

Roll No.

Total No. of Pages : 03

Total No. of Questions : 07

**B.Sc. (Cyber Security) (Sem-1)**

**HUMAN VALUES, DE-ADDICTION AND TRAFFIC RULES**

Subject Code : HVPE-101-18

M.Code : 92577

Date of Examination : 16-12-2024

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 contains SIX questions carrying TEN marks each and students has to attempt any FOUR questions.

**SECTION-A**

(10 × 2 = 20)

**1. Explain briefly :**

(i) What is the difference between prosperity and wealth?

समृद्धि और धन के बीच क्या अंतर है?

खुशहाली अਤੇ अमीरी के बिच की अंतर है?

(ii) What is value education?

मूल्य शिक्षा क्या है?

मूल सिखाया की है?

(iii) What is Perseverance?

अटलता क्या है?

धीरज की है?

(iv) What is coexistence?

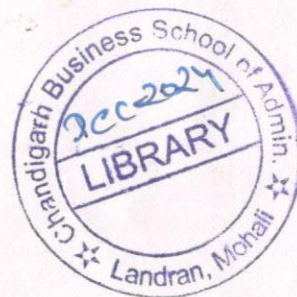
सह-अस्तित्व क्या है?

असह्यता की है?

(v) What is Animal Order?

जीव आदेश क्या है?

जीव आदेश की है?



(vi) Should we work for competition or for excellence?

क्या हमें प्रतिस्पर्धा के लिए काम करना चाहिए या उत्कृष्टता के लिए?

की साधु मुकाबले लड़ी ज़ाँ उँतमता लड़ी कँम करना चाहीदा है?

(vii) Differentiate between fame and respect.

प्रसिद्धि और सम्मान के बीच अंतर करें।

प्रसिद्धी अਤੇ ईज्जत बिचकारा फरक करे।

(viii) What is Existence?

अस्तित्व क्या है?

असह्यता की है?

(ix) What are the four orders in Nature?

प्रकृति में चार आदेश क्या हैं?

कुदरत बिच चार अदसबांदा की हन?

(x) What is Mutual Fulfilment?

पारस्परिक पूर्ति क्या है?

आपस की पूरती की है?

**SECTION-B**

(4 × 10 = 40)

2. Differentiate between units and space. How are the units self-organized in space?

इकाइयों और अंतरिक्ष के बीच अंतर करें। अंतरिक्ष में इकाइयाँ स्व-संगठित कैसे हैं?

इकाईयाँ अਤੇ पुलाज़ बिचकारा फरक करे। पुलाज़ बिच इकाईयाँ सदै-संगठित किहो हुँदीयाँ हन?

3. Describe in brief the salient values in human relationships.

मानवीय रिश्तों में संप्रमुख गुरुय मूल्यों का विवरण दें।

मानवी रिश्तियाँ बिच संप्रमुख मूल्य मूलों का वरनन करे।



4. How does the right understanding provide the basis for ethical human conduct? Give two examples.

ਸਹੀ ਸਮਝ ਨੈਤਿਕ ਮਾਨਵੀ ਆਚਰਣ ਦਾ ਆਧਾਰ ਕਿਵੇਂ ਪ੍ਰਦਾਨ ਕਰਦੀ ਹੈ? ਦੋ ਉਦਾਹਰਣਾਂ ਦਿਓ।

ਸਹੀ ਸਮਝ ਨੈਤਿਕ ਮਨੁੱਖੀ ਆਚਰਣ ਦਾ ਆਧਾਰ ਕਿਵੇਂ ਪ੍ਰਦਾਨ ਕਰਦੀ ਹੈ? ਦੋ ਉਦਾਹਰਣਾਂ ਦਿਓ।

5. What is ethical human conduct? Explain in terms of values, policies and character.

ਨੈਤਿਕ ਮਾਨਵੀ ਆਚਰਣ ਕੀ ਹੈ? ਮੁੱਲਾਂ, ਨੀਤੀਆਂ ਅਤੇ ਚਰਿਤ੍ਰ ਦੇ ਸੰਦਰਭ ਵਿੱਚ ਵਿਆਖਿਆ ਕਰੋ।

ਨੈਤਿਕ ਮਨੁੱਖੀ ਆਚਰਣ ਕੀ ਹੈ? ਮੁੱਲਾਂ, ਨੀਤੀਆਂ ਅਤੇ ਚਰਿਤ੍ਰ ਦੇ ਰੂਪ ਵਿੱਚ ਵਿਆਖਿਆ ਕਰੋ।

6. Explain self-organization and health.

ਆਤਮ ਸੰਗਠਨ ਅਤੇ ਸਿਹਤ ਦੇ ਬਾਰੇ ਵਿੱਚ ਦੱਸੋ।

ਆਤਮ ਸੰਗਠਨ ਅਤੇ ਸਿਹਤ ਦੇ ਬਾਰੇ ਵਿੱਚ ਦੱਸੋ।

7. Visualize a framework for humanistic education for children. Suggest a few ways to modify present day school education.

ਬੱਚਿਆਂ ਦੇ ਲਿਏ ਮਾਨਵਤਾਵਾਦੀ ਸਿੱਖਿਆ ਦੀ ਇੱਕ ਰੂਪਰੇਖਾ ਦੀ ਕਲਪਨਾ ਕਰੋ। ਵਰਤਮਾਨ ਸਕੂਲੀ ਸਿੱਖਿਆ ਨੂੰ ਸੰਸ਼ੋਧਿਤ ਕਰਨ ਦੇ ਲਿਏ ਕੁਝ ਤਰੀਕੇ ਸੁਝਾਓ।

ਬੱਚਿਆਂ ਲਈ ਮਾਨਵਤਾਵਾਦੀ ਸਿੱਖਿਆ ਲਈ ਇੱਕ ਢਾਂਚੇ ਦੀ ਕਲਪਨਾ ਕਰੋ। ਅਜੋਕੀ ਸਕੂਲੀ ਸਿੱਖਿਆ ਨੂੰ ਸੋਧਣ ਦੇ ਕੁਝ ਤਰੀਕੇ ਸੁਝਾਓ।



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**Bachelor of Science (Cyber Security) (Sem.-1)**

ENGLISH

Subject Code : BTHU-103-18

M.Code : 92575

Date of Examination :23-12-2024

Time : 3 Hrs.

Max. Marks : 60

## SECTION-B

2. Difference between social and business communication.
3. Importance of feedback in the process of communication.
4. What is communication and discuss the types and modes of communication?
5. Draft a report for ABC Company on the declining sales of their Air Conditioners.
6. Discuss the advantages of translation along with examples.
7. Explain the significance of non-verbal communication. Cite examples.

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. SECTION-B contains **SIX** questions carrying **TEN** marks each and students have to attempt any **FOUR** questions.

### SECTION-A

1. Write briefly :

- a) Summary Paraphrasing
- b) Business communication
- c) Closed reading
- d) Decoding
- e) Written communication
- f) Importance of documenting
- g) Visual communication
- h) Organizational barrier
- i) Limitations of oral communication
- j) Silence as communication.



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Roll No.

Total No. of Pages : 02

Total No. of Questions : 07

Bachelor of Science (Cyber Security) (Sem.-1)

**FUNDAMENTALS OF COMPUTER AND IT**

Subject Code : UGCA-1902

M.Code : 92570

Date of Examination : 20-12-2024

Time : 3 Hrs.

Max. Marks : 60

**SECTION-B**

2. Compare and contrast volatile and non-volatile memory technologies and discuss their significance in terms of data persistence and system responsiveness.
3. Explain the workings of hard disk drives and optical disk drives, detailing their mechanisms for data storage, retrieval and differences in data access speeds.
4. Explain the equation editor functionality in MS Word and how it allows users to insert mathematical equations and symbols into documents? Discuss the importance of accurate mathematical notation in academic and technical writing.
5. Compare and contrast different types of payment systems, such as credit/debit cards, mobile wallets, and cryptocurrency, highlighting their advantages and potential vulnerabilities.
6. Compare and contrast machine language, assembly language and high-level programming languages, highlighting their respective advantages, disadvantages and levels of abstraction. Provide examples of languages in each category and discuss their roles in software development.
7. Describe the process of adding animations to slide elements in PowerPoint, including entrance, exit, and motion path animations. Discuss the importance of timing and sequencing in creating engaging and effective slide animations.

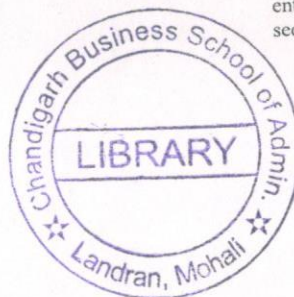
**INSTRUCTIONS TO CANDIDATES :**

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

**SECTION-A**

**1. Write briefly :**

- a. How does data mining contribute to business intelligence?
- b. How does Electronic Fund Transfer (EFT) differ from traditional payment methods?
- c. Define the term "master slide" in PowerPoint.
- d. How do you create a formula that adds two cell values?
- e. Write about concept of system calls in an operating system.
- f. What's the main advantage of SSDs over HDDs?
- g. Define binary arithmetic in computing.
- h. How can you create a table in MS Word?
- i. What are the ethical & privacy considerations arise while handling big data?
- j. How does serverless computing differ from traditional cloud computing?



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Total No. of Pages : 02

Total No. of Questions : 07

**Bachelor of Science (Cyber Security) (Sem.-2)**

## OBJECT- ORIENTED PROGRAMMING USING C++

**Subject Code : UGCA-1909**

M.Code : 91717

Date of Examination : 11-12-2024

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 contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

## SECTION-A

1. Write briefly :
  - a. Destructor
  - b. Associativity of Operators.
  - c. Abstraction in C++.
  - d. Protected Class
  - e. Multiple objects in a Class.
  - f. Unary and Binary Operators.
  - g. Function Overloading
  - h. Benefit of Late Binding.
  - i. Pure virtual function.
  - j. Array



## SECTION-B

2. Explain the advantages of using C++ over C Language by taking a suitable example.
3. Explain the role of Access Specifiers in Classes by taking suitable examples.
4. Explain the role of constructors and destructors in C++. Explain its types with suitable C++ Programs.
5. Explain the difference between Multiple, Multilevel and hierarchical inheritances by taking suitable examples.
6. Write a C++ Program for Unary Operator Overloading.
7. Explain the concept of Closing and Writing a C++ File by taking a suitable example.

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Total No. of Pages : 02

Total No. of Questions : 07

**B.Sc. (Cyber Security) (Sem-2)**

## FUNDAMENTALS OF CYBER SECURITY

Subject Code : UGCA1971

M.Code : 91716

Date of Examination : 12-12-2024

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 contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

### SECTION-A

1. Answer briefly :
  - a. Why cyber security is important?
  - b. What is cybercrime?
  - c. Define the term Malware.
  - d. What is the difference between term hacking and cracking?
  - e. What are two factor authentications?
  - f. What is encryption?
  - g. List few guidelines for choosing web browser.
  - h. What is difference between virus and worm?
  - i. List popular attacks on confidentiality of Information.
  - j. Define the term Bot.



## SECTION-B

2. What is Security Policy? Why do we need Security policy in an organization? Discuss some important cyber security policies that may help any organization.
3. Discuss CIA Trait? Discuss few active and passive threats over the Internet.
4. Discuss few popular online frauds over the Internet. How we can protect ourselves from the frauds?
5. Discuss about the different sections of IT ACT 2000.
6. Discuss about the few Cyber security initiatives taken by government of India.
7. **Write a short note on :**
  - a. Defensive programming
  - b. IOS Security

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Roll No.

Total No. of Pages : 02

Total No. of Questions : 07

B.Sc. (Cyber Security) (Sem-2)

**OPERATING SYSTEMS**

Subject Code : UGCA-1923

M.Code : 91715

Date of Examination : 09-12-2024

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 contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

**SECTION-A**

**1. Write briefly**

- a) Differentiate between long term and short term Schedulers.
- b) Differentiate between Pre-emptive and Non-preemptive scheduling.
- c) Explain the need of CPU Scheduling.
- d) Explain the term loading and linking in relation to memory management.
- e) Write at least two differences between paging and segmentation scheme of memory Management.
- f) Why page size is always power of 2?
- g) Define the term Disk Bandwidth.
- h) Explain the term device drivers in brief.
- i) Discuss various issues in Distributed Operating Systems.
- j) Define the term Distributed operating System.



**SECTION-B**

2. Explain in detail about different types of Operating Systems.
3. Explain the following terms in detail:
  - a) Threads
  - b) Process Synchronization
4. Write a detailed note on Segmentation scheme of memory management.
5. Explain the following terms in detail:
  - a) Multiprocessor Operating System
  - b) Disk Storage
6. Write a detailed note on Directory Structures and Management.
7. Write a detailed note on Real-Time Operating System.

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Total No. of Pages : 02

Total No. of Questions : 07

**B.Sc. (Cyber Security) (Sem-3)**

**ETHICAL HACKING**

Subject Code : UGCA1988

M.Code : 92753

Date of Examination : 25-11-2024

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 contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

**SECTION-A**

**1. Write briefly :**

- a. What is the difference between authorization and authentication?
- b. Define term vulnerability assessment.
- c. What is the difference between hacking and cracking?
- d. Sniffing vs Spoofing.
- e. Role of reconnaissance phase.
- f. What is passive foot printing?
- g. What is Penetration Testing?
- h. Why do hackers do port scanning?
- i. What is ARP spoofing?
- j. List few tips for securing wireless networks.



**SECTION-B**

2. Explain the concept of "attack surface" in ethical hacking. How can organizations effectively reduce their attack surface to minimize vulnerabilities?
3. Explain how publicly available information from search engines, social media, and websites can be utilized for foot printing? What precautions should ethical hackers take to avoid crossing legal and ethical boundaries?
4. How can port scanning be used to identify vulnerabilities in a network and What are the different types of port scans and how do they work?
5. What is a keystroke logger, and how does it function? Discuss hardware based and software based keystroke logger's.
6. What is HTTPS sniffing, and how does it differ from regular HTTP sniffing? Discuss the role played by SSL certificates in HTTPS Sniffing.
7. Write a short note on :
  - a. Role of WEP
  - b. NMAP tool for identification of vulnerabilities in system.

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Total No. of Questions : 07

B.Sc. (Cyber Security) (Sem.-3)

## DATA STRUCTURES

Subject Code : UGCA1915

M.Code :92752

Date of Examination : 05-12-2024

**Max. Marks : 60**

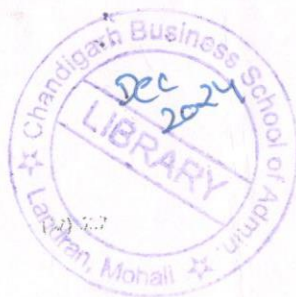
Time : 3 Hrs.

**INSTRUCTIONS TO CANDIDATES :**

- INSTRUCTIONS TO CANDIDATES :**
1. SECTION-A is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
  2. SECTION-B contains **SIX** questions carrying **TEN** marks each and students have to attempt any **FOUR** questions.

### SECTION-A

1. Answer briefly :
  - a) What do you mean by data structures?
  - b) What is difference between linear and non-linear data structures?
  - c) Define String.
  - d) What are PUSH and POP operations in a stack?
  - e) What is circular queue and De-queue?
  - f) What is difference between array and linked list?
  - g) What is height of a tree? Explain with example.
  - h) What is difference between tree and graph data structure?
  - i) "Binary search better than linear search". Do you agree?
  - j) What do you mean by Perfect Hashing?



### SECTION-B

2. a) What do you mean by complexity of an algorithm?  
b) What is an Array? Differentiate between one and two dimensional array.
3. What do you mean by Queue data structure? Explain the various operations possible on a Queue. How a priority queue is different from an ordinary queue?
4. What do you mean by a Linked List? What are its advantages? Differentiate between Single, Double and Circular linked list.
5. What is Binary Search Tree? How it is different from binary tree? What are various methods of tree traversal?
6. a) Define a graph. How a graph is stored in a computer's memory using Adjacency matrix and Adjacency list representations?  
b) Explain the concept of Hashing. Discuss the various collision resolution techniques.
7. Explain the procedure of merge sort giving suitable example.

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SECTION-B

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Total No. of Pages : 02

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B.Sc. (Cyber Security) (Sem-3)

**MATHEMATICAL FOUNDATIONS FOR CRYPTOGRAPHY**

Subject Code : UGCA1987

M.Code : 92751

Date of Examination : 02-12-2024

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 contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

**SECTION-A**

**1. Answer briefly :**

- a. What do you mean by Modular Inverses?
- b. What are role of coefficients?
- c. Explain properties of congruences in brief.
- d. Explain in brief bitwise OR operation.
- e. Define the term privacy.
- f. What do you mean by Shift left operation?
- g. What are stream ciphers?
- h. Define cryptology.
- i. What are the benefits of encryption process?
- j. What do you mean by complexity?

2. Explain substitution and transposition ciphers in detail with examples.
3. Write about pseudorandom number generators? Discuss their principles.
4. What do you mean by cyclic group? Explain in detail.
5. Explain The Extended Euclidean algorithm in detail with suitable examples.
6. What do you mean by The Chinese Remainder Theorem, explain in detail with appropriate example?
7. Explain below terms:
  - a) Finite Fields of the form  $GF(2^n)$
  - b) Block ciphers in detail with examples.



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Total No. of Pages : 02

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B.Sc. (Cyber Security) (Sem-3)

B.Sc. (Cyber Security) (Sem-5)  
MATHEMATICAL FOUNDATIONS FOR CRYPTOGRAPHY

Subject Code : UGCA1987

M.Code : 92751

Date of Examination : 02-12-2024

**Max. Marks : 60**

Time : 3 Hrs.

**INSTRUCTIONS TO CANDIDATES :**

- INSTRUCTIONS TO CANDIDATES :**
1. SECTION-A is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
  2. SECTION-B contains **SIX** questions carrying **TEN** marks each and students have to attempt any **FOUR** questions.

### SECTION-A

1. Answer briefly :
  - a. What do you mean by Modular Inverses?
  - b. What are role of coefficients?
  - c. Explain properties of congruences in brief.
  - d. Explain in brief bitwise OR operation.
  - e. Define the term privacy.
  - f. What do you mean by Shift left operation?
  - g. What are stream ciphers?
  - h. Define cryptology.
  - i. What are the benefits of encryption process?
  - j. What do you mean by complexity?



## SECTION-B

2. Explain substitution and transposition ciphers in detail with examples.
3. Write about pseudorandom number generators? Discuss their principles.
4. What do you mean by cyclic group? Explain in detail.
5. Explain The Extended Euclidean algorithm in detail with suitable examples.
6. What do you mean by The Chinese Remainder Theorem, explain in detail with appropriate example?
7. **Explain below terms:**
  - a) Finite Fields of the form  $GF(2^n)$
  - b) Block ciphers in detail with examples.

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Roll No.

Total No. of Pages : 02

Total No. of Questions : 07

**B.Sc. (CS) (Sem.-3)**

**COMPUTER NETWORKS**

Subject Code : UGCA1913

M.Code : 92750

Date of Examination : **10-12-2024**

Time : 3 Hrs.

Max. Marks : 60

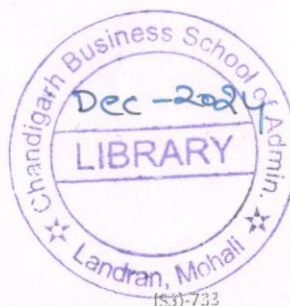
**INSTRUCTIONS TO CANDIDATES :**

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

**SECTION-A**

**1. Answer briefly :**

- a) Differentiate between Synchronous and Asynchronous communication.
- b) Write at least two advantages of Star topology.
- c) Write at least two advantages of Optical fiber transmission.
- d) Explain the term Attenuation and Distortion in reference to transmission impairments.
- e) Explain the term PPP in brief.
- f) What is the need of Error detection? Explain in brief.
- g) What do you mean by Optimality Principle? Explain in brief.
- h) Explain in brief about concept of Internetworking.
- i) Explain in brief about TCP protocol.
- j) Explain the term Cryptography in brief.



**SECTION-B**

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**2. Write a detailed note on following wired transmissions:**

- a) Telephone lines
- b) Leased lines
- c) Co-axial cables.

**3. Explain the following multiplexing techniques in detail :**

- a) Frequency Division
- b) Time Division.

**4. Write a detailed note on TCP/IP reference Model. Also compare it with OSI reference Model.**

**5. Explain in detail about IEEE 802.5 Token Ring Standard.**

**6. Write a detailed note on following congestion control algorithms :**

- a) Leaky bucket
- b) Token Bucket.

**7. Write a detailed note on the following :**

- a) Transport layer Design Issues
- b) Presentation layer Design Issues
- c) World Wide Web (WWW).

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Total No. of Pages : 02

Total No. of Questions : 07

**B.Sc. (CS) (Sem-4)**  
**DIGITAL FORENSICS**  
Subject Code : UGCA2002  
M.Code : 93438  
Date of Examination : 12-12-2024

Time : 3 Hrs.

**Max. Marks : 60**

**INSTRUCTIONS TO CANDIDATES :**

- INSTRUCTIONS TO CANDIDATES :**
1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
  2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

### SECTION-A

1. **Write briefly:**
  - a) Define Digital Forensics.
  - b) Define the terms Computer-Crime and Cybercrime.
  - c) What is the role of a Digital Computer in a crime?
  - d) What are open-source security tools for Network Analysis?
  - e) What do you mean by amendment in Information Technology Act, 2000?
  - f) What are different types of Digital Forensics?
  - g) Explain the importance of Digital Forensics.
  - h) What do you understand from identity Theft?
  - i) What is the use of Hashing in Digital Forensics?
  - j) List the various tools of Computer Forensics and Data Recovery.



## SECTION-B

2. Define the following terms as per IT Act :
  - a) Computer
  - b) Computer Network
  - c) Communication Device.
3. Explain the significance of understanding court Documents in Criminal Investigation.
4. What is digital evidence? State and explain general tasks that the investigators perform when working with digital evidence.
5. Explain in detail the various steps of Computer crime Investigation Model.
6. Discuss the legal aspects of collection and preserving computer forensic evidence.
7. Discuss the recent trends in Forensics techniques and methods for seizure of electronic evidence.

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Total No. of Questions : 07

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B.Sc. (CS) (Sem.-4)

DATABASE MANAGEMENT SYSTEM  
 10011000

Subject Code :UGCA1922

M.Code :93436

Date of Examination : 14-12-2024

Max. Marks : 60

Time : 3 Hrs.

**INSTRUCTIONS TO CANDIDATES :**

- INSTRUCTIONS TO CANDIDATES :**
1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
  2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

### SECTION-A

1. Write briefly :
  - a. Define instance and schema.
  - b. What is logical data independence?
  - c. How we can change the structure of the table using SQL?
  - d. List few aggregate functions in SQL.
  - e. What is locking protocol?
  - f. What is self-join?
  - g. State BCNF.
  - h. What is concept of durability in transactions?
  - i. What is a stored procedure?
  - j. List few responsibilities of DBA.



## SECTION-B

2. Explain the three-level architecture of DBMS. Give any real-world example to show the different levels used in this architecture.
3. Define trigger and explain its three parts? Differentiate between row level and statement level triggers.
4. Define functional dependencies. How are primary keys related to FD's? Discuss your answer by taking 3NF into consideration.
5. Discuss different types of joins used in SQL. Give examples to support your answer.
6. Explain database recovery and atomicity in transactions. Discuss the deferred and immediate log base recovery techniques.
7. **Write a short note on :**
  - a. Concurrency Control.
  - b. Distributed Databases.

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Total No. of Pages : 02

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**B.Sc. (Cyber Security) (Sem.-5)**  
**FIREWALL & INTRUSION DETECTION**  
Subject Code : UGCA2028  
M.Code : 94073  
Date of Examination : 25-11-2024

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 contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

## SECTION-A

- 1. Write Briefly :**
- Define Reliability.
  - Discuss worms.
  - Briefly explain Spoofing.
  - Define Protocols.
  - Write a short note on Finger Biometric.
  - Give the meaning of Trapdoors.
  - Explain role of Firewalls.
  - What is Digital forgery?
  - Write the significance of Key in cryptography algorithm.
  - Define PGP.



## SECTION-B

2. Discuss active and passive attacks on computer system with example.
3. What are access controls? Discuss the authentication mechanism used in access controls.
4. Give the overview of Intrusion Detection System. Write its policies and types.
5. What are cyber laws related to cyber security?
6. Explain the role of compliance standards in Information Security management.
7. Write the steps and measures to secure the information during data transfer with the help of cryptography.

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Total No. of Questions : 07

B.Sc. (Cyber Security) (Sem.-05)

**PENETRATION TESTING USING OPEN SOURCE TECHNOLOGIES**

**Subject Code : UGCA2027**

M.Code : 94072

Date of Examination : 02-12-2024

Time : 3 Hrs.

**Max. Marks : 60**

**INSTRUCTIONS TO CANDIDATES :**

- INSTRUCTIONS TO CANDIDATES :**
1. SECTION-A is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
  2. SECTION-B contains **SIX** questions carrying **TEN** marks each and students have to attempt any **FOUR** questions.

### SECTION-A

1. Write briefly :
  - a. Define hacking and explain its significance.
  - b. Discuss the phases of a typical hacker attack briefly.
  - c. What is vulnerability research, and why is it critical in cybersecurity?
  - d. Discuss two common vulnerabilities found in Windows OS.
  - e. Write about two tools used for identifying Windows OS vulnerabilities.
  - f. What are some countermeasures for addressing Windows OS vulnerabilities?
  - g. Define penetration testing and its purpose.
  - h. Discuss two information gathering tools used in penetration testing.
  - i. Write about two tools used for wireless attacks in penetration testing.
  - j. What is the purpose of password-cracking tools? Provide two examples.



## SECTION-B

2. Discuss the significance of security in the digital age and outline the key elements of security. How do these elements contribute to safeguarding information?
3. Differentiate between the types of hacker attacks. Provide real-world examples and explain how these attacks exploit vulnerabilities.
4. What is footprinting in hacking, and why is it a critical step in information gathering? Describe the methodologies used in footprinting.
5. Write a detailed note on Linux OS vulnerabilities and the tools used to identify them. What effective countermeasures can be implemented to mitigate these risks?
6. Describe the different types of penetration testing and the phases of a comprehensive penetration test.
7. Provide an overview of tools used for website penetration testing. How can they help in identifying and exploiting web vulnerabilities?

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Bachelor of Science (Cyber Security) (Sem.-5)

**LINUX OPERATING SYSTEM**

Subject Code : UGCA2021

M.Code : 94068

Date of Examination : 26-11-2024

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 contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

**SECTION-A**

1. Write briefly :

- a. What is KDE?
- b. Write use of pipes in Linux?
- c. How shell script accepts the input?
- d. What is default variable?
- e. Which command is used to create a new directory in Linux?
- f. Write a short note on Multimedia.
- g. Discuss FTP.
- h. Give concept of File system.
- i. What is role of Linux Administrator?
- j. What is super user control?



**SECTION-B**

2. Describe the basic structure of the Linux Operating System.
3. What is the use of vi editor? Write its commands.
4. How does standard input and output work in a Linux shell and how can you redirect them?
5. What are some common control statements used in shell scripting?
6. Discuss popular office suite software that is commonly used on Linux distributions.
7. What are the steps involved in installing a Linux kernel on a system?

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SECTION-B

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B.Sc. (Cyber Security) (Sem.-5)  
**ADVANCED WEB TECHNOLOGIES**

Subject Code : UGCA2019

M.Code : 94063

Date of Examination: 28-11-2024

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 contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

**SECTION-A**

1. Explain the following :

- a) jQuery
- b) Web Page
- c) Node.js
- d) String
- e) Server
- f) Session
- g) PHP
- h) Web Server
- i) Email
- j) XML



2. Write a note on arrays and strings.
3. Explain the procedure to pass the information between web pages.
4. Explain web services and its types in detail.
5. Define CMS, its types, usages and benefits.
6. Write a use of Ajax and jQuery in creating website.
7. Describe component of life cycle, component of API and JSX.

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Bachelor of Science (Cyber Security) (Sem.-6)

CLOUD SECURITY ARCHITECTURE

Subject Code : UGCA2045

M.Code : 94322

Date of Examination : 23-12-2024

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 contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

**SECTION-A**

**1. Write briefly:**

- a) How can cloud computing offer scalability to business?
- b) In what ways does the shared responsibility model affect cloud security?
- c) How does virtualization enhance resource utilization in data centers?
- d) How does live migration of virtual machines contribute to high availability and disaster recovery strategies?
- e) What role does software - defined networking play in modern virtualized infrastructures?
- f) How does a hybrid cloud differ from a public cloud in terms of deployment and management?
- g) How do enterprises address the challenges of maintaining security across diverse IT infrastructure in large - scale environments?
- h) How can enterprises effectively manage security risks in large - scale environments?
- i) What strategies can be employed to mitigate security vulnerabilities in enterprise - level applications developed with Azure?
- j) What are the key services provided by cloud computing platforms?

**SECTION-B**

2. Explain the concept of the shared responsibility model in cloud computing security. Give examples of responsibilities for both cloud providers and users.
3. Describe the architecture of a typical cloud computing system and explain how data is managed and accessed within it?
4. Discuss the importance of adopting a layered security approach in large-scale environments and provide examples of security measures and each layer.
5. How does virtualization technology enable high availability and disaster recovery solutions, particularly through features like VM replication and failover?
6. Describe the process of conducting security assessments and audits in large-scale environments, highlighting the role of penetration testing, vulnerability scanning, and risk management.
7. Explain the best practices for securely managing and sharing prototypes created with Azure within an enterprise setting, considering factors such as access control, encryption, and version control.



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SECTION-B

Roll No.

Total No. of Pages : 02

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Questions : 07  
Bachelor of Science(Cyber Security) (Sem.-6)  
**MACHINE LEARNING**

MACHINE LEARNING

Subject Code : UGCA1950

M.Code : 94316

Date of Examination : 16-12-2024

Max. Marks : 60

Time : 3 Hrs.

**INSTRUCTIONS TO CANDIDATES :**

- INSTRUCTIONS TO CANDIDATES :**
1. SECTION-A is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
  2. SECTION-B contains **SIX** questions carrying **TEN** marks each and students have to attempt any **FOUR** questions.

**SECTION-A**

1. Write briefly :

- a) Supervised learning
- b) Gradient descent
- c) Decision tree
- d) Classification
- e) SVM
- f) Grid search
- g) Clustering
- h) MDP
- i) Q-learning
- j) K-mediods.



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