Samba SWAT.

May-June-2004

SECTION-B

2. Differentiate between Linux and Windows operating systems. Using Suitable examples.
3. Define Linux root user role and discuss its differences from Windows admin accounts.
4. Explain Linux file permissions' role in security also describes types and manipulation.
5. Explain Linux package and user management processes. Include software installation and user/group administration.

SECTION-C

6. Describe the process of installing and configuring a DNS server, including setting up BIND database files and configuring DNS clients.
7. Discuss the various types of DNS records and their significance in DNS resolution. How do they contribute to domain management?
8. Explain the steps involved in understanding the HTTP protocol. How does it facilitate communication between clients and servers?
9. Detail the installation process of Apache HTTP Server and discuss the steps for starting up and shutting down Apache.



NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.